USU Board of Trustees Strategy Meeting

Friday, December 5, 2025, 11:00 AM – 1:40 PM MST
NEHMA/Wanlass Conference Room and via Zoom

Meeting Details: https://usu.zoom.us/j/89410780062?pwd=N6

Agenda

1. Call to Order **11:00 AM**
Presenter: Chair Tessa White

2. Welcome and Information: NEHMA Art Education and Research **11:02 AM**
Presenter: Dr. Danielle Stewart

3. Action Agenda

3.1. Approve: Expedited Faculty Tenure **11:10 AM**
Presenter: Provost Larry Smith

3.1.1. Sasha Reed

3.1.2. Jennifer Keshwani

3.1.3. Deepak Keshwani

3.1.4. Bettina Willie

4. Trustee Committee Discussion re: goals and charters

4.1. Executive **11:20 AM**
Presenter: Chair Tessa White

4.2. Audit, Risk & Compliance (ARC) **11:30 AM**
Presenter: Trustee Ryan Dent

4.3. Research & Academic Approval (TRAAC) **11:40 AM**
Presenter: Vice Chair Gina Gagon

4.4. Student Success **11:50 AM**
Presenter: Trustee David Huntsman

4.5. Statewide Mission & Campus Oversight **12:00 PM**
Presenter: Vice Chair Gina Gagon

4.6. Athletics **12:10 PM**
Presenter: Trustee Clark Whitworth

4.7. Strategic Partnerships & Fundraising **12:20 PM**
Presenter: Trustee Jacey Skinner

4.8. Honorary Degrees, Awards & Recognition **12:30 PM**
Presenter: Trustee David Petersen

5. Working Together and Operating Principles **12:40 PM**
Presenter: President Brad Mortensen

6. Closed Session	**1:10 PM**
7. Adjourn	**1:40 PM**

S.J. & Jessie E. Quinney
College of Agriculture & Natural Resources
UtahStateUniversity

Dean's Office

To: Dr. Larry Smith, Executive Vice President and Provost
From: Dr. Grant Cardon, Interim Dean
S.J. and Jessie E. Quinney College of Agriculture and Natural Resources

Subject: Support for Expedited Tenure Appointment – Dr. Sasha Reed

It is my distinct pleasure to offer my strong endorsement of Dr. Sasha Reed's expedited tenure appointment in the Department of Wildland Resources. Following a thorough and unanimous recommendation from the departmental ad hoc committee and department head, I concur wholeheartedly that Dr. Reed's record of accomplishment exceeds Utah State University's standards for tenure by every metric.

Dr. Reed is an internationally recognized leader in the field of ecosystem ecology and biogeochemistry, with a particular emphasis on the nitrogen cycle and its connections to global change. Her scholarly productivity is extraordinary, with nearly 200 peer-reviewed publications—including multiple recent papers in *Nature*, *PNAS*, and *Science Advances*—and over 17,000 citations. Her research has been consistently supported by competitive national funding agencies, including the National Science Foundation, NASA, the Department of Defense, and several federal land management agencies.

Beyond the impressive metrics, Dr. Reed's scientific impact is transformative. She has advanced fundamental understanding of nutrient cycling and ecosystem function while engaging with applied research directly relevant to Utah's landscapes and water resources. Her leadership within NASA's Terrestrial Ecology program, contributions to the U.S. Global Change Research Program, and recognition as a Fellow of both the American Geophysical Union and the Ecological Society of America underscore her stature in the global research community.

Dr. Reed's presence at Utah State University will immediately elevate the scholarly environment of the Quinney College of Agriculture and Natural Resources. Her deep connection to the Colorado River Basin, collaborative approach, and demonstrated mentorship of early-career scientists align perfectly with the mission of our college.

I fully support Dr. Reed's expedited tenure appointment and am confident she will be an exceptional and visionary member of our faculty.

Sincerely,

Dr. Grant Cardon
Interim Dean
S.J. and Jessie E. Quinney College of Agriculture and Natural Resources
Utah State University

CURRICULUM VITÆ

SASHA CAREY REED

screed@usgs.gov (435) 210-4824

United States Geological Survey
Southwest Biological Science Center
2290 S. West Resource Blvd. Moab, UT 84532 USA
Webisite: https://www.usgs.gov/staff-profiles/sasha-c-reed

EDUCATION

Post-doctoral experience (May 2008-November 2010)*

University of Montana and Stanford University, College of Forestry and Department of Biology, Missoula, MT and Stanford, CA. Advised by Cory C. Cleveland and Peter M. Vitousek. **My post-doc overlapped with first 2 years of my independent USGS position.*

Ph.D. in Ecology (August 2002-May 2008)

University of Colorado at Boulder, Department of Ecology & Evolutionary Biology and Institute of Arctic & Alpine Research (INSTAAR), Boulder, CO. Graduated with the *Graduate Student Research and Creative Works Award*. Advised by Alan R. Townsend and Steven K. Schmidt.

B.A. in Organic Chemistry (August 1993-May 1997)

Colgate University, Department of Chemistry, Hamilton, NY. Graduated *magna cum laude* and with the *Lawrence Award for Chemistry*. Advised by David A. Modarelli.

RESEARCH INTERESTS

I am a ecosystem ecologist focused on understanding how Earth's ecosystems work and how they respond to change. I blend a range of basic and applied scientific approaches to improve our understanding of the fundamental controls over ecosystems, to determine how and why these systems respond to perturbations such as climate and land use change, and to explore creative solutions for addressing globally relevant problems. My overarching goals are to provide actionable information that can support our nation and our planet in addressing challenges and maximizing opportunities, and to help support the next generation of scientists and resource managers through education and outreach.

HONORS & AWARDS

Joanne Simpson Medal, *American Geophysical Union (AGU)*. The medal recognizes exceptional middle career scientists who have made transformative scientific advances in the Earth and space sciences, have demonstrated strong leadership, and provided outstanding service to science and society. 2024.

Award, *Department of the Interior Unit Award for Excellence of Service*. Presented for my role in the success of the 5th National Climate Assessment. 2024.

Fellow, *American Geophysical Union (AGU)*. Elected in recognition for exceptional contributions to Earth and space science through a breakthrough, discovery,

HONORS & AWARDS (cont.)

or innovation in their field. 2024.

Awardee, *The Nature Conservancy (TNC) Conservation Partner Award*. Awarded for my contributions to biodiversity conservation and the preservation of special places. 2023.

Awardee, *First place art award,* selected by artists of Chihauhua City for the Biocrust Art Competition, which was organized as a part of Biocust5: an international conference focused on biocrust. The selected work was an installation created in collaboration with multi-media artist Jorge Rojas and The Nature Conservancy conservationist Kristen Redd. 2024.

Fellow, *Ecological Society of America (ESA) Early Career Fellow*. Selected by the ESA for making and showing promise of continuing to make outstanding contributions to the wide range of fields served by the ESA. 2016.

Awardee, *Presidential Early Career Award for Scientists and Engineers (PECASE)*. Awarded by President Obama. This is the highest honor bestowed by the U.S. government on scientists and engineers in the early stages of their research careers in recognition of exceptional scientific innovation and service to society. 2011.

Recipient, *Star Award*. Received for outstanding work with the Department of the Interior. October 2010.

Awardee, *Graduate Student Research and Creative Works Award*. University of Colorado at Boulder. One of two graduating Ph.D. students from across the entire University whose dissertation was selected by faculty members from all disciplines as representing outstanding research and creative work. May 2008.

Fellow, *USGS Student Career Experience Program (SCEP)*. Supported in creating a research project to model how soil gas fluxes in dryland ecosystems will vary under altered climate regimes. June-August of 2006 & 2007.

Awardee, *Student Policy Award, Ecological Society of America (ESA)*. Graduate student chosen and funded by the ESA to meet with members of Congress regarding national scientific funding. September 2006.

Selected Participant, *AAAS Program for Excellence in Science*. Nominated by the University of Colorado Vice Chancellor of Research to participate in a program rewarding praiseworthy graduate students working in the life sciences. August 2006.

Fellow, *National Science Foundation Graduate Research Fellowship*. Awarded April 2003; deferred until September 2005-May 2008.

Fellow, *National Science Foundation Integrative Graduate & Education Research Traineeship (IGERT) Fellowship*, Carbon Climate and Society Initiative (CCSI). August 2003-August 2005.

Recipient, *Star Award,* received for outstanding work with the Department of the Interior. May 2000.

Fellow, *Wolk Foundation*, fellowship for promising student research. Summer 1996.

Recipient, *Lawrence Award*, Colgate University, awarded to one student annually for superior performance in organic chemistry. April 1996.

HONORS & AWARDS (cont.)

Selected Board Member, *Phi Eta Sigma Aid Committee*, elected for superior research to a board that selected student grant applications for funding. September 1995-May 1997.

Selected Member, *Phi Eta Sigma University Honor Society*, chosen for academic excellence. April 1994-May 1997.

Nominee, *Barry Goldwater Award*, nationally nominated by Colgate University for academic distinction. November 1994.

PUBLICATIONS h-index 63; i-10 index 143; citations >16,000

(authorship by those I mentored; ¥=post-docs; *=technicians, ¢= students)

194. Monson, RK Shuai Li, EA Ainsworth, GB Bonan, Y Fan, JG Hodge, JE Johnson, AK Knapp, ADB Leakey, D Lombardozzi, CP Osborne, SC Reed, RF Sage, MD Smith, NG Smith, CJ Still, DA Way (In Press) C4 photosynthesis, trait spectra and the fast-efficient phenotype. *New Phytologist*.

193. Throop, H, (In Press) C4 photosynthesis, trait spectra and the fast-efficient phenotype. *New Phytologist*.

192. Gross, N., Maestre, F.T., Liancourt, P., Berdugo, M., Martin, R., Gozalo, B., Ochoa, V., Delgado-Baquerizo, M., Maire, V., Saiz, H. and Soliveres, S., 2024. Unforeseen plant phenotypic diversity in a dry and grazed world. *Nature*, *632*(8026), pp.808-814.

191. Díaz-Martínez, P., Maestre, F.T., Moreno-Jiménez, E., Delgado-Baquerizo, M., Eldridge, D.J., Saiz, H., Gross, N., Le Bagousse-Pinguet, Y., Gozalo, B., Ochoa, V. and Guirado, E., 2024. Vulnerability of mineral-associated soil organic carbon to climate across global drylands. *Nature Climate Change*, 14(9), pp.976-982.

190. Prevéy, J.S., Pearse, I.S., Blumenthal, D.M., *Howell, A.J., Kray, J.A., Reed, S.C., Stephenson, M.B. and Jarnevich, C.S., 2024. Phenology forecasting models for detection and management of invasive annual grasses. Ecosphere, *15*(10), p.e70023.

189. Biancari, L., Aguiar, M.R., Eldridge, D.J., Oñatibia, G.R., Le Bagousse-Pinguet, Y., Saiz, H., Gross, N., Austin, A.T., Ochoa, V., Gozalo, B. and Asensio, S., 2024. Drivers of woody dominance across global drylands. Science Advances, 10(41), p.eadn6007.

188. Jech, S.D., Dohrenwend, K., Day, N., Barger, N.N., Antoninka, A., Bowker, M.A., Reed, S. and Tucker, C., 2025. Developing biocrust field cultivation techniques for soil restoration: An assessment of bacterial communities. Applied Soil Ecology, 206, p.105861.

187. Thornton et al. 5th National Climate Assessment, Land Cover and Land Use Change Chapter. 2024. *US Global Change Research Program: Washington, DC, USA*.

186. Zhang, Fangyue; Biederman, Joel A. ... Smith, William K. Direct and Legacy Effects of Varying Cool-Season Precipitation Totals on Ecosystem Carbon Flux in a Semi-Arid Mixed Grassland. Published: Feb 2025 in Plant, Cell & Environment DOI: 10.1111/PCE.15175

185. Shi, Baoku; Delgado-Baquerizo, Manuel ... Sun, Wei Aridity drives the response of soil total and particulate organic carbon to drought in temperate grasslands and

shrublands Published: Oct 2024 in Science Advances DOI: 10.1126/SCIADV.ADQ2654

184. ¥Feldman, Andrew F.; Reed, Sasha ... Zhang, Wen Adaptation and Response in Drylands (ARID): Community Insights for Scoping a NASA Terrestrial Ecology Field Campaign in Drylands. Published: Sep 2024 in Earth's Future DOI: 10.1029/2024EF004811
183. ¥Yan, Dong; Reed, Sasha C. ... Smith, William K. Hyperspectral Imaging Predicts Differences in Carbon and Nitrogen Status Among Representative Biocrust Functional Groups of the Colorado Plateau. Published: Aug 2024 in *Journal of Geophysical Research: Biogeosciences*. DOI: 10.1029/2024JG008089
182. ¢Terry, Tyson J.; Sala, Osvaldo E. ... Adler, Peter B. Disturbance amplifies sensitivity of dryland productivity to precipitation variability. Published: Jul 2024 in *Science Advances* DOI: 10.1126/SCIADV.ADM9732
181. ¥Eckhoff, Kathryn D.; Reed, Sasha C. ... Duniway, Michael C. Dryland soil recovery after disturbance across soil and climate gradients of the Colorado Plateau. Published: Jul 2024 in Science of the Total Environment. DOI: 10.1016/J.SCITOTENV.2024.172976
179. Eldridge, David J.; Ding, Jingyi ... Maestre, Fernando T.Hotspots of biogeochemical activity linked to aridity and plant traits across global drylands. Published: May 2024 in *Nature Plants*. DOI: 10.1038/S41477-024-01670-7
178. Cusack, Daniela F.; Reed, Sasha ... Wong, Michelle Y. Tropical forests and global change: biogeochemical responses and opportunities for cross-site comparisons, an organized INSPIRE session at the 108th Annual Meeting, Ecological Society of America, Portland, Oregon, USA, August 2023. Published: Mar 2024 in *New Phytologist* DOI: 10.1111/NPH.19511
177. ¥Burcham, Zachary M.; Belk, Aeriel D. ... Metcalf, Jessica L.A conserved interdomain microbial network underpins cadaver decomposition despite environmental variables. Published: Mar 2024 in *Nature Microbiology*. DOI: 10.1038/S41564-023-01580-Y
176. Phillips, Michala L.; Lauria, Cara ... Reed, Sasha C. Trajectories and tipping points of pinon-juniper woodlands after fire and thinning. Published: Feb 2024 in Global Change Biology. DOI: 10.1111/GCB.17149
175. Smith, Melinda D.; Wilkins, Kate D. ... Zuo, Xiaoa. Extreme drought impacts have been underestimated in grasslands and shrublands globally. Published: Jan 2024 in *Proceedings of the National Academy of Sciences*. DOI: 10.1073/PNAS.2309881120
174. Biederman, Joel A.; Zhang, Fangyue ... Smith, William K. Reply to Comment on "Five Decades of Observed Daily Precipitation Reveal Longer and More Variable Drought Events Across Much of the Western United States. Published: Jan 2024 in *Geophysical Research Letters*. DOI: 10.1029/2023GL105124
173. ¢Tunison, Rob; Wood, Tana E. ... Cavaleri, Molly A. Respiratory Acclimation of Tropical Forest Roots in Response to In Situ Experimental Warming and Hurricane Disturbance. Published: Jan 2024 in *Ecosystems*. DOI: 10.1007/S10021-023-00880-Y

PUBLICATIONS (cont.) (¥=post-docs; *=technicians, ¢= students I mentored)

172. ¥Young, Kristina E.; Reed, Sasha C. ... Bowker, Matthew A. Inoculated biocrust cover and functions diverged over a gradient of soil textures and water availability. Published: 2024 in Restoration Ecology. DOI: 10.1111/REC.14125
171. ¥Finger-Higgens, Rebecca; Hoover, David L. ... Duniway, Michael C.Seasonal drought treatments impact plant and microbial uptake of nitrogen in a mixed shrub grassland on the Colorado Plateau. Published: 2024 in *Ecology*. DOI: 10.1002/ECY.4393
170. ¥Lupardus, Randi; Sengsirirak, Aarin ... Duniway, Michael C.. Time, climate, and soil settings set the course for reclamation outcomes following dryland energy development. Published: Nov 2023 in Land Degradation & Development. DOI: 10.1002/LDR.4856
169. ¥Javadian, Mostafa; Scott, Russell L. ... Smith, William K. Thermography captures the differential sensitivity of dryland functional types to changes in rainfall event timing and magnitude. Published: Oct 2023 in *New Phytologist*. DOI: 10.1111/NPH.19127
168. ¢Jech, Sierra D.; Day, Natalie ... Tucker, Colin. Cultivating Resilience in Dryland Soils: An Assisted Migration Approach to Biological Soil Crust Restoration. Published: Oct 2023 in *Microorganisms*. DOI: 10.3390/MICROORGANISMS11102570
165. Deemer, Bridget R.; Reibold, Robin H. ... Reed, Sasha C. Storms and pH of dam releases affect downstream phosphorus cycling in an arid regulated river. Published: Jul 2023 in *Biogeochemistry*. DOI: 10.1007/S10533-023-01064-5
164. Lu, Xiao-Tao; Reed, Sasha C. ... Yang, Guo-Jiao. Assessing community assembly controls over community-scale nutrient resorption responses to nitrogen deposition. Published: Jul 2023 in *Oecologia*. DOI: 10.1007/S00442-023-05415-9
163. ¥Finger-Higgens, Rebecca; Bishop, Tara B. B. ... Duniway, Michael C.Droughting a megadrought: Ecological consequences of a decade of experimental drought atop aridification on the Colorado Plateau. Published: Jun 2023 in *Global Change Biology*. DOI: 10.1111/GCB.16681
162. ¢Hosna, Rachel K.; Reed, Sasha C.; Faist, Akasha M. Long-term relationships between seed bank communities and wildfire across four North American desert sites Published: Mar 2023 in *Ecosphere* DOI: 10.1002/ECS2.4398
161. ¥Dynarski, Katherine A.; Soper, Fiona M. ... Cleveland, Cory C.Patterns and controls of foliar nutrient stoichiometry and flexibility across United States forests. Published: Feb 2023 in *Ecology*. DOI: 10.1002/ECY.3909
160. ¥Liang, Guopeng; Reed, Sasha C. ... Waring, Bonnie G. Unraveling mechanisms underlying effects of wetting-drying cycles on soil respiration in a dryland Published: 2023 in *Biogeochemistry* DOI: 10.1007/S10533-023-01085-0
159. ¥Farrell, Hannah L.; Munson, Seth M. ... McCormick, Molly L. Soil surface treatments and precipitation timing determine seedling development across southwestern US restoration sites. Published: 2023 in *Ecological Applications*. DOI: 10.1002/EAP.2834
158. Cleveland, Cory C.; Reis, Carla R. G. ... Wurzburger, Nina Exploring the Role of Cryptic Nitrogen Fixers in Terrestrial Ecosystems: A Frontier in Nitrogen Cycling Research. Published: Dec 2022 in *Ecosystems* DOI: 10.1007/S10021-022-00804-2

PUBLICATIONS (cont.) (¥=post-docs; *=technicians, ¢= students I mentored)

157. Maestre, Fernando T.; Le Bagousse-Pinguet, Yoann ... Gross, Nicolas Grazing and ecosystem service delivery in global drylands. Published: Nov 2022 in *Science*. DOI: 10.1126/SCIENCE.ABQ4062
156. Weber, Bettina; Belnap, Jayne ... Bowker, Matthew A. What is a biocrust? A refined, contemporary definition for a broadening research community. Published: Oct 2022 in *Biological Reviews* DOI: 10.1111/BRV.12862
155. ¥Osborne, Brooke B.; Bestelmeyer, Brandon T. ... Reed, Sasha C.The consequences of climate change for dryland biogeochemistry. Published: Oct 2022 in *New Phytologist* DOI: 10.1111/NPH.18312
154. ¢Alonso-Rodriguez, Aura M.; Wood, Tana E. ... Bachelot, Benedicte Understory plant communities show resistance to drought, hurricanes, and experimental warming in a wet tropical forest Published: Jul 2022 in *Frontiers in Forests and Global Change* DOI: 10.3389/FFGC.2022.733967
153. ¥Osborne, Brooke B.; *Roybal, Carla M. ... **Reed, Sasha C**. Biogeochemical and ecosystem properties in three adjacent semi-arid grasslands are resistant to nitrogen deposition but sensitive to edaphic variability Authors (8): Published: Jul 2022 in *Journal of Ecology*. DOI: 10.1111/1365-2745.13896
152. ¢Choi, RT, **SC Reed** CL Tucker, (2022) Multiple resource limitation of dryland soil microbial carbon cycling on the Colorado Plateau. *Ecology*
151. ¥Phillips, ML, ¥BE McNellis, *A Howell, *CM Lauria, J Belnap, **SC Reed** (2022) Biocrusts mediate a new mechanism for land degradation under a changing climate. Nature Climate Change . https://doi.org/10.1038/s41558-021-01249-6
150. ¥Wang, X, JA Biederman, JF Knowles, RL Scott, AJ Turner, MP Dannenberg, P Köhler, C Frankenberg, ME Litvak, GN Flerchinger, BE Law, H Kwon, **SC Reed**, WJ Parton, GA Barron-Gafford, WK Smith (2022) Satellite solar-induced chlorophyll fluorescence and near-infrared reflectance capture complementary aspects of dryland vegetation productivity dynamics. *Remote Sensing of Environment 270*: 112858. https://doi.org/10.1016/j.rse.2021.112858
149. Ferrenberg, S, CL Tucker, *R Reibold, *A Howell, **SC Reed** (2022) Quantifying the influence of different biocrust community states and their responses to warming temperatures on soil biogeochemistry in field and mesocosm studies. *Geoderma*, *409*, p.115633. https://doi.org/10.1016/j.geoderma.2021.115633
148. ¢Young, KE, S Ferrenberg, *R Reibold, **SC Reed**, T Swenson, T Northen, A Darrouzet-Nardi (2022) Vertical movement of soluble carbon and nutrients from biocrusts to subsurface mineral soils. *Geoderma 405*: 115495. https://doi.org/10.1016/j.geoderma.2021.115495
147. ¢Collier, EA, PL Perroy, **SC Reed**, JP Price (2021) Mapping biological soil crusts in a Hawai'ian dryland. *International Journal of Remote Sensing*. In Press. https://doi.org/10.1080/01431161.2021.2003904
146. Waring, BG, KR Smith, *EE Grote, *A Howell, *R Reibold, CL Tucker, **SC Reed** (2021) Climatic controls on soil carbon accumulation and loss in a dryland ecosystem. *Journal*

of Geophysical Research: Biogeosciences 126: 2021JG006492. https://doi.org/10.1029/2021JG006492

145.¢Yaffar, D, TE Wood, **SC Reed**, BL Branoff, MA Cavaleri, RJ Norby (2021) Experimental warming and its legacy effects on root dynamics following two hurricane disturbances in a wet tropical forest. *Global Change Biology* 27: 6423-6435. https://doi.org/10.1111/gcb.15870

144. Waring, BG, BN Sulman, **SC Reed**, AP Smith, C Averill, CA Creamer, DF Cusack, SJ Hall, JD Jastrow, A Jilling, KM Kemner (2021) Response to 'Connectivity and pore accessibility in models of soil carbon cycling'. *Global Change Biology*: 27:15-16. https://doi.org/10.1111/gcb.15850

143. McCann, E, **SC Reed**, O Saud, RH Reibold, A Howell, AM Faist (2021) Plant growth and biocrust-fire interactions across five North American deserts. *Geoderma* 401: 115325. https://doi.org/10.1016/j.geoderma.2021.115325

142. Gao, W, **SC Reed,** SM Munson, Y Rui, W Fan, Z Zheng, L Li, R Che, K Xue, J Du, X Cui (2021) Responses of soil extracellular enzyme activities and bacterial community composition to seasonal stages of drought in a semiarid grassland. *Geoderma*, *401*: 115327. https://doi.org/10.1016/j.geoderma.2021.115327

141. ¥Carter, KR, TE Wood, **SC Reed**, KM Butts, MA Cavaleri (2021) Experimental warming across a tropical forest canopy height gradient reveals minimal photosynthetic and respiratory acclimation. *Plant, Cell & Environment* *44*: 2879-2897. https://doi.org/10.1111/pce.14134

140. Chen, H, **SC Reed**, X Lü, K Xiao, K Wang, D Li (2021) Coexistence of multiple leaf nutrient resorption strategies in a single ecosystem. *Science of The Total Environment* 772:144951. https://doi.org/10.1016/j.scitotenv.2021.144951

139.Soper, FM, BN Taylor, ¥JB Winbourne, ¥MY Wong, KA Dynarski, ¥CRG Reis, MB Peoples, CC Cleveland, **SC Reed**, DNL Menge, SS Perakis (2021) A roadmap for sampling and scaling biological nitrogen fixation. *Methods in Ecology and Evolution* https://doi.org/10.1111/2041-210X.13586

138. ¢Miller, BD, ¥KR Carter, **SC Reed**, TE Wood, MA Cavaleri (2021) Only sun-lit leaves of the uppermost canopy exceed both air temperature and photosynthetic thermal optima in a wet tropical forest. *Agricultural and Forest Meteorology* 301-302: 108347. https://doi.org/10.1016/j.agrformet.2021.108347

137. ¢Young, K, **SC Reed**, S Ferrenberg, A Faist, ¥D Winkler, ¢C Court, A Darrouzet-Nardi (In Press) Incorporating biogeochemistry into dryland restoration. BioScience. https://doi.org/10.1093/biosci/biab043

136. Lu, X-T, S-L Hou, **SC Reed**, J-X Yin, Y-Y Hu, H-W Wei, Z-W Zhang, G-J Yang, Z-Y Liu, X-G Han (2021) Nitrogen enrichment reduces nitrogen and phosphorus resorption through changes to species resorption and plant community composition. *Ecosystems* 24: 602-612. https://doi.org/10.1007/s10021-020-00537-0

PUBLICATIONS (cont.) (¥=post-docs; *=technicians, ¢= students I mentored)

135. Steven, B, ¥M Phillips, J Belnap, LV Gallegos-Graves, CR Kuske, **SC Reed** (2021) Resistance, Resilience, and Recovery of Dryland Soil Bacterial Communities Across Multiple Disturbances. *Frontiers in Microbiology* *12*: 789.
134. ¥Zhang, F, JA Biederman, MP Dannenberg, D Yang, **SC Reed**, WK Smith (2021) Five decades of observed daily precipitation reveal longer and more variable drought events across much of the western United States. *Geophysical Research Letters* 48: e2020GL092293. https://doi.org/10.1029/2020GL092293
133. Lü, X-T, S-L Hou, **SC Reed**, J-X Yin, Y-Y Hu, H-W Wei, Z-W Zhang, G-J Yang, Z-Y Liu, X-G Han (2020) Nitrogen enrichment reduces nitrogen and phosphorus resorption through changes to species resorption and plant community composition. *Ecosystems* https://doi.org/10.1007/s10021-020-00537-0
132. Ely, KS, A Rogers, DA Agarwal, EA Ainsworth, L, Albert, A Ali, J Anderson, MJ Aspinwall, C Bellasio, C Bernacchi, S Bonnage, TN Buckley, J bunce, AC Burnett, FA Busch, A Cavanagh, LA Cernusak, R Crystal-Ornelas, J Damerow, KJ Davidson, MG De Kauwe, MC Dietze, TF Domingues, ME Dusenge, DS Ellsworth, JR Evans, PPG Gauthier, BO Gimenez, EP Gordon, CM Gough, AH Halbritter, DT Hanson, M Heskel, JA Hogan, JR Hupp, K Jardine, J Kattge, T Kennan, J Kromdijk, DP Kumarathunge, J Lamour, ADB Leakey, DS Lebauer, Q Li, MR Lundgren, N McDowell, K Meacham-Hensold, BE Medlyn, DJP Moore, R Neron-Juarez, U Niinemets, CP Osborne, AL Pivavaroff, H Poorter, **SC Reed**, Y Ryu, A Sanz-Saez, SC Schmiege, SP Serbin, TD Sharkey, M Slot, NG Smith, BV Sonawane, PF South, DC Souza, JR Stinziano, E Stuart-Haetjens, SH Tayor, MD Tejera, J Uddling, V Vandvik, C Varadharajan, AP Walker, BJ Walker, JM Warren, DA Way, BT Wolfe, J Wu, SD Wullschleger, C Xu, Z yan, D Yang (2021) A reporting format for leaf-level gas exchange data and metadata. *Ecological Informatics* 61: 101232. https://doi.org/10.1016/j.ecoinf.2021.101232
131. ¥Phillips, ML, ¥DE Winkler, *RH Reibold, ¥BB Osborne, **SC Reed** (2021) Muted responses to chronic experimental nitrogen deposition on the Colorado Plateau. *Oecologia* 195: 513-524. https://doi.org/10.1007/s00442-020-04841-3
130. ¢Neupane, A, **SC Reed**, DF Cusack (2021) Warming and microbial uptake influence the fate of added soil carbon across a Hawai'ian weathering gradient. *Soil Biology and Biochemistry* 153: 108080. https://doi.org/10.1016/j.soilbio.2020.108080
129. Faist, AM, AJ Antoninka, NN Barger, MA Bowker, VB Chaudhary, CA Havrilla, E Huber-Sannwald, SC Reed, B Weber (2021) Broader Impacts for Ecologists: Biological Soil Crust as a Model System for Education. *Frontiers in Microbiology* 11: 3284. https://doi.org/10.3389/fmicb.2020.577922
128. Waring, BG, BN Sulman, **SC Reed**, AP Smith, C Averill, CA Creamer, DF Cusack SJ Hall, JD Jastrow, A Jilling, KM Kemner, M Kleber, X-J Liu, J Pett-Ridge, M Schulz (2020) Response to 'Stochastic and deterministic interpretation of pool models'. *Global Change Biology*. doi:10.1111/gcb.15580
127. Waring, BG, BN Sulman, **SC Reed**, AP Smith, C Averill, CA Creamer, DF Cusack SJ Hall, JD Jastrow, A Jilling, KM Kemner, M Kleber, X-J Liu, J Pett-Ridge, M Schulz

(2020) From pools to flow: The PROMISE framework for new insights on soil carbon cycling in a changing world. *Global Change Biology* 26: 6631-6643. https://doi.org/10.1111/gcb.15365

126. ¥González, E, PB Shafroth, ¢SR Lee, **SC Reed**, J Belnap (2020) Riparian plant communities remain stable in response to a second cycle of Tamarix biocontrol defoliation. *Wetlands* 40: 1863-1875. https://doi.org/10.1007/s13157-020-01381-7
125. Tucker, C., S Ferrenberg, **SC Reed** (2020) Modest Residual Effects of Short-Term Warming, Altered Hydration, and Biocrust Successional State on Dryland Soil Heterotrophic Carbon and Nitrogen Cycling. *Frontiers in Ecology and Evolution* 8. doi:10.3389/fevo.2020.467157
124. *Howell, A, ¥DE Winkler, ¥ML Phillips, ¥B McNellis, **SC Reed** (2020) Experimental warming changes phenology and shortens growing season of the dominant invasive plant Bromus tectorum (cheatgrass). *Frontiers in Plant Science* 11: 1528.
123. DJ Eldridge, **SC Reed**, SK Travers, MA Bowker, FT Maestre, J Ding, ¥C Havrilla, E Rodriguez-Caballero, N Barger, B Weber, A Antoninka, J Belnap, B Chaudhary, A Faist, S Ferrenberg, E Huber-Sannwald, O Malam Issa, Y Zhao (2020) The pervasive and multifaceted influence of biocrusts on water in the world's drylands. *Global Change Biology* 26: 6003-6014. https://doi.org/10.1111/gcb.15232
122. ¥Winkler, DE, R Massatti, **SC Reed** (2020) Forward-looking dryland restoration in an age of change. *Native Plants* 21: 268-274. doi: 10.3368/npj.21.3.268
121. Delgado-Baquerizo, M, PB Reich, RD Bardgett, DJ Eldridge, H Lambers, DA Wardle, **SC Reed**, C Plaza, GK Png, S Neuhauser, A Asefaw Berhe, SC Hart, H-W Hu, J-Z He, F Bastida, S Abades, FD Alfaro, NA Cutler, A Gallardo, L García-Velázquez, PE Hayes, Z-Y Hseu, CA Pérez, F Santos, C Siebe, P Trivedi, BW Sullivan, L Weber-Grullon, MA Williams, N Fierer (2020) The influence of soil age on ecosystem structure and function across biomes. *Nature Communications* 11: 4721.
120. ¥Winkler, DE, J Belnap, MC Duniway, D Hoover, **SC Reed**, H Yokum, R Gill. (2020) Seasonal and individual event-responsiveness are key determinants of carbon exchange across plant functional types. *Oecologia* 193: 811-825.
119. Kennard, DK, D Matlaga, J Sharpe, C King, ¢A Alonso-Rodríguez, **SC Reed**, MA Cavaleri, TE Wood (2020) Tropical understory herbaceous community responds more strongly to hurricane disturbance than to experimental warming. *Ecology and Evolution* 10: 8906-8915.
118. Tucker, C, A Antoninka, N Day, B Poff, **SC Reed** (2020) Biological soil crust salvage for dryland restoration: an opportunity for natural resource restoration. *Restoration Ecology* 28: S150-S159.
117. Faist AM, AJ Antoninka, J Belnap, MA Bowker, MC Duniway, F Garcia-Pichel, C Nelson, **SC Reed**, ¢A Giraldo-Silva, S Velasco-Ayuso, NN Barger (2020) Inoculum and habitat amelioration efforts in biological soil crust recovery vary by desert and soil texture. *Restoration Ecology* 28: S96-S105.
116. Antoninka, A, MA Bowker, NN Barger, J Belnap, ¢A Giraldo-Silva, **SC Reed**, F Garcia-

Pichel, MC Duniway (2020) Addressing barriers to improve biocrust colonization and establishment in dryland restoration. *Restoration Ecology* 28: S9-S16.

115. ¥Reis, CRG, FS Pacheco, **SC Reed**, G Tejada, GB Nardoto, MC Forti, JP Ometto (2020) Biological nitrogen fixation across major biomes in Latin America: Patterns and global change effects. *Science of The Total Environment*: 746: 140998.
114. ¢Chuckran, PF, *R Reibold, HL Throop, **SC Reed** (2020) Multiple mechanisms determine the effect of warming on plant litter decomposition in a dryland. *Soil Biology and Biochemistry* 145: 107799.
113. Bachelot, B, ¢AM Alonso-Rodríguez, L Aldrich-Wolfe, MA Cavaleri, **SC Reed**, TE Wood (2020) Altered climate leads to positive density-dependent feedbacks in a tropical wet forest. *Global Change Biology* 26: 3417-3428.
112. Delgado-Baquerizo, M, PB Reich, C Trivedi, DJ Eldridge, S Abades, FD Alfaro, F Bastida, AA Berhe, NA Cutler, A Gallardo, L García-Velázquez, SC Hart, PE Hayes, J-Z He, Z-Y Hseu, H-W Hu, M Kirchmair, S Neuhauser, CA Pérez, **SC Reed**, F Santos, BW Sullivan, P Trivedi, J-T Wang, L Weber-Grullon, MA Williams, BK Singh (2020) Multiple elements of soil biodiversity drive ecosystem functions across biomes. *Nature Ecology and Evolution* 4: 210-220.
111. Sevanto, S, C Grossiord, T Klein, **SC Reed** (2020) Plant-Soil Interactions Under Changing Climate. *Frontiers in Plant Science* 11: 621235.
110. ¢Carter, KR, TE Wood, **SC Reed**, EC Schwartz, MB Reinsel, X Yang, M Cavaleri (2020) Photosynthetic and respiratory acclimation of understory shrubs in response to in situ experimental warming of a wet tropical forest. *Frontiers in Forests and Global Change* 3: 114.
109. Hoover, DL, B Bestelmeyer, NB Grimm, TE Huxman, **SC Reed**, O Sala, TR Seastedt, H Wilmer, S Ferrenberg (2020) Traversing the Wasteland: A Framework for Assessing Ecological Threats to Drylands. *BioScience* 70: 35-47.
108. Reed, SC, *R Reibold, MA Cavaleri, AM Alonso-Rodríguez, *ME Berberich, Wood, TE (2020) Soil biogeochemical responses of a tropical forest to warming and hurricane disturbance. Advances in Ecological Research 62: 225-252.
107. *Howell, A, C Tucker, *EE Grote, M Veste, J Belnap, G Kast, B Weber, **SC Reed** (2019) Manufacturing Simple and Inexpensive Soil Surface Temperature and Gravimetric Water Content Sensors. *Journal of Visualized Experiments: JoVE*: 154.
106. Smith, WK, ¥MP Dannenberg, ¥D Yan, S Herrmann, ML Barnes, GA Barron-Gafford, JA Biederman, S Ferrenberg, AM Fox, A Hudson, JF Knowles, N MacBean, DJP Moore, PL Nagler, **SC Reed**, WA Rutherford, RL Scott, X Wang, J Yang (2019) Remote sensing of dryland ecosystem structure and function: Progress, challenges, and opportunities. *Remote Sensing of Environment* 233: 111401. https://doi.org/10.1016/j.rse.2019.111401
105. ¥Winkler, DE, C Grossiord, J Belnap, *A Howell, S Ferrenberg, *H Smith, **SC Reed** (2019) Earlier plant growth helps compensate for reduced carbon fixation after 13 years of warming. Functional Ecology 33: 2071-2080. https://doi.org/10.1111/1365-2435.13432 *Haldane Prize shortlist!*

PUBLICATIONS (cont.) (¥=post-docs; *=technicians, ¢= students I mentored)

104. ¥Albright, MB, RC Mueller, LV Gallegos-Graves, J Belnap, **SC Reed**, C Kuske (2019) Interactions of Microhabitat and Time Control Grassland Bacterial and Fungal Composition. *Frontiers in Ecology and Evolution* 7: 367.
103. ¥Winkler, DE, J Belnap, D Hoover, **SC Reed**, M Duniway (2019) Shrub persistence and increased grass mortality in respond to drought in dryland systems. *Global Change Biology* 25: 3121-3135.
102. Bastida, F, C Garcia, N Fierer, DJ Eldridge, MA Bowker, S Abades, FD Alfaro, AA Berhe, NA Cutler, A Gallardo, L García-Velázquez, L., SC Hart, PE Hayes, T Hernández, Z-Y Hseu, N Jehmlich, M Kirchmair, H Lambers, S Neuhauser, VM Peña-Ramírez, CA Pérez, **SC Reed**, F Santos, C Siebe, BW Sullivan, P Trivedi, A Vera, MA Williams, JL Moreno, M Delgado-Baquerizo (2019) Global ecological predictors of the soil priming effect. *Nature Communications* 10: 1-9.
101. ¢Reis, CR, **SC Reed**, RS Oliveira, GB Nardoto (2019) Isotopic Evidence that Nitrogen Enrichment Intensifies Nitrogen Losses to the Atmosphere from Subtropical Mangroves. *Ecosystems* 22: 1126-1144.
100. ¢Young, KE, MA Bowker, **SC Reed**, MC Duniway, J Belnap (2019) Temporal and abiotic fluctuations may be preventing successful rehabilitation of soil-stabilizing biocrust communities. *Ecological Applications* 29:e01908.
99. ¢Haight, JD, **SC Reed**, AM Faist (2019) Seed bank community and soil texture relationships in a cold desert. *Journal of Arid Environments* 164: 46-52.
98. Delgado-Baquerizo, M, RD Bardgett, PM Vitousek, FT Maestre, MA Williams, DJ Eldridge, H Lambers, S Neuhauser, A Gallardo, L García-Velázquez, OE Sala, SR Abades, FD Alfaro, AA Berhe, MA Bowker, CM Currier, NA Cutler, SC Hart, PE Hayes, Z-Y Hseu, M Kirchmair, V M Peña-Ramírez, CA Pérez, **SC Reed**, F Santos, C Siebe, BW Sullivan, L Weber-Grullon, N Fierer (2019) Changes in belowground biodiversity during ecosystem development. *Proceedings of the National Academy of Sciences* 116: 6891-6896.
97. Wood, TE, G González, WL Silver, **SC Reed**, MA Cavaleri (2019) On the Shoulders of Giants: Continuing the Legacy of Large-Scale Ecosystem Manipulation Experiments in Puerto Rico. *Forests*: 210.
96. Massatti, R, D Winkler, **SC Reed**, M Duniway, S Munson, J Bradford (2019) Supporting the development and use of native plant materials for restoration on the Colorado Plateau. Bureau of Land Management Colorado Plateau Native Plant Program Report.
95. **Reed, SC**, M Delgado-Baquerizo, S Ferrenberg (2019) Biocrust science and global change. *New Phytologist* 223: 1047-1051.
94. Wood, TE, MA Cavaleri, CP Giardina, S Khan, JE Mohan, AT Nottingham, **SC Reed**, M Slot (2019) Soil warming effects on tropical forests with highly weathered soils. Ecosystem Consequences of Soil Warming: pages 385-439.
93. ¥Tucker, CL, S Ferrenberg, **SC Reed** (2019) Climatic sensitivity of dryland soil CO_2 fluxes differs dramatically with biological soil crust successional state. *Ecosystems* 22: 15-32. https://doi.org/10.1007/s11104-018-3580-2.

PUBLICATIONS (cont.) (¥=post-docs; *=technicians, ¢= students I mentored)

92. Vicca, S, BD Stocker, **SC Reed**, WR Wieder, M Bahn, PA Fay, IA Janssens, H Lambers, J Penuelas, S Piao, KT Rebel (2018) Using research networks to create the comprehensive datasets needed to assess nutrient availability as a key determinant of terrestrial carbon cycling. *Environmental Research Letters* 13: 125006.
91. G Shrestha, Cavallaro, N, R Birdsey, MA Mayes, RG Najjar, **SC Reed**, P Romero-Lankao, Z Zhu Eds. (2018) Preface. The Second State of the Carbon Cycle Report (SOCCR2). US Global Change Research Program. Washington, DC, USA
90. G Shrestha, Cavallaro, N, R Birdsey, MA Mayes, RG Najjar, **SC Reed**, P Romero-Lankao, Z Zhu Eds. (2018) Highlights. The Second State of the Carbon Cycle Report (SOCCR2). US Global Change Research Program. Washington, DC, USA
89. Hristov, AN, JMF Johnson, CW Rice, ME Brown, RT Conant, SJ Del Gorsso, NP Curwick, CA Rotz, UM Sainju RH Skinner, TO West, BRJ Runkle H Janzen, **SC Reed**, N Cavallaro, G Shrestha (2018) Agriculture. In Second State of the Carbon Cycle Report (SOCCR2). US Global Change Research Program.
88. Birdsey, R, MA Mayes, P Romero-Lankao, RG Najjar, **SC Reed**, N Cavallaro, G Shrestha, DJ Hayes, L Lorenzoni, A Marsh, K Tedesco (2018) Executive Summary. In Second State of the Carbon Cycle Report (SOCCR2): A Sustained Assessment Report (pp. 21-40). US Global Change Research Program. Washington, DC, USA.
87. Cavallaro, N, G Shrestha, R Birdsey, MA Mayes, RG Najjar, **SC Reed**, P Romero-Lankao, Z Zhu Eds. (2018) The Second State of the Carbon Cycle Report (SOCCR2). US Global Change Research Program. Washington, DC, USA, 878 pp. doi: 10.7930/SOCCR2.2018.
86. ¥Winkler, D, DM Backer, J Belnap, JB Bradford, BJ Butterfield, SM Copeland, MC Duniway, AM Faist, SE Fick, SL Jensen, AT Kramer, R Mann, RT Massatti, ML McCormick, SM Munson, P Olwell, SD Parr, AA Pfennigwerth, AM Pilmanis, BA Richardson, E Samuel, K See, ¢KE Young, **SC Reed** (2018) Beyond traditional ecological restoration on the Colorado Plateau. *Restoration Ecology* 26: 1055-1060.
85. ¥Grossiord, C, A Gessler, **SC Reed**, I Borrego, AD Collins, LT Dickman, M Ryan, L Schonbeck, S Sevanto, A Vilagrosa, NG McDowell (2018) Reductions in tree performance during hotter droughts are mitigated by shifts in nitrogen cycling. *Plant, Cell, and Environment* 11: 2627-2637. https://doi.org/10.1111/pce.13389
84. Wertin, TM, ¢K Young, **SC Reed** (2018) Spatially explicit patterns in a dryland's soil respiration and relationships with climate, whole plant photosynthesis and soil fertility. *Oikos* 127: 1280-1290.
83. Bowker, MA, **SC Reed**, FT Maestre, DJ Eldridge (2018) Biocrusts: the living skin of the Earth. *Plant and Soil* 429: 1-7.
82. *Torres-Cruz, T, *A Howell, *R Reibold, T McHugh, ¢M Eikoff, **SC Reed** (2018) Species-specific nitrogenase activity in lichen-dominated biological soil crusts from the Colorado Plateau, USA. *Plant and Soil* 429: 113-125.
81. ¥Ferrenberg, S, AM Faist, *A Howell, **SC Reed** (2018) Biocrusts enhance soil fertility and Bromus tectorum growth, and interact with warming to influence germination. *Plant and Soil* 429: 77-90.

PUBLICATIONS (cont.) (¥=post-docs; *=technicians, ¢= students I mentored)

80. Antoninka, A, MA Bowker, *P Chuckran, NN Barger, **SC Reed**, J Belnap (2017) Maximizing establishment and survivorship of field-collected and greenhouse-cultivated biocrusts in a semi-cold desert. *Plant and Soil* 429: 213-225.
79. Darrouzet-Nardi, A, **SC Reed**, EE Grote, J Belnap (2018) Patterns of longer-term climate change effects on CO_2 efflux from biocrusted soils differ from those observed in the short-term. *Biogeosciences* 15: 4561-4573.
78. Munson, S, **SC Reed**, J Penuelas, NG McDowell, OE Sala (2018) Ecosystem thresholds, tipping points, and critical transitions. *New Phytologist* 218: 1315-1317.
77. Kimball, BA, *AM Alonso-Rodriguez, MA Cavaleri, **SC Reed**, G Gonzalez, TE Wood (2018) Infrared heater system for warming tropical forest understory plants and soils. *Methods in Ecology and Evolution* 8: 1932-1944.
76. ¥Tucker, CL, ¥D Yan, **SC Reed**, ¥M Dannenberg, WK Smith (2018) Science at the Frontier: multi-method research to evaluate ecosystem change across multiple scales. *New Phytologist* 218: 1318-1320.
75. ¢Mau, AC, **SC Reed**, TE Wood, MA Cavaleri (2018) Temperate and tropical forest canopies are already functioning beyond their thermal thresholds for photosynthesis. *Forests* 9, 47.
74. ¥Feng, X, M Uriarte, G Gonzalez, **SC Reed**, J Thompson, JK Zimmerman, L Murphy (2018) Improving predictions of tropical forest response to climate change through integration of field studies and ecosystem modeling. *Global Change Biology* 24: 213-232.
73. ¥Ferrenberg, S, **SC Reed** (2017) Biocrust ecology: unifying micro- and macro-scales to confront global change. *New Phytologist* 216: 643-646.
72. Clark, D, ¥S Asao, R Fisher, **SC Reed**, PB Reich, MG Ryan, TE Wood, X Yang (2017) Field data to benchmark the carbon-cycle models for tropical forests. *Biogeosciences* 14: 4663.
71. ¢Whitney, KM, ER Vivoni, MC Duniway, JB Bradford, **SC Reed**, J Belnap (2017) Ecohydrological role of biological soil crusts across a gradient in levels of development. *Ecohydrology* 10: e1875.
70. ¥Tucker, CL, ¥TA McHugh, *A Howell, R Gill, B Weber, J Belnap, E Grote, **SC Reed** (2017) The concurrent use of novel soil surface microclimate measurements to evaluate CO_2 pulses in biocrusted interspaces in a cool desert ecosystem. *Biogeochemistry* 135: 239-249.
69. ¢Schwabedissen, SG, KA Lohse, **SC Reed**, KA Aho, TS Magnuson (2017) Nitrogenase activity by biological soil crusts in cold sagebrush steppe ecosystems. *Biogeochemistry* 134: 57-76.
68. ¢Chung, YA, RL Sinsabaugh, CK Kuske, **SC Reed**, JA Rudgers (2017) Spatial variation in edaphic characteristics is a stronger control than nitrogen inputs in regulating soil microbial effects on a desert grass. *Journal of Arid Environments* 142: 59-65.
67. Lu, XT, **SC Reed**, SL Hou, YY Hu, HW Wei, FM Lu, Q Cui, XG Han (2017) Temporal variability of foliar nutrients: responses to nitrogen deposition and prescribed fire in a temperate steppe. *Biogeochemistry* 133: 295-305.

PUBLICATIONS (cont.) (¥=post-docs; *=technicians, ¢= students I mentored)

66. ¥Ferrenberg, S, ¥C Tucker, **SC Reed** (2017) Biological soil crusts: diminutive communities of potential global importance. *Frontiers in Ecology and the Environment* 15: 160-167.
65. ¥McHugh, T, EM Morrissey, ¥R Mueller, L Gallegos-Graves, C Kuske, **SC Reed** (2017) Bacterial, fungal, and plant communities exhibit no biomass or compositional response to two years of simulated nitrogen deposition in a semiarid grassland. *Environmental Microbiology* 19: 1600-1611.
64. *Rutherford, WA, TH Painter, ¥S Ferrenberg, J Belnap, GS Okin, *C Flagg, **SC Reed** (2017) Albedo feedbacks to future climate via climate change impacts on dryland biocrusts. *Scientific Reports* 7: 44188.
63. *Young, K, **SC Reed** (2017) Spectrally monitoring the response of biocrust moss Syntrichia caninervis to altered precipitation regimes. *Scientific Reports* 7: 41793.
62. ¥Wertin, TM, J Belnap, **SC Reed** (2017). Experimental warming in a dryland community reduced plant photosynthesis and soil CO_2 efflux although the relationship between the fluxes remained unchanged. *Functional Ecology* 2: 297-305.
61. Steven, B, TA McHugh, **SC Reed** (2017) The response of arid soils to climate change. In: (Ed: Steven, B) Life in Extreme Environments: The Biology of Arid Soils.
60. Jenni KE, MB Goldhaber, JL Betancourt, JS Baron, RS Bristol, M Cantrill, PE Exter, MJ Focazio, JW Haines, LE Hay, L Hsu, VF Labson, KD Lafferty, KA Ludwig, PC Milly, TL Morelli, SA Morman, NT Nassar, TR Newman, AC Ostroff, JS Read, **SC Reed**, CD Shapiro, RA Smith, WE Sanford, TL Sohl, EG Stets, AJ Terando, DE Tillitt, MA Tischler, PL Toccalino, DJ Wald, MP Waldrop, A Wein, JF Weltzin, CE Zimmerman (2017) Grand Challenges for Integrated USGS Science – A workshop Report. USGS Open File Report.
59. **Reed, SC** (2017). Disentangling the complexities of how legumes and their symbionts regulate plant nitrogen access and storage. *New Phytologist* 213: 478-480.
58. ¥Sherry, RA, PB Shafroth, J Belnap, S Ostoja, **SC Reed** (2016) Germination and growth of native and invasive plants on soil associated with biological control of tamarisk (*Tamarix* spp.). *Invasive Plant Science and Management* 9: 290-307.
57. ¥Stocker, BD, IC Prentice, SE Cornell, T Davies-Barnard, AC Finzi, O Franklin, I Janssens, T Larmola, S Manzoni, T Nasholm, JA Raven, KT Rebel, **SC Reed**, S Vicca A Wiltshire, S Zaehle (2016). Terrestrial nitrogen cycling in Earth system models revisited. *New Phytologist* 210: 1165-1168.
56. Antoninka, A, MA Bowker, **SC Reed**, ¢K Doherty (2015) Production of greenhouse-grown biocrust mosses and associated cyanobacteria to rehabilitate dryland soil function. *Restoration Ecology* 24: 324-445. doi: 10.1111/rec.12311.
55. ¥Tucker CL, **SC Reed** (2016) Low soil moisture during hot periods drives apparent negative temperature sensitivity of soil respiration in a dryland ecosystem: a multi-model comparison. *Biogeochemistry* 128: 155-169.
54. ¥Smith, WK, **SC Reed**, CC Cleveland, AP Ballantyne, WRL Anderegg, WR Wieder, YY Liu, SW Running. (2015). Large divergence of satellite and Earth system model

estimates of global terrestrial CO_2 fertilization. *Nature Climate Change* 6: 306-310. doi:10.1038/nclimate2879.

53. Metcalf, JL, ZZ Xu, S Weiss, S Lax, W Van Treuren, ER Hyde, SJ Song, A Amir, P Larsen, N Sangwan, D Haarmann, GC Humphrey, G Ackermann, LR Thompson, C Lauber, A Bibat, C Nicholas, MJ Gebert, JF Petrosino, **SC Reed**, JA Gilbert, AM Lynne, SR Bucheli, DO Carter, R Knight (2016) Microbial community assembly and metabolic function during mammalian corpse decomposition. *Science* 351: 158-162.
52. **Reed, SC**, TE Wood (2016). Soil phosphorus cycling in tropical soils: an Ultisol and Oxisol perspective. In: Lal, R., B.A. Stewart. Soil Phosphorus. Advances in Soil Science. Taylor and Francis Books.
51. **Reed, SC**, FT Maestre, R Ochoa-Hueso, CR Kuske, ¥A Darrouzet-Nardi, M Oliver, B Darby, LG Sancho, RL Sinsabaugh, J Belnap (2016) Biocrusts in the Context of Global Change. In: B Weber, B Büdel, J Belnap Biological Soil Crusts: An Organizing Principle in Drylands 451-475.
50. Lü, XT, **SC Reed**, Q Yu, XG Han (2015) Nutrient resorption helps drive intra-specific coupling of foliar nitrogen and phosphorus under nutrient-enriched conditions. *Plant and Soil* 398: 111-120. doi:10.1007/s11104-015-2642-y.
49. ¥Darrouzet-Nardi, A, **SC Reed**, EE Grote, J Belnap. (2015). Observations of net soil exchange of CO2 in a dryland show experimental warming increases carbon losses in biocrust soils. *Biogeochemistry* 126: 363-378.
48. ¥Steven, B, CR Kuske, **SC Reed**, J Belnap (2015) Climate change and physical disturbance result in distinct biological soil crust communities. *Applied and Environmental Microbiology* 81: 7448-7459.
47. **Reed, SC**, X Yang, PE Thornton (2015) Incorporating phosphorus cycling into global modeling efforts: a worthwhile, tractable endeavor. *New Phytologist* 208: 324-329.
46. ¥Ferrenberg, S, **SC Reed**, J, Belnap (2015) Climate change and physical disturbance cause similar community shifts in biological soil crusts. *Proceedings of the National Academy of Sciences* 112: 12116-12121.
45. Cavaleri, MA, **SC Reed**, ¥WK Smith, TE Wood (2015) Urgent need for warming experiments in tropical forests. *Global Change Biology* 21: 2111-2121.
44. ¥Wertin, T, **SC Reed**, J Belnap (2015). C_3 and C_4 plant responses to increased temperatures and altered monsoonal precipitation in a cool desert on the Colorado Plateau, USA. *Oecologia* 177: 997-1013.
43. ¥McHugh, T, EM Morrissey, **SC Reed**, BA Hungate, E Schwartz (2015) Water from air: an overlooked source of moisture in arid and semiarid regions. *Scientific Reports* 5: 13767.
42. Hiltbrünner, E, R Aerts, T Bühlmann, K Huss-Danell, B Magnusson, DD Myrold, **SC Reed**, BD Sigurdsson, C Körner (2014) Ecological consequences of the expansion of N_2-fixing plants into cold biomes. *Oecologia* 176: 11-24.
41. ¥Sullivan, BW, ¥WK Smith, AR Townsend, ¢MK Nasto, **SC Reed**, RL Chazdon, CC Cleveland (2014) Spatially robust estimates of biological nitrogen fixation imply

substantial human alteration of the tropical nitrogen cycle. *Proceedings of the National Academy of Sciences* 111:8101-8106.

40. ¥Sullivan, BW, ¥S Alvarez-Clare, ¢SC Castle, S Porder, **SC Reed**, ¥L Schreeg, AR Townsend, CC Cleveland (2014) Assessing nutrient limitation in complex forested ecosystems: alternatives to large-scale fertilization experiments. *Ecology* 95: 668-681.
39. ¥Smith, WK, CC Cleveland, **SC Reed**, SW Running (2013) Agricultural conversion without external water and nutrient inputs reduces terrestrial vegetation productivity. *Geophysical Research Letters* 10.1002/2013GL058857.
38. Cleveland, CC, **SC Reed,** ¢AB Keller, DR Nemergut, ¢SP O'Neill, R Ostertag, PM Vitousek (2014) Litter quality versus soil microbial community controls over decomposition: a quantitative analysis. *Oecologia* 110:12733-12737.
37. Lu, X-T, SC Reed, Q Yu, NP He, ZW Wang, XG Han (2013) Convergent responses of nitrogen and phosphorus resorption to nitrogen inputs in a semi-arid grassland. *Global Change Biology* 19:2775-2784.
36. Cleveland, CC, BZ Houlton, WK Smith, ¢AR Marklein, **SC Reed**, SJ Del Grosso, SW Running (2013) Patterns of new versus recycled primary production in the terrestrial biosphere. *Proceedings of the National Academy of Sciences* 110:12733-12737.
35. Vitousek, PM, DNL Menge, **SC Reed**, CC Cleveland (2013) Biological nitrogen fixation: rates, patterns, and ecological controls in terrestrial ecosystems. *Philosophical Transactions of the Royal Society B* 368: 20130119.
34. **Reed, SC**, AR Townsend, CC Cleveland (2013) Relationships between phosphorus, molybdenum and free-living nitrogen fixation in tropical rain forests: Results from observational and experimental analyses. *Biogeochemistry*: Synthesis and Emerging Ideas Section 114:1-13.
33. ¢Keville, MP, **SC Reed**, CC Cleveland (2013) Nitrogen cycling responses to mountain pine beetle disturbance in a high elevation Whitebark Pine ecosystem. *PLoS One* 8: e65004.
32. ¥Zelikova, TJ, R Hufbauer, **SC Reed**, ¥T Wertin, C Fetting, J Belnap. (2013) Eco-evolutionary responses of Bromus tectorum to climate change: Implications for biological invasions. *Ecology and Evolution* 3:1374-1387.
31. ¢Keller, AB, **SC Reed**, AR Townsend, CC Cleveland (2013) Effects of canopy tree species on belowground biogeochemistry in a lowland wet tropical forest. *Soil Biology and Biochemistry* 58: 61-69.
30. **Reed, SC**, J Belnap, L Floyd-Hanna, T Crews, J Herring, D Hanna, ME Miller, MC Duniway, *CM Roybal (2012) Assessing the risk of nitrogen deposition to natural resources in the Four Corners Area. Report to the National Park Service, pp. 1-53.
29. Wood, TE, MA Cavaleri, **SC Reed** (2012) Tropical forest carbon balance in a warmer world: a critical review spanning microbial- to ecosystem-scale processes. *Biological Reviews* 87: 912-927.
28. ¥Wertin, TM, SL Phillips, **SC Reed**, J Belnap (2012) Elevated CO_2 did not mitigate the effect of a short-term drought on biological soil crusts. *Biology and Fertility of Soils* 48: 797-805.

PUBLICATIONS (cont.) (¥=post-docs; *=technicians, ¢= students I mentored)

27. **Reed, SC**, AR Townsend, CC Cleveland, EA Davidson (2012). Stoichiometric patterns in foliar nutrient resorption across multiple scales. *New Phytologist* 196: 173-180.
26. **Reed, SC**, ¢KK Coe, JP Sparks, DC Housman, ¥TJ Zelikova, J Belnap (2012) Changes to dryland rainfall results in rapid moss mortality and altered fertility in a dryland ecosystem. *Nature Climate Change* 2:752-755.
25. ¥Wickings, K, AS Grandy, **SC Reed**, CC Cleveland (2012) The origin of litter chemical complexity during decomposition. *Ecology Letters* 15: 1180-1188.
24. ¢Smith, WK, CC Cleveland, **SC Reed**, NL Miller, SW Running (2012) Bioenergy potential of the United States constrained by satellite observations and existing productivity. *Environmental Science and Technology* 46: 3536-3544.
23. **Reed, SC**, T Wood, M Cavaleri (2012) Tropical forests in a warming world. *New Phytologist* 193: 27-29.
22. **Reed, SC**, CC Cleveland, AR Townsend (2011). Functional ecology of free-living nitrogen fixation: a contemporary review. *Annual Review for Ecology and Systematics* 42: 489-512.
21. **Reed, SC**, PM Vitousek, CC Cleveland (2011) Are patterns in nutrient limitation belowground consistent with those aboveground: Results from a 4 million year chronosequence. *Biogeochemistry* 106: 323-336.
20. Cleveland, CC, AR Townsend, P Taylor, S Alvarez-Clare, MMC Bustamante, G Chuyong, SZ Dobrowski, P Grierson, K Harms, B Houlton, A Marklein, W Parton, S Porder, **SC Reed**, CA Sierra, WL Silver, EVJ Tanner, W Wieder (2011) Relationships among net primary productivity, nutrients and climate in tropical rain forests: A pan-tropical analysis. *Ecology Letters* 14: 939-947.
19. Wickings, K, AS Grandy, **SC Reed**, CC Cleveland (2011) Management intensity alters decomposition via biological pathways. *Biogeochemistry* 104: 365-379.
18. Schmidt SK, CC Cleveland, DR Nemergut, **SC Reed**, AJ King, P Sowell (2011) Estimating phosphorus availability for microbial growth in an emerging landscape. *Geoderma* 163: 135-140.
17. **Reed, SC**, AR Townsend, PG Taylor, CC Cleveland. (2011) Phosphorus Cycling in Tropical Forests Growing on Highly-Weathered Soils. In: (Buneman EK, A Oberson, E Forssard) Phosphorus In Action—Biological Processes in Soil Phosphorus Cycling. Springer Publishing Co. vol. 26, pp. 339-369.
16. **Reed, SC**, CC Cleveland, DR Nemergut, SK Schmidt & AR Townsend (2010) Scaling from molecules to ecosystems: Exploring controls over free-living nitrogen fixation in terrestrial systems. VDM Publishers, Saarbrücken Germany.
15. **Reed, SC**, AR Townsend, CC Cleveland, DR Nemergut (2010) Microbial community shifts influence patterns in tropical forest nitrogen fixation. *Oecologia* 164: 521-531.
14. Cleveland, CC, WR Wieder, **SC Reed**, AR Townsend (2010) Experimental drought in a wet tropical forest increases soil carbon dioxide losses to the atmosphere. *Ecology* 91: 2313-2323.

PUBLICATIONS (cont.) (¥=post-docs; *=technicians, ¢= students I mentored)

13. Cleveland, CC, BZ Houlton, C Neill, **SC Reed**, AR Townsend, YP Wang (2010) Using indirect methods to constrain symbiotic nitrogen fixation rates: A case study from an Amazonian rain forest. *Biogeochemistry* 99: 1-13.
12. Sattin SR, CC Cleveland, E Hood, **SC Reed**, AJ King, MS Robeson, NL Ascarrunz, DR Nemergut (2009) Functional shifts in perhumid, recently-deglaciated soils do not correlate with shifts in soil bacterial community composition. *The Journal of Microbiology* 47: 673-681.
11. Freeman, KR, MY Pescador, **SC Reed**, EK Costello, MS Robeson, SK Schmidt (2009) Soil CO_2 flux and photoautotrophic community composition in high-elevation, 'barren' soil. *Environmental Microbiology* 11: 674-686.
10. Costello, EK, SRP Halloy, **SC Reed**, P Sowell, SK Schmidt (2009) Fumarole-supported islands of biodiversity within a hyper-arid, high-elevation landscape on Socompa Volcano, Puna de Atacama, Andes. *Applied and Environmental Microbiology* 75: 735-747.
9. Schmidt, SK, **SC Reed**, DR Nemergut, AS Grandy, CC Cleveland, MN Weintraub, AW Hill, EK Costello, AF Meyer, AM Martin, JC Neff (2008) The earliest stages of primary succession in high-elevation (5000 meters above sea-level), recently deglaciated soils. *Proceedings of the Royal Society B: Biological Sciences* 275: 2793-2802.
8. **Reed, SC**, CC Cleveland, AR Townsend (2008) Tree species control rates of free-living nitrogen fixation in a tropical rain forest. *Ecology* 89: 2924-2934.
7. **Reed, SC**, CC Cleveland, AR Townsend (2007) Controls over leaf litter and soil nitrogen fixation in two lowland tropical rain forests. *Biotropica* 39: 585-592.
6. **Reed, SC**, TR Seastedt, CM Mann, KN Suding, AR Townsend (2007) Phosphorus fertilization stimulates nitrogen fixation and increases inorganic nitrogen concentrations in a restored prairie. *Applied Soil Ecology* 36: 238-242.
5. Schmidt, SK, EK Costello, DR Nemergut, CC Cleveland, **SC Reed**, MN Weintraub, AF Meyer, AM Martin (2007) Microbial turnover and seasonal succession drive biogeochemical cycles in the alpine. *Ecology* 88: 1379-1385.
4. Cleveland, CC, **SC Reed**, AR Townsend (2006) Nutrient regulation of organic matter decomposition in a tropical rain forest. *Ecology* 87: 492-503.
3. Bowker, MA, **SC Reed**, J Belnap, SL Phillips (2002) Temporal variation in community composition, pigmentation, and Fv/Fm in desert cyanobacterial soil crusts. *Microbial Ecology* 43: 13-25.
2. **Reed, SC**, GJ Capitosti, Z Zhu & DA Modarelli (2001) Photochemical generation and matrix-isolation detection of dimethylvinylidene. *Journal of Organic Chemistry* 66: 287-291.
1. **Reed, SC**, DA Modarelli (1996) Conformational effects on the excited state 1,2-hydrogen migration in alkyldiazomethanes. *Tetrahedron Letters* 37: 7209-7212.

GRANTS (subset of full list, delighted to provide full list upon request)

Department of Defense, ESTCP, Innovative dryland remote sensing and restoration to

GRANTS (cont.)

support successful resource management in the face of change. Awarded January 2025. Co-PIs: W.K. Smith, M. Villarreal. $569,000 over 2 years.

National Science Foundation, Creating a global network of biological soil crust science. Awarded January 2025. Co-PIs: M. Bowker, A. Antoninka, A. Darrouzet-Nardi. Awarded October 2024. $1,781,000 over 4 years.

National Science Foundation, Macrosystems, Decomposition in Drylands. Awarded September 2024. Co-PIs: H. Throop, K. Todd-Brown, D. Moorhead. $1,481,000 over 4 years.

NASA, Adaptation and Response in Drylands (ARID) Awarded October 2023. Co-PIs: B. Poulter. $282,000 over 2 years.

National Science Foundation, Creating a global network of biological soil crust science. Awarded January 2025. Co-PIs: M. Bowker, A. Antoninka, A. Darrouzet-Nardi. $1,781,000 over 4 years.

U.S. Bureau of Land Management, Managing for fire across diverse landscapes of the West. $500,000 over 2 years.

U.S. Forest Service, Novel restoration post-wildfire in the western U.S. $112,000 over 1 year.

Department of Energy, Assessing the interactive effects of press and pulse disturbances on biogeochemical cycling of a wet tropical forest in Puerto Rico. Awarded June 2021. Co-PIs: T. Wood, M. Cavaleri, X. Yang, A. Walker. $1,000,000 over 3 years.

NASA, Multidisciplinary project that leverages field experiments, satellite data and models to improve understanding of the role of semiarid ecosystems in the global carbon cycle. Awarded April 2021. Co-PIs: N. MacBean, W. Smith, B. Poulter, C. Tucker. $899,941 over 3 years.

National Park Service, Determining climate adaptation strategies and restoration options for Casa Grande Ruins National Monument biological soil crusts. Awarded May 2021. Co-PIs: M. Bowker, K. Raymond, A. Hayes. $311,147 over 3 years.

Center for Data Integration, U.S. Geological Survey, Diverse data to improve Southwest fire forecasts: Joining novel remote sensing, post-fire dynamics, and intra-annual precipitation patterns. Awarded March 2021. Co-PIs: W. Smith, M. Phillips. $49,988 over 1 year.

National Science Foundation, Research Coordination Network. Aquatic nitrogen fixation research coordination network (ANF-RCN). Awarded June 2020. Co-PIs: T. Scott, A. Marcarelli, W. Fulweiler. $499,912 over 5 years.

North Central Climate Adaptation Science Center. Determining successful management and restoration strategies for maintaining pinyon-juniper communities in the face of change. Awarded June 2020. Co-PIs: J. Bradford, K. Gehring, H. Ertle, R. Rondeau, B. Osborne, M. Phillips. $208,263 over 2 years.

John Wesley Powell Center for Analysis and Synthesis. Using a multi-scale approach to synthesize measurements and models of C_4 photosynthesis. May 2020. Co-PIs: D. Lombardozzi, R. Monson, G. Bonan. $142,382 over 2 years.

GRANTS (cont.)

Center for Data Integration, U.S. Geological Survey, Grass-Cast: A multi-agency tool using remote sensing, modeling, and on-the-ground science to forecast grassland productivity in the Southwest. Awarded March 2020. $29,026 over 1 year.

National Science Foundation, Research Coordination Network (RCN). INCyTE: Investigating nutrient cycling in terrestrial ecosystems. Awarded June 2019. Co-PIs: C. Cleveland, W. Wieder, F. Soper. $499,912 over 5 years.

National Science Foundation, Ecosystems. Into the Deep: Exploring biogeochemical cycles in tropical forest deep soils. Awarded June 2019. Co-PIs: T. Wood, J. Pett-Ridge, M. Cavaleri. $120,000 over 2 years.

Center for Data Integration, U.S. Geological Survey, Implementing a grassland productivity forecasting tool for the U.S. Southwest. Awarded March 2019. Co-PIs: W. Smith, W. Parton, B. Fuchs, E. Elias, B. Wardlow. $49,876 over 1 year.

Department of Energy, Environmental System Science. Effects of hurricane disturbance and increased temperature on carbon cycling and storage of a Puerto Rican forest: a mechanistic investigation of above and belowground processes. June 2018. Co-PIs: T. Wood and M. Cavaleri. $989,000 over 3 years.

Department of Defense Strategic Environmental Research and Development Program (SERDP), Department of Defense. Forecasting dryland ecosystem vulnerability to change: a cross-system assessment of vegetation and process responses to disturbance and climate variability on DoD lands. Awarded June 2018. Co-PIs: S. Ferrenberg, O. Sala, P. Adler, W. Smith. $2.7 million over 5 years.

John Wesley Powell Center for Analysis and Synthesis. Novel multi-scale synthesis of nitrogen fixation rates and drivers across the terrestrial biosphere. May 2018. Co-PIs: S. Perakis, C. Cleveland, D. Menge, C. Clark. $153,735 over 2 years.

Joint Fire Science Program. Joining laboratory, greenhouse, and field approaches to improve our understanding of fire effects on seed germination in Great Basin, Colorado Plateau, and Sonoran deserts. Awarded May 2017. Co:PI A. Faist. $229,128 over 2 years.

Colorado Plateau Native Plant Program, Bureau of Land Management. The role of seed banks and soil texture in linking above- and belowground plant communities. Co-PI: A. Faist. Awarded May 2017. $34,000 over 1 year.

Wildlife Conservation Society Climate Adaptation Fund, Climate adaptive biocrust restoration to promote ecosystem function on the Colorado Plateau. Co-PI: C. Tucker, S. Bellagamba, M. Bowker, A. Antoninka, K. Dohrenwend. Awarded May 2017. $207,838 over 2 years.

Natural Resources Preservation Program, U.S. Geological Survey. Soil stabilization in Bandelier National Monument: Challenges and opportunities. Awarded April 2017. $60,000 for 1 year.

USGS Climate and Land Use Mission Area, Regional Assessment of Drought Impacts on Carbon Availability and Losses from Soils (RADICALS). Use a soil functional type approach to assessing the fundamental relationships between water and carbon

GRANTS (cont.)

cycling in the Colorado River Basin, with a focus on drought. Co-PI: C. Lawrence. Awarded October 2016.

Department of Energy, Terrestrial Ecosystem Science. Effects of warming on tropical forest carbon cycling: investigating temperature regulation of key tropical tree and soil processes. Co-PIs: T. Wood and M. Cavaleri. $960,000 over 3 years.

National Park Service-Air Resources Division. Assessment of how nitrogen deposition directly and indirectly affects dryland community composition (plants and soils), gaseous and dissolved nitrogen losses, exotic plant success, and fire regimes. Co-PIs: M. Weintraub, T. Crews, L. Floyd-Hanna, J. Belnap. Awarded April 2014. $69,874 for 1 year.

National Resources Preservation Program, U.S. Geological Survey. Protection of archeological and natural resources in Bandelier National Monument: Incorporating plant-soil interactions and novel biological soil crust rehabilitation approaches. Co-PIs: M. Bowker, M. Duniway, C. Allen, B. Jacobs, J. Belnap. Awarded June 2013. $232,016 for 3 years.

National Park Service, Mesa Verde National Park Service. Using a biogeochemical lens to assess the factors that determine exotic invasion success in Mesa Verde National Park. Awarded June 2013. Co-PI: L. Floyd-Hanna. $4,971 for 1 year.

Department of Energy, Climate and Environmental Sciences Division. Dryland feedbacks to future climate change: how species mortality and replacement will affect coupled biogeochemical cycles and energy balance. Co-PIs: J. Belnap and T. Painter. $1,049,357 over 3 years.

Southwest Biological Science Center, U.S. Geological Survey. Nitrogen deposition affects in drylands. Co-PI: M. Weintraub. Awarded May 2013. $10,000 over 1 year.

US Forest Service. Beginning the world's first tropical forest warming experiment in Puerto Rico. Awarded April 2013. Co-PIs: M. Cavaleri and T. Wood. $224,600 over 3 years.

Department of Energy, Climate and Environmental Sciences Division. Supplemental funds to allow for research 'wrapping-up' the existing DOE-funded climate change experiment on the Colorado Plateau. Co-PI: J. Belnap. $224,600 for 1 year.

Strategic Environmental Research and Development Program (SERDP), Department of Defense. Awarded August 2012. Co-PIs: N. Barger, M. Bowker, J. Belnap, M. Duniway, F. Garcia-Pichel. $2.3 million over 5 years.

John Wesley Powell Center for Analysis and Synthesis. Leading a series of workshops with the goal of bringing modelers and empiricists together to assess and improve models that predict climate change, with a focus on the effects of increasing temperatures on tropical forest carbon balance. Awarded August 2012. Co-PIs: M. Cavaleri, T. Wood. $112,858 over 2 years.

Southwest Biological Science Center, U.S. Geological Survey. Research to explore if the nitrogen and water stored within bedrock is fueling plant growth and maintenance in dryland ecosystems. Awarded April 2012. Co-PI: Mike Duniway. $10,000 for 1 year.

GRANTS (cont.)

Mendenhall Program, U.S. Geological Survey. Using long-term datasets and modeling to explore how climate change affects plants. Awarded June 2011. Co:PIs: S. Munson, J. Belnap. $224,000 over 2 years.

Southwest Biological Science Center, U.S. Geological Survey. Investigating inter-annual precipitation variability effects on dryland plants. Awarded May 2011. Co-PI: T. Wertin. $19,500 for 1 year.

Southwest Biological Science Center, U.S. Geological Survey. Assessing how climate change affects drylands soil carbon and determining the mechanisms behind observed acclimation of soil respiration to increased temperatures. Awarded May 2011. Co:PI's: J. Belnap and C. Cleveland. $16,000 for 1 year.

Invasive Plant Program, U.S. Geological Survey. Assessing the ecosystem effects of and restoration options for riparian zones affected by the Tamarisk beetle. June 2010-present. Co-PI's: P. Nagler, J. Belnap, P. Shafroth, S. Ostoja. $89,000/year.

Mendenhall Program, U.S. Geological Survey. Using long-term grazing manipulations and a local elevation gradient to explore how climate change could affect relationships between plants, microbial communities and carbon cycling on the Colorado Plateau. Awarded June 2010. Co-PIs: T.J. Zelikova, J. Belnap, N. Barger, R. Reynolds, M. Dettinger, C. Kendall, J. Harden. $227,000 over 2 years.

National Park Service, Air Resources Division. Funded to explore how nitrogen deposition is affecting U.S. National Park ecosystems in the Four Corners region of the U.S. Awarded April 2010. Co-PIs: T. Crews, L. Floyd-Hanna, J. Herring, J. Belnap, M. Miller. $63,000 for 1 year.

Alternative Energy Group, U.S. Geological Survey. Received base funding to enact short- and long-term approaches to explore the potential for and consequences of biofuels development in the western U.S. Awarded March 2010. $198,000/year in perpetuity.

Facilities Grant, U.S. Geological Survey. Received competitive funds to create a state-of-the-art biogeochemical laboratory at the Moab, UT USGS-BRD Canyonlands Field Station. Awarded March 2010. $189,000.

National Geographic Society. Research grant to continue work investigating how microbial community composition and function vary over the course of primary succession at a receding glacier in Perú in the Himalaya and Karakoram mountains. Awarded December 2008. Co-PIs: S. Schmidt and P. Sowell. $30,000.

United Government of Graduate Students, University of Colorado, Boulder. Travel grant to support my presentation at the International Nitrogen Initiative (INI) meeting in Costa do Sauipe, Brazil. Awarded August 2007. $700.

National Science Foundation, Doctoral Dissertation Improvement Grant (DDIG). Exploration of how microbial community composition differs on different species of rain forest tree and, in turn, how differences in community structure relates to rates of ecosystem processes such as N_2 fixation. Awarded May 2007. Co-PI A. Townsend. $11,809.

National Science Foundation. Supplemental grant from the Integrative Graduate

GRANTS (cont.)

Education and Research Traineeship (IGERT) program to investigate the scientific and social effects of altered precipitation along a rainfall gradient in eastern Bolivia. Awarded June 2005. Co-PI N. Ascarrunz. $42,266.

University of Colorado, Boulder, Graduate School. Awarded to investigate the relationship between nitrogen-fixer community composition and rates of fixation. Awarded April 2005. $2,300.

Beverly Sears Graduate Student Grant, University of Colorado, Boulder. Provided to study rates of and controls over nitrogen fixation a tropical rain forest. Awarded March 2004. $1,000.

Organization for Tropical Studies (OTS). Research grant to investigate how soil colonization by *Atta cephalotes* and subsequent abandonment affects soil biogeochemical cycling at the La Selva Research Station. Awarded March 2003. $800.

PROFESSIONAL EXPERIENCE

2008*-Present	Research Ecologist, U.S. Geological Survey, Moab, UT.
2008*-2011	Postdoctoral Researcher, University of Montana and Stanford University. **Post-doc experience occurred concurrently with the first years of my USGS position.*
2005-2008	Research Fellow, National Science Foundation Graduate Research Fellowship Program. University of Colorado at Boulder, Boulder, CO (deferred from 2003).
2005-2007	Research Ecologist, US Geological Survey Student Career Experience Program, Moab, UT, summers only.
2005	Teaching Assistant, Microbiology, University of Colorado at Boulder, Boulder, CO.
2003-2005	Research Fellow, National Science Foundation Integrative Graduate Education and Research Traineeship Program. University of Colorado at Boulder, Boulder, CO.
2003	Research Assistant, CU Boulder, Boulder, CO, Spring only.
2002	Teaching Assistant, General Biology, University of Colorado at Boulder, Boulder, CO, Fall only.
1998-2001	Biological Science Technician, US Geological Survey, Moab, UT.
1997	Biological Science Technician, US Geological Survey, Silverton, CO.
1996-1997	Wolk Chemistry Research Fellow, Colgate University, Hamilton, NY.

SYNERGISTIC ACTIVITIES

Lead, Adaptation and Response in Dryland (ARID) NASA Terrestrial Ecology Field Campaign Scoping Study. Led hundreds of scientists and resource managers from the U.S. and other countries in developing a cross-scale research plan for dryland science in the face of change.

Lead, Carbon and Greenhouse Gas Actionable Science Plan for the Bureau of Land

SYNERGISTIC ACTIVITIES (cont.)

Management. Co-created an actionable science plan for assessing and managing for carbon and greenhouse gases on BLM lands.

National Climate Assessment, Invited co-author of the upcoming 5th U.S. National Climate Assessment (NCA5) for the Land Cover and Land Use Change chapter. The NCA assesses the science of climate change and variability and its impacts across the United States, now and throughout this century and is used by policy makers and land managers to make decisions safeguarding our national resources in times of change.

Pop-Up Global Symposia about Life & Ecology for You (PUGSLEY), helped inform the creation and content of PUGSLEY, which was designed to help scientists connect to each other, research, and art during the challenges times of the global pandemic. PUGSLEY events included science talks, music concerts, poetry readings, and social events that connected scientists. Series Lead: Peter Reich. April 2020 -present https://forestecology.cfans.umn.edu/pop-global-symposia-about-life-ecology-you-pugsley

Remote Sensing of Rangelands Seminar Series, helped design a free and open-to-the-public seminar series focused on the topic of using remote sensing to better understand and inform decision making about western U.S. rangelands. The series includes weekly talks by experts and opportunities for questions, collaboration, and to facilitate actionable science. Series Lead: Bill Smith. September 2021-present.

Climate Science Coordination Committee, U.S. Geological Survey (USGS). Selected by the USGS Chief Scientist to serve as a liaison on U.S.G.S. committee to synthesize our understanding and communication of the climate change science happening across the USGS to allow for clear communication and guidance to the Biden Administration. April 2021-present.

Federal Carbon Sequestration and Management Committee, Selected as the USGS lead on a U.S. multi-agency effort to improve our national understanding and capacity to manage carbon. April 2021-present.

Inter-agency Carbon Observatory. Part of a group of federal scientists working to coordinate cross-agency carbon monitoring in order to provide relevant, actionable carbon management options for the Biden Administration. Other members: B. Poulter, D. Schimel, G. Shrestha, J. Miller, L. Ott, G. Domke, B. Irving. April 2021-present.

Continental Report Co-Lead, One of five scientific co-leads for the second North American State of the Carbon Cycle Report (SOCCR-2). This report synthesizes our current understanding of the North American carbon cycle and the drivers and implications of changes to the cycle, and represents a significant resource for policy makers, resource managers, and the general public. Co-leads: Richard Birdsey, Melanie Mayes, Paty Romero-Lankao, and Ray Najjar. September 2015-November 2018.

Co-lead, Co-led a workshop to bring together empiricists and modelers to revisit how we represent carbon cycling in numerical models. This effort led to the PROMISE

SYNERGISTIC ACTIVITIES (cont.)

framework (Waring et al. *Global Change Biology* 2020). Co-Leads: B. Waring, A.P. Smith. Logan, UT. October 2012.

Organizer, Workshop on phosphorus funded by the National Science Foundation and the Department of Energy. Organized a meeting bringing together empiricists and modelers working on the phosphorus cycle with the goal of improving our understanding of and capacity to model phosphorus and coupled biogeochemical cycles in the face of global change. Co-leads: R. Norby, X Yang. Townsend, TN, May 2016.

Coordinator, Lead and Co-lead numerous synthesis efforts that focus on bringing empiricists and modelers together to improve our understanding of and forecasts for Earth's functioning and responses to anthropogenic change. These include Research Coordination Networks and funded synthesis efforts. 2012-present.

Member, DroughtNet Research Coordination Network. Group dedicated to improving the understanding of how drought will affect ecosystem structure and function by sharing ideas, resources, and infrastructure. March 2016-present.

Member, U.S. Geological Survey John Wesley Powell Center for Synthesis and Analysis. Helped create a series of workshops to bring together experts in biological soil crust from around the world to address fundamental unknowns. First meeting August 2017.

Chair, the Climate Change Science Institute (CCSI) Science Advisory Board, Oak Ridge National Lab, March 2015-present.

Member, Writing Team, Department of Energy sponsored workshop report:
Research Priorities for Tropical Ecosystems Under Climate Change 2012, DOE/SC-0153. *This report won the Society for Technical Communication's Best of Show Award for 'providing a connected, thorough and eminently understandable explanation of a complicated but universally important subject to a diverse audience'.*

Invited Contributor, Invited by Dr. Christian Koerner to be a part of a workshop funded by the European Science Foundation to explore increases in N-fixer plant invasion in cold environments, Furka Pass Switzerland, October 2012.

Invited Participant, Department of Energy workshop to determine the roadmap for DOE's Next Generation Ecosystem Experiments for the Tropics (NGEE-Tropics), June 2012.

Invited Participant, National Center for Ecological Analysis and Synthesis (NCEAS), Revisiting nutrient limitation in tropical forests. Santa Barbara. 2009-2011.

Working Group Participant, Ways Forward in Constructing Climate Manipulations in Tropical Forests Workshop, US Forest Service, San Juan, Puerto Rico, October 2010.

Workshop Coordinator, helped organize and present a workshop teaching tools to help scientists communicate effectively with the news media. This workshop integrated scientists and journalists. March 2008.

Invited Counselor, Expanding Your Horizons (EYH), gave hands-on classes introducing middle school girls to career options and opportunities in science. Fall 2004 - present.

SYNERGISTIC ACTIVITIES (cont.)

Collaborator, established successful interaction with Bolivian scientists (at Universities a and non-governmental organizations) and facilitated the travel of a Bolivian graduate student (Sandy Farrel) to Boulder to for a month of hands on learning of current biogeochemical techniques and to meet with local scientists. June-July 2006.

Organizer and Co-Organizer of Organized Oral Sessions at numerous international meetings. Every year I lead or co-lead organized oral sessions that bring together scientists and ideas surrounding a focal topic. These sessions typically result in a publication and often a follow-up working group to further develop ideas. Examples include:

- Ecological Society of America (ESA) annual meeting, Controls over Nitrogen Fixation: A Global Perspective. San Jose, CA. August, 2007.
- Ecological Society of America (ESA) annual meeting, From Leaf to Biosphere: Global Climate Change and the Fate of Tropical Rain Forests. Austin, TX. August, 2011.
- Association for Tropical Biology and Conservation (ATBC) annual meeting, Understanding warming effects on tropical forests: insight gained from current research and a way forward. Austin, TX. August, 2014.
- Ecological Society of America (ESA) annual meeting, Looking back and looking forward: Results and advice from the world's forest warming experiments. Sacramento, CA. August, 2014.
- Ecological Society of America (ESA) annual meeting, Complex Controls over Soil Organic Carbon Cycling: An Emerging Understanding. Baltimore, MD. August, 2015.
- Ecological Society of America (ESA) annual meeting, Phosphorus Cycling in Terrestrial Ecosystems: Interactions among plant, microbial, and biogeochemical diversity. Portland, OR. August, 2017.
- American Geophysical Union (AGU) annual meeting, Terrestrial Ecosystems in a Time of Change: Thresholds, Tipping Points, and Critical Transitions. New Orleans, LA. December, 2017.
- American Geophysical Union (AGU) annual meeting, Science at the Frontier: Using Multi-Method Research to Create New Knowledge and Assess Tools Across Spatial and Temporal Scales. New Orleans, LA. December, 2017.
- American Geophysical Union (AGU) annual meeting, Integrated Understanding of Climate, Carbon, Nutrient Cycles, Human Activities, and their Interactions in Terrestrial Ecosystems. New Orleans, LA. December, 2017.
- Ecological Society of America (ESA) annual meeting, Demystifying paradigms of soil organic matter formation through microbe-mineral interactions – Organized Oral Session. New Orleans, LA. August, 2018.
- Ecological Society of America (ESA) annual meeting, Demystifying paradigms of soil organic matter formation through microbe-mineral interactions – IGNITE Session. New Orleans, LA. August, 2018.

- Ecological Society of America (ESA) annual meeting, Centers and Institutes: What is Our Role as Champions for the Ecological Sciences? New Orleans, LA. August, 2018.
- American Geophysical Union (AGU) annual meeting, *Elucidating Coupled Biogeochemical Cycles in Terrestrial Ecosystems: Integrating Theory, Observations, Experiments, and Models.* December, 2019.

OUTREACH, EDUCATION, and SCIENCE COMMUNICATION

Artist. Worked with multimedia artist Jorge Rojas to create The Biocrust Project, which was an immersive art installation at the Utah Museum of Contemporary Art. January-May, 2024.

Ambassador. Selected to be the USGS representative to welcome Deb Haaland, Secretary of the Department of the Interior. I shared with the Secretary the mission, power, and potential for of USGS science to support of national decision making. April 2021.

Co-developer, National Science Foundation Research Traineeship program (NRT) titled *Graduate Climate Adaptation Research that Enhances Education and Responsiveness of Science at the Management-Policy Interface*. A collaboration with Utah State University to provide innovative and interdisciplinary approaches to tackling tomorrow's resource management and public policy challenges. Awarded September 2016. Co-PIs: Nancy Huntly, Patrick Belmont, Shih-Yu (Simon) Wang, Courtney Flint, and David Rosenberg.

Graduate Student Committee Member, I serve on the committees of many graduate students across a range of universities, participating in the scientific and career development of students. I am currently on the committee of six graduate students.

Undergraduate Student Committee Member, I serve on the committees of many graduate students across a range of universities, participating in the scientific and career development of students. I am currently on the committee of one undergraduate student.

Invited speaker, I give many university seminars each year to share scientific results, offer ideas for new research, and support students in the development of their careers. 2008-present.

Creator, Moab Festival of Science. Led the creation of Moab's first Festival of Science, which is four days of hands on scientific events for the citizens of and visitors to the Colorado Plateau. All events are free and open to the public. September 2016-present. https://moab-scifest.org

Creator, Science for Guides. I created a local outreach program in Moab, UT with the goal of translating cutting-edge regional science to local recreational guides who interact with thousands of tourists per year. Moab, UT.

Invited Member, Science, Technology, Engineering, and Math (STEM) Advisory Board for the Grand County Public School System. September 2013-present.

Board of Trustees, KZMU Community Radio Station in Moab, UT. 2014-2020.

OUTREACH, EDUCATION, and SCIENCE COMMUNICATION (cont.)

Co-Leader, of the third international workshop on biological soil crusts (Biocrust3). The event had more than 150 registered participants with speakers from 17 countries and was a global conference for a growing international community of scientists and resource managers focusing on biological soil crusts. Co-lead: Matt Bowker.

Co-developer, helped create an undergraduate climate change curriculum integrating information from the natural sciences, social sciences, business, policy, politics, and media coverage surrounding global climate change. Fall 2004-Spring 2006.

Scientific Resource, work with a teacher from the Dawson School (Melissa Barker) to teach 1 ½ hour classes to high school students about terrestrial biogeochemistry, pedogenesis, and social issues currently involving scientific information. Boulder, CO. October 2005, October 2006, November 2007.

Resource Person, Organization for Tropical Studies (OTS). Invited instructor of the OTS Tropical Ecology course for a week to give talks, hands-on workshops, and to advise research projects teaching graduate students about soil's role in tropical ecosystems. Cuerecí and La Selva Research Stations, Costa Rica. March 2005.

Course Assistant, Microbiology. University of Colorado, Boulder, taught lecture classes in Microbial Biogeochemistry, Environmental Microbiology, and Microbial Diversity with Dr. Steve Schmidt. Fall 2004.

Teaching Assistant, General Biology Laboratory. University of Colorado at Boulder. Fall Semester 2003.

Invited Instructor, Biological Soil Crusts 101. Teach courses covering the biology and ecology of biological soil crusts to groups ranging from grade school students to Native American tribes to graduate students. 1998-present.

Co-developer, developed a curriculum for teachers of grade school students to support them in preparing lectures and hands-on materials for study of biological soil crusts. Fall 2000.

Invited Instructor, Shi Dine' summer camp (a camp for Navajo elementary school children designed to advance scientific understanding within the tribe). Gave a two-day class on scientific methods and semi-arid ecosystem ecology. Navajo Reservation. July 2000.

Volunteer Instructor, Agricultural Planting Techniques. Helped local populations initiate viable planting techniques for sustainable crops. Lago de Atitlan, Guatemala, 1998.

SERVICE

Faculty, I serve as adjunct faculty for a wide range of universities so that I can better help support and interact with students and on-site faculty.

Invited Member, Science Advisory Council, Restor, which is a global mapping platform designed to share ecological information with the goal of informing successful restoration. 2021-present. https://restor.eco

Invited Member, USGS Climate Science Coordination Committee. Part of a 20-person committee leading the synthesis of USGS climate change science in order to provide

the Biden Administration actionable information for decision making. 2021-present.

Invited Member, Ecological Society of America (ESA) Member at Large on the Executive Leadership team. 2020-present.

Invited Member, Executive Committee for the Council of Science Advisors for USGS. This committee briefs the USGS Director, Chief Scientist, and Mission Area heads on a range of issues important to the USGS.

Invited Member, USGS Climate Research and Development Program Council. Serve on the council to determine funding strategies and recipients, help guide program directions, and communicate with leadership.

Invited Member, I am part of the U.S. Geological Survey (USGS) Director's Women in Science (WISdom) group, which is a group of ~20 women of varying career stages invited by the USGS Director in recognition of their expertise and experience. The group's aim is to assess and facilitate the role of women and other underrepresented groups in USGS science. 2012-present.

Committee Lead, invited committee head for the awards committees for the Ecological Society of America's (ESA) Forrest Shreve Student Research Award, The Whittaker Distinguished Ecologist Award, and the Whittaker Travel Award. 2018-2020.

Committee Member, invited committee member of the American Geophysical Union (AGU) awards committee. 2019-present.

Committee Member, invited member of the Ecological Society of America's (ESA) nominations committee. 2020-2022.

Committee Member, invited member of the Ecological Society of America's (ESA) publications committee. 2017-2020.

Invited Member, Board of Advisors for the journal New Phytologist. 2018-present.

Associate Editor, for the journals *Ecology*, *Biogeochemistry*, *Ecological Monographs*, *Ecological Applications*, *New Phytologist*, *Issues in Ecology*, and *Plant Ecology Biodiversity*.

Reviewer, review grants for funding agencies in this country and internationally, including the National Science Foundation, the US Department of Agriculture, the Department of Energy, the Israeli Science Foundation, National Geographic, and NERC Science of the Environment.

Reviewer, review manuscripts for many peer-reviewed journals each year, including *Nature*, *Science*, *Nature Climate Change*, *PNAS*, *Ecology Letters*, *Ecology*, *Ecosystems*, and *Global Change Biology* among many others.

S.J. & Jessie E. Quinney
College of Agriculture & Natural Resources
UtahStateUniversity

Wildland
Resources

July 29, 2025

Dear Dr. Keyes,

We have completed our expedited review of Dr. Sasha Reed's qualifications for tenure as a member of the Department of Wildland Resources at USU. Our review focused on Dr. Reed's scholarly accomplishments: the quantity, quality and impact of her peer-reviewed publications, her grantsmanship records, national and international recognition, and evidence of leadership in the research community. Given her exceptionally strong record in each of these areas, we decided to skip a meeting and proceeded directly to drafting this letter.

Dr. Reed's field of study is biogeochemistry, the science of how energy and matter cycle through the biosphere. Dr. Reed specializes in the nitrogen cycle. Across much of earth's land surface, nitrogen is the primary limiting factor for plant production, meaning that nitrogen regulates the carbon cycle, with implications for climate change. In addition, nitrogen pollution caused by excessive fertilizer use is now considered a leading driver of global change. Dr. Reed conducts basic and applied research to investigate questions such as, how does nitrogen become available to plants? How do natural and anthropogenic disturbances alter the nitrogen cycle? How can humans better manage nitrogen to avoid ecological harm? Dr. Reed's focus on some of the most important environmental problems facing society is an important ingredient in her success as a researcher.

Dr. Reed's publication record is exceptional. She has published 194 peer-reviewed papers, including 24 in 2024 alone. The quality of these papers is as impressive as the quantity. Those 2024 publications include two in the most prestigious general science outlets (*Nature* and *Proceedings of the National Academy of Sciences of the USA*), 14 in top-tier disciplinary journals journals such as *Global Change Biology*, *Science Advances*, *Nature Climate Change* and *Geophysical Research Letters*, and eight in solid disciplinary journals such as *Ecosphere*, *Ecosystems* and *Restoration Ecology*. There is no padding here. Dr. Reed just had another *Nature* paper come out last week. Her work is frequently cited, receiving more than 17,500 citations according to Google Scholar.

Dr. Reed also has an excellent grantsmanship record. She has been consistently funded by the National Science Foundation (NSF) since receiving a dissertation enhancement award as a graduate student. She currently has two active NSF awards for $1.7 and $1.4 million. She has had similar success with other competitive national research programs, including the Department of Defense and NASA as well as federal land management agencies such as the Bureau of Land Management, the US Forest Service, and the National Park Service. Clearly, she has succeeded in supporting a highly productive research program.

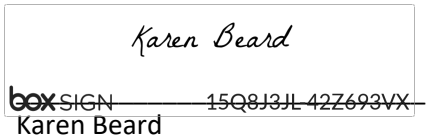
Dr. Reed has been highly decorated at every career stage. As a graduate student, she received an NSF Graduate Research Fellowship and the Graduate Student Research and Creative Works Award from the University of Colorado at Boulder in recognition of her outstanding research and creative work. She then received the Presidential Early Career Award for Scientists and Engineers, the highest honor bestowed by the U.S. government on scientists and engineers in the early stages of their research career, and was elected as an Early Career Fellow by the Ecological Society of America. Her mid-career recognition includes election as a Fellow of the American Geophysical Union (AGU) and the Joanne Simpson Medal from the AGU for "exceptional middle career scientists who have made transformative scientific advances in the Earth and space sciences, have demonstrated strong leadership, and provided outstanding service to science and society."

Although still mid-career, Dr. Reed is a leader in her field. She has been the principal investigator of large, complex grants involving many collaborators. She recently co-led a massive scoping effort for NASA's next terrestrial ecology field campaign. She has contributed to National Climate Assessment for the US Global Change Research program. She will be featured as one of only two plenary speakers at the Ecological Society of America's annual meeting this August.

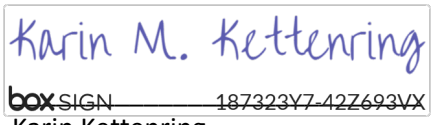
We have no doubt that Dr. Reed's accomplishments not only meet but exceed the criteria for tenure at USU. In fact, she will immediately become a leader when she joins our faculty.

Sincerely,

Peter Adler
Professor
Department of Wildland Resources



Karen Beard
Professor
Department of Wildland Resources



Karin Kettenring
Professor
Department of Watershed Sciences

Kari Veblen
Professor
Department of Wildland Resources

Juan Villalba
Professor
Department of Wildland Resources

S.J. & Jessie E. Quinney
College of Agriculture & Natural Resources
UtahStateUniversity

Wildland Resources
Department

Date: August 10, 2025
To: Dr. Grant Cardon, Interim Dean, S.J. & Jessie E. Quinney College of Agriculture & Natural Resources
From: Dr. Chris Keyes, Head, Department of Wildland Resources
RE: Expedited Tenure Evaluation – Dr. Sasha Reed

Utah State University recently hired Dr. Sasha Reed for the position of the Janet Quinney Lawson Endowed Chair in Colorado River Studies, with an academic home in the Wildland Resources Department. Her appointment officially begins on January 1, 2026. As per her offer letter, and following a process based upon guidance from Executive Vice Provost Paul Barr, the Wildland Resources Department conducted an expedited evaluation of tenure for Dr. Reed. For this assignment, I assembled a committee consisting of the following senior faculty (all full professors): Dr. Peter Adler (chair), Dr. Karen Beard, Dr. Kari Veblen, Dr. Juan Villalba, and Dr. Karin Kettenring (Watershed Sciences Department).

Attached to this memo, please find that committee's recommendation, plus Dr. Reed's current CV and her USU offer letter (dated June 24, 2025). In short, the expedited tenure evaluation committee provides an articulate, strongly positive, and well-supported endorsement of Dr. Reed's expedited tenure case. An acclaimed scientist with a global reputation, Dr. Reed's scientific contributions are prodigious and have been highly impactful to the field of ecosystem ecology. Moreover, her breadth of work experience as a USGS scientist is largely based in southern Utah's Colorado River basin, ensuring Dr. Reed's relevance in her new USU role to Utahns and Utah communities. I anticipate that her impact on our department culture, student learning experience, and Colorado River basin stakeholders will be immediately felt. Utah State University is very fortunate to have acquired a scientist and individual of such high caliber.

The Wildland Resources expedited tenure evaluation committee concludes unequivocally that Dr. Reed's accomplishments exceed the criteria for tenure at Utah State University. I agree wholeheartedly and am very pleased to recommend that Dr. Reed be appointed with tenure.

CURRICULUM VITAE

Jennifer Keshwani

Jennifer R. Keshwani, Ph.D.
Ph.D. Oral Biology and Engineering
B.S., M.S. Biological Systems Engineering

Contact Information	249 L. W. Chase Hall University of Nebraska-Lincoln Lincoln, NE 68583	Tel: (402) 472-9614 (work) (402) 304-2396 (cell) Fax: (402) 472-6338 E-mail: jkeshwani@unl.edu
Current Appointment	Associate Professor, Department of Biological Systems Engineering	

Section 1 Education and Employment History

Section 1.1 Education History

2006-2010: **Interdisciplinary Ph.D.**
Coordinating Discipline: Oral Biology, Co-Discipline: Engineering
University of Missouri-Kansas City (UMKC)
Dissertation title: Evaluation of a Silorane System for use in Stabilization of Traumatic Bone Injuries
Advisor: Dr. J. David Eick

2003-2005: **Master of Science**
Agricultural and Biological Systems Engineering
University of Nebraska-Lincoln (UNL)
Thesis title: Adaptive Reconstruction of Ultrasonic Signals for Imaging Teeth
Advisor: Dr. Gregory Bashford

1999-2003: **Bachelor of Science**
Biological Systems Engineering, emphasis in Biomedical Engineering
University of Nebraska-Lincoln

Section 1.2 Employment History

August 2019 - present **Associate Professor** (80% Extension, 20% Teaching)
Department of Biological Systems Engineering, University of Nebraska-Lincoln

August 2013 – July 2019 **Assistant Professor** (80% Extension, 20% Teaching)
Department of Biological Systems Engineering, University of Nebraska-Lincoln

August 2012 – July 2013 **Extension Assistant Professor** (75% Extension, 25% Teaching)
Department of Biological Systems Engineering, University of Nebraska-Lincoln

June 2010-July 2012: **Adjunct Instructor**
School of Computing and Engineering, University of Missouri-Kansas City

June 2010-July 2012: **Postdoctoral Fellow**
Oral Biology Department, University of Missouri-Kansas City
Research Area: Development of a Silorane-Based Bone Cement
Advisor: Dr. J. David Eick

August 2006-May 2010: **Graduate Research Assistant, I.Ph.D. Program,**
Oral Biology Department, University of Missouri-Kansas City
Advisor: Dr. J. David Eick

Section 2 Research Accomplishments

Section 2.1 Publication Record

Section 2.1.1 Peer Reviewed Publications

†*formally published as J. Melander*

1. Ingram, E., Wonch-Hill, T., Harshbarger, D., and **Keshwani, J**. Improving Elementary Pre-Service Teachers' Science Teaching Self-Efficacy through Garden-Based Technology Integration. Education Sciences. 2024. 14(1), 65. https://doi.org/10.3390/educsci14010065
2. Speth, C., Ramirez, S., Ibach, R., Lee, D., Sandall, L., Mamo, M., **Keshwani, J.**, Lambe, D., Matkin, G., and Schacht, W. Measuring Change within Next-Generation Agricultural and Natural Resources Professionals. Natural Sciences Education. 2023. 52:2. https://doi.org/10.1002/nse2.20133
3. Ingram, E. and **Keshwani, J**. Prairie Protector: student development of systems thinking habits in the context of agroecosystems. Frontiers Education. 2023. 8: 1186270. doi: 10.3389/feduc.2023.1186270
4. Speth C, Ramirez II S, Ibach R, Lee D, Sandall L, Mamo M, **Keshwani J**, Lambe D, Matkin G, and Schacht W. Student Perceptions of Mentoring Practices During Undergraduate Research Experiences. NACTA. 2022. 66; 93-102. https://www.nactateachers.org/index.php/vol66-2022/3226-student-perceptions-of-mentoring-practices-during-undergraduate-research-experiences (10% contribution)
5. Ingram, E, and **Keshwani, J**. Nebraska School Gardens and the Potential for Science, Technology, Engineering and Math Learning. Journal of Extension. 2020. 58(6). (20% contribution)
6. Thompson, CJ, Luck, LM, **Keshwani, JR**, Pitla, SK, and Karr LK. Location on the body of a Wearable Accelerometer Affects Accuracy of Data for Identifying Equine Gaits. Journal of Equine Veterinary Science. 2018. 63; 1-7.
   https://doi.org/10.1016/j.jevs.2017.12.002 (15% contribution)
7. Iverson, N., **Keshwani, J.**, Pannier, A., and Plautz S. Engineering Nanoparticles for the Body. *Science Scope*. 2018. 41(7); 43-52.
   http://www.nsta.org/store/product_detail.aspx?id=10.2505/4/ss18_041_07_43 (40% contribution)
8. **Keshwani, J.** and Curtis, E. Motivating Undergraduate Engineering Students through Real-World Applications of Biological Materials. *Transactions of the ASABE*. 2017. 60(5); 1421-1427.
   https://doi.org/10.13031/trans.12056 (95% contribution)
9. **Keshwani, J.** and Adams, K. Cross-Disciplinary Teamwork and Service Learning through Elementary STEM Clubs. *International Journal for Service Learning in Engineering*. 2017. 12(1); 41-61.
   https://doi.org/10.24908/ijsle.v12i1.6664 (85% contribution)
10. Brandt, M., Forbes, C., and **Keshwani, J.** Exploring Elementary Students' Scientific Knowledge of Agriculture Using Evidence-Centered Design. *Journal of Agricultural Education*. 2017. 58(3); 134-149.
    https://doi.org/10.5032/jae.2017.03134 (25% contribution)
11. Yao X, Carleton SM, Kettle AD, Phillips CL, **Melander JR**, and Wang Y. Gender-dependence of bone structure and properties in adult osteogensis imperfecta murine model. *Annals of Biomedical Engineering*. 2013. 41(6); 1139-1149.
    https://doi.org/10.1007/s10439-013-0793-7 (10% contribution)
12. Walker MP, Alderman N, Petri C, **Melander J**, and McGuire J. Correlation of impression removal force with elastomeric impression material rigidity and hardness. *J Prosthodont* 2013. 22(5); 362-366.
    https://doi.org/10.1111/jopr.12011 (15% contribution)
13. Eick JD, Barragan-Adjemian C, Rosser J, **Melander JR**, Dusevich V, Weiler RA, Miller BD, Kilway KV, Dallas MR, Bi L, Nalvarte EL, and Bonewald LF. Silorane resin supports proliferation, differentiation and mineralization of MLO-A5 bone cells *in vitro* and bone formation *in vivo*. *J Biomedical Materials Research Part B*. 2012. 100B; 850-861.
    https://doi.org/10.1002/jbm.b.32649 (15% contribution)

14. **Melander JR,** Weiler RA, Miller BD, Schuman T, Kilway KV, Day DE, Velez M, and Eick JD. Estimation of properties of a photoinitiated silorane-based composite with potential for orthopaedic applications. *J Biomedical Materials Research Part B*. 2012. 100B(1); 163-169. https://doi.org/10.1002/jbm.b.31934 (75% contribution)
15. **Melander JR**, Dunn WP, Link M, Wang Y, Xu C, and Walker MP. Comparison of flexural properties and surface roughness of nanohybrid and microhybrid dental composites. *General Dentistry*. 2011. 59(5). 342-347. http://europepmc.org/abstract/med/22313818 (25% contribution)
16. Velez M, He Y, Day DE, Schuman TP, Kilway KV, **Melander JR**, Weiler RA, Miller BD, Nalvarte EL, and Eick JD. Processing of yttrium aluminosilicate (YAS) glasses for dental composites. *Ceramica*. 2011. 57(341); 1-9. http://dx.doi.org/10.1590/S0366-69132011000100001 (10% contribution)

Section 2.1.2 Peer Reviewed Publications Accepted

None

Section 2.1.3 Peer Reviewed Publications Submitted/In-review

None

Section 2.1.4 Books and Book Chapters

1. Keshwani, D, Keshwani, J, & Lima, M. (2024) The Role of Inclusion, Diversity, Equity, and Access (IDEA) in Agricultural and Biological Engineering. Book Chapter. Agricultural, Biosystems, and Biological Engineering Education. CRC Press. https://www.taylorfrancis.com/chapters/edit/10.1201/9780429150111-35/role-inclusion-diversity-equity-access-idea-agricultural-biological-engineering-deepak-keshwani-jennifer-keshwani-marybeth-lima (30 % contribution)
2. Barker, B, Nugent, G, Grandgenett, N, **Melander, J**, Nelson, CA, & Leduc-Mills, B. (2016) Developing an Elementary Engineering Education Program through Problem-Based Wearable Technologies Activities. Book Chapter, Handbook of Research on Wearable and Mobile Technologies in Education, J. Holland (Ed.), IGI Press. https://www.igi-global.com/chapter/developing-an-elementary-engineering-education-program-through-problem-based-wearable-technologies-activities/149613 (15% contribution) DOI: 10.4018/978-1-5225-0069-8.ch014
3. Dusevich VM, **Melander JR**, and Eick JD. (2013). SEM in dental research. In Heide Schatten (Ed.), *Scanning Electron Microscopy for the Life Sciences* (pp 211-235). Cambridge, UK: Cambridge University Press. https://doi.org/10.1017/CBO9781139018173.014 (20% contribution)

Section 2.1.5 Conference Proceedings: Peer Reviewed Publications

1. Keshwani, DR, Keshwani, J, Newman, LR, Ibach, R, & King, T. (2024) A Department-wide Approach to Student Success Based on Ecological Validation. Proceedings of American Society for Engineering Education Annual Conference and Exposition, Portland, OR. https://peer.asee.org/46435
2. Han, H., Palala, H., **Keshwani, J**., and Keshwani, D. (2023) Community Building through Technology in a Biological Systems Engineering Course. Proceedings of American Society for Engineering Education Annual Conference and Exposition, Baltimore, MD. https://peer.asee.org/43245
3. Wu, X. B., Dixon, S. T. S., Goodman, L., Ingram, E., **Keshwani, J**., Macik, M., Poling, N., Treadwell, M., Wied, J., & Yockers, B. (2023, February 12–16). Developing agents of change and innovations in secondary and higher education to promote rangeland literacy. In X. B. Wu & L. Goodman (Chairs), Cultivating future rangeland professionals and rangeland-literate public: An integrated cross-boundary approach of the Prairie Project [Symposium]. 2023 SRM Annual Meeting, Boise, ID, United States. https://rangelands.org/wp-content/uploads/2023/02/SRM-Annual-Meeting-Program_Final.pdf

4. Ingram E, **Keshwani J**, Keshwani D, Lunn C, and Binfield J. (2022) Prairie Protector: Systems thinking and STEM-informed decision-making in agroecosystems through game-based learning. Proceedings of American Society for Engineering Education Annual Conference and Exposition, Minneapolis, MN. https://peer.asee.org/40545 (30%)
5. Ingram E, **Keshwani J**, Mittelstet T, and Thomas J. (2020) Garden TOOLS: Technology-rich Agricultural Engineering Opportunities in Outdoor Learning Spaces. Proceedings of American Society for Engineering Education Annual Conference and Exposition. Virtual On line. https://peer.asee.org/34699 (30%)
6. Ibach R, **Keshwani J**, Keshwani D, Everhart S, and Sandall L. (2020) Work in Progress: Participants of the Cultivate ACCESS Program. Proceedings of American Society for Engineering Education Annual Conference and Exposition. Virtual On line. https://peer.asee.org/35676 (30%)
7. Rice N, **Keshwani J**, and Keshwani D. (2020) Role of Agricultural Simulation Games to Promote Youth-Adult Discussions Related to Agricultural Sustainability. Proceedings of American Society for Engineering Education Annual Conference and Exposition. Virtual On line. https://peer.asee.org/35167 (20%)
8. Golick DA, **Keshwani J**, Wallner C, and Kuck J. (2019). BugBots: Blending entomology and engineering to teach about insect form, function, and locomotion. Entomology Society of America Member Symposia, 2019, St. Louis, MO. https://esa.confex.com/esa/2019/meetingapp.cgi/Paper/144925
9. Barker B, Valentine D, Grandgenett N, Keshwani J, and Burnett A. (2018). Using Virtual Reality and Telepresence Robotics in Making. In Proceedings of E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education (pp. 564-568). Las Vegas, NV, United States. https://www.learntechlib.org/p/185010/
10. Rice N, Guru A, **Keshwani J**, and Keshwani DR. (2018). Comparison of game-based learning and traditional lecture approaches to improve student engagement and knowledge transfer in STEM education. Proceedings of American Society for Engineering Education Annual Conference and Exposition, Salt Lake City, Utah. https://www.asee.org/public/conferences/106/papers/23664/view (20%)
11. Keshwani DR, Anderson RD, **Keshwani JR,** Subbiah J, Guru A, and Rice N**.** (2017). Educational immersive simulation game design to enhance understanding of corn-water-ethanol-beef system nexus. Proceedings of American Society for Engineering Education Annual Conference and Exposition, Columbus, Ohio. https://peer.asee.org/28198 (20% contribution)
12. **Keshwani JR,** and Curtis E**.** (2017). To change the world: Student motivation for pursuing a degree in agricultural or biological engineering. Proceedings of American Society for Engineering Education Annual Conference and Exposition, Columbus, Ohio. https://peer.asee.org/29031 (75% contribution)
13. **Keshwani JR,** Adams KA**.** (2016). Building Teaching Collaborations across Disciplines. Proceedings of American Society for Engineering Education Annual Conference and Exposition, New Orleans, Louisiana. https://peer.asee.org/26414 (75% contribution)
14. **Keshwani, J.**, Barker, B., Nugent, G., & Grandgenett, N. (2016). WearTec: Empowering Youth to Create Wearable Technologies. *In Proceedings of International Conference on Advanced Learning Technologies 2016* (pp. 498-500). https://doi.org/10.1109/ICALT.2016.143 (50% contribution)
15. Nugent, G., Barker, B., Grandgenett, N., **Melander, J.** & Nelson, C. (2015). Wearable Technologies to Promote STEM Learning and Attitudes. In *Proceedings of E-Learn: World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2015* (pp. 689-694). Chesapeake, VA: Association for the Advancement of Computing in Education (AACE). https://www.learntechlib.org/p/152103/ (20% contribution)
16. Barker, B., **Melander, J.**, Grandgenett, N. & Nugent, G. (2015). Utilizing Wearable Technologies as a Pathway to STEM. In D. Slykhuis & G. Marks (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2015* (pp. 1770-1776). Chesapeake, VA: Association for the Advancement of Computing in Education (AACE). https://www.learntechlib.org/noaccess/150591/ (20% contribution)
17. Adams KA, **Keshwani JR.** (2015). Preparing Pre-Service Teachers to Make Connections between Science and Engineering Concepts through Teamwork with Engineering Students. Proceedings of American Society for Engineering Education Annual Conference and Exposition, Seattle, Washington. https://peer.asee.org/24585 (60% contribution)

Section 2.1.6 Conference Proceedings: Not Peer Reviewed

1. Thompson CJ, Luck L, **Keshwani J,** & Pitla S. (2017). Effect of sensor placement on acceleration data to monitor equine activity. Journal of Equine Veterinary Science. 52; 64-72. (20% contribution)
2. **Melander JR,** Weiler RA, Miller BD, Kilway KV, and Eick JD. Handling Properties and Exothermicity of Chemically Initiated Silorane Biomaterial. 89th Annual Meeting & Exhibition of the International Association for Dental Research. J Dent Res 90 Spec Issue: 3540, 2011(70% contribution)
3. Walker MP, Mitts DA, Shin TP, **Melander JR**, and McDonald SK. Effect of Elastomeric Impression Material Stiffness/Hardness on Impression Removal Difficulty. 89th Annual Meeting & Exhibition of the International Association for Dental Research. J Dent Res 90 Spec Issue: 392, 2011 (25% contribution)
4. Weiler RA, **Melander JR**, Miller BD, Kilway KV, Bonewald LF, and Eick JD. Physical Properties of Filled Chemically Initiated Silorane Biomaterials. 89th Annual Meeting & Exhibition of the International Association for Dental Research. J Dent Res 90 Spec Issue: 1186, 2011(40% contribution)
5. Miller BD, Weiler RA, **Melander JR**, Nalvarte EL, Kilway KV, Bonewald LF, and Eick JD. Biocompatibility of a Chemically Initiated Silorane Resin. 89th Annual Meeting & Exhibition of the International Association for Dental Research. J Dent Res 90 Spec Issue: 2514, 2011 (40% contribution)
6. **Melander J,** Ghotbi A, Thiagarajan G, McDonald S, and Walker MP. Assessment of Modifications to Notched Triangular Prism Method. J Dent Res 89 Spec Issue: 1234, 2010. (75% contribution)
7. **Melander J**, Weiler RA, Miller B, Kilway K, and Eick JD. Flexural Properties of Mixed-Initiator Silorane Bone Stabilizer. J Dent Res 89 Spec Issue: 1107, 2010. (75% contribution)
8. Kilway, KV, Weiler RA, **Melander J**, Miller BD, Schuman T, Velez M, Day D, Bonewald, L, and Eick JD. Investigation of Mixed Initiated Cationic Polymerization of a Silorane Resin. J Dent Res 89 Spec Issue: 1038, 2010. (25% contribution)
9. Eick JD, Weiler RA, Sylvester D, Hendricks K, **Melander JR**, and Kilway KV. Optimization and Investigation of Acid-Catalyzed Polymerization of SilMix®. J Dent Res 88 Spec Issue: 2412, 2009. (20% contribution)
10. **Melander JR**, Weiler RA, Kilway KV, and Eick JD. Properties of chemically initiated silorane bone stabilizers. J. Dent Res 88 Spec Issue: 2562, 2009. (80% contribution)
11. **Melander JR**, Walker MP, Fricke B and Dunn, WP. Development/Preliminary Validation of a Modified Notchless Triangular Prism Protocol. J Dent Res 87 Spec Issue: 0132, 2008. (80% contribution)
12. Spencer P, Ye Q, Wang Y, Walker MP, Misra A, Marangos O, Kostoryz EL, **Melander JR**, and Gorman N. Structure/Property Relationships in Environmentally Stressed Dentin Adhesives. J Dent Res 86 Spec Issue: 0117, 2007. (10% contribution)
13. Ye Q, Wang Y, **Melander JR**, Gorman N, Marangos O, Misra A, and Spencer P. Water-compatible Photoinitiators and Nano-Phase Separated Dentin Adhesives. J Dent Res 87 Spec Issue: 2009, 2007. (20% contribution)
14. DiMartino A, Doné K, Judkins T, Morse J, **Melander J**, Oleynikov D, and Hallbeck S. Ergonomic laparoscopic tool handle design. *Human Factors and Ergonomics Society Annual Meeting Proceedings*. 2004. 48(12); 1354-1358. (20% contribution)
15. Bashford GR, Morse JL and **Melander JR**. Novel Fusion Algorithms for Medical Ultrasound Tomography. Proc. SPIE 5559, 392, 2004. (5% contribution)

Section 2.1.7 Conference Presentations

1. Keshwani, D, **Keshwani, J**, and Lima M. (2025) Human-centric and non-extractive approaches to circular bioeconomy systems. Oral Presentation, ASABE 2025 Annual International Meeting, Toronto, Canada, July 2025.
2. **Keshwani, J**. (2025) Cultivate ACCESS: Climate Resilience. Oral Presentation, Nebraska Environmental Education Conference, Ashland, NE. February 2025.
3. **Keshwani,** J. (2024) We Are Growable: Developing Systems Thinking through Games. Oral Presentation, Nebraska Association of Teachers of Science Conference, Kearney, NE. October 2024.
4. **Keshwani, J**., Ingram, E., and Keshwani, D. (2023) Prairie Protector: Systems thinking through game-based learning. Oral Presentation, Institute of Biological Engineering Annual Conference, Ames, IA. April 2023.
5. *Ingram, E, ***Keshwani, J**, *Keshwani, D, Lunn, C, and Binfield J. (2022) Prairie Protector: Systems thinking and STEM-informed decision-making in agroecosystems through game-based learning. Oral Presentation, 129th ASEE Annual Conference & Exposition, Minneapolis, MN. June 2022.

6. Kaslon, L, Varner D, **Keshwani J**, Pusey R, and Mondock T. (2021) The Trust Edge Experience in Extension. Workshop. NAEPSDP Annual Conference, Virtual Online. December 2021.
7. *Ingram E, **Keshwani J**, Mittelstet T, and Thomas J. (2020) Garden TOOLS: Technology-rich Agricultural Engineering Opportunities in Outdoor Learning Spaces. Oral Presentation, 127th ASEE Annual Conference & Exposition, Virtual Online. June 2020.
8. *Ibach R, **Keshwani J**, Keshwani D, Everhart S, and Sandall L. (2020) Work in Progress: Participants of the Cultivate ACCESS Program. Oral Presentation, 127th ASEE Annual Conference & Exposition, Virtual Online. June 2020.
9. *Rice N, **Keshwani J**, and Keshwani D. (2020) Role of Agricultural Simulation Games to Promote Youth-Adult Discussions Related to Agricultural Sustainability. Oral Presentation, 127th ASEE Annual Conference & Exposition, Virtual Online. June 2020.
10. **Keshwani J**, *Ibach R, Bray-Obermeyer J, Everhart S, Keshwani D, and Sandall L. Cultivate ACCESS: Empowering students to pursue agSTEM through mentor relationships. Oral Presentation, 2019 NACTA Conference, Twin Falls, ID. June 2019.
11. *Rice N, Guru A, **Keshwani J**, and Keshwani DR. Comparison of game-based learning and traditional lecture approaches to improve student engagement and knowledge transfer in STEM education. Oral Presentation, 125th ASEE Annual Conference & Exposition, Salt Lake City, UT. June 2018.
12. Nugent G, Barker B, Grandgenett N, Nelson C, **Keshwani J**, and *Valentine D. The Effectiveness of E-Textiles Technologies to Promote STEM Learning and Attitudes. Oral Presentation. Hawaii International Conference on Education, Honolulu, HI, January 2018.
13. ***Keshwani JR**, Keshwani DK, and Curtis E. Student Identification of Challenges and Successes in Agricultural and Biological Engineering. Oral Presentation, ASABE 2017 Annual International Meeting, Spokane, WA, July 2017.
14. ***Keshwani JR** and Curtis E. To Change the World: Student Motivation for Pursuing a Degree in Agricultural or Biological Engineering. Oral Presentation, 124th ASEE Annual Conference & Exposition, Columbus, OH June 2017.
15. Keshwani DR, *Anderson RD, **Keshwani J,** Subbiah J, Guru A, and *Rice NC. Educational Immersive Simulation Game Design to Enhance Understanding of Corn-Water-Ethanol-Beef System Nexus. Oral Presentation, 124th ASEE Annual Conference & Exposition, Columbus, OH June 2017.
16. *Thompson CJ, Luck L, **Keshwani J,** & Pitla S. (2017). Effect of sensor placement on acceleration data to monitor equine activity. 2017 Equine Science Symposium. Minneapolis, MN, May 2017.
17. Barker B, Valentine D, O'Connor A, and ***Keshwani JR**. WEARTEC – E-Textiles and Wearable Technologies. Poster Presentation, STEM Education Research Retreat, Lincoln, NE, October 2016.
18. *Barker B, **Keshwani J**, Nugent G, and Grandgenett N. WearTec: Empowering Youth to Create Wearable Technologies. 16th IEEE International Conference on Advanced Learning Technologies. Austin, TX. July 2016.
19. ***Keshwani JR** and Barker B. Wearable Technologies as a Pathway to STEM. Workshop, STEM Think Tank and Conference, Nashville, TN, July 2016.
20. ***Keshwani JR** and Curtis E. Empowering Undergraduate Engineering Students to Connect Laboratory Experiences with Industry Applications through Fictional Clients. Oral Presentation, ASABE 2016 Annual International Meeting, Orlando, FL, July 2016.
21. ***Keshwani JR,** and Adams KA. Building Teaching Collaborations across Disciplines. Oral Presentation, 123rd ASEE Annual Conference & Exposition, New Orleans, LA, June 2016.
22. ***Keshwani JR**, Klein-Gardner SS, Carrico C, & Yang S. Teachers Talking about Engineering: How to incorporate engineering in K-12 classrooms. Workshop, 123rd ASEE Annual Conference & Exposition, New Orleans, LA, June 2016.
23. ***Keshwani JR, ***Brandt M., & Forbes C. Translating Applied STEM Research into Secondary Science (TASRs). Oral Presentation, National Ag in the Classroom Conference, Litchfield Park, AZ, June 2016.
24. *Brandt M, Forbes CT, & **Keshwani J.** Operationalizing Applied Science: Developing Measures for Elementary Students' Understanding of STEM Dimensions of Food Systems. Oral Presentation, 2016 NARST Annual International Conference, Baltimore, MD, April 2016.
25. ***Keshwani JR**, and *Adams KA. Cross-Disciplinary Outreach Activity to Promote Development of Communication Skills in Engineering Students. Poster Presentation, STEM Education Research Retreat, Lincoln, NE, October 2015.

26. *Adams KA, **Keshwani JR.** Preparing Pre-Service Teachers to Make Connections between Science and Engineering Concepts through Teamwork with Engineering Students. Oral Presentation, 122nd ASEE Annual Conference & Exposition, Seattle, WA, June 2015.
27. ***Melander JR,** Curtis E, Adams KA, and Arthurs L. "A Cross-Disciplinary, Service Learning-Based Approach to Enhance Communication Skills." Oral Presentation, ASABE 2014 Annual International Meeting, Montreal, QC, CA, July 2014.
28. ***Melander JR,** Holmes RR, Yao X, Weiler RA, and Eick JD. "Measuring Strain in Bone Cement with Carbon Nanotubes." Poster Presentation, ASME 2012 Summer Bioengineering Conference, Fajardo, PR, June 2012.
29. *Holmes RR, **Melander JR,** Weiler RA, Schuman TS, Kilway KV, and Eick JD. "Polymerization Stress and the Influence of TOSU Addends on Methacrylate Composites." Poster Presentation, ASME 2012 Summer Bioengineering Conference, Fajardo, PR, June 2012.
30. ***Melander JR,** Holmes RR, Weiler RA, Miller BD, Kilway KV, Schuman TS, and Eick JD. "TOSU Addends Maintain Mechanical Properties while Decreasing Polymerization Stress." Poster Discussion Presentation, 41st Annual Meeting & **Exhibition of the** American Association of Dental Research, Tampa, FL, March 2012.
31. ***Melander JR**, Weiler RA, Miller BD, Kilway KV, and Eick JD. "Improving the Strength of a Silorane Bone Cement." Poster Presentation, Missouri Musculoskeletal Conference, July 2011.
32. ***Melander JR**, Weiler RA, Miller BD, Kilway KV, and Eick JD. "Flexural Properties of Silorane Bone Cement." Poster Presentation, ASME 2011 Summer Bioengineering Conference, Farmington, PA, June 2011.
33. ***Melander JR,** Weiler RA, Miller BD, Kilway KV, and Eick JD. "Handling Properties and Exothermicity of Chemically Initiated Silorane Biomaterial." Poster Presentation, 89th Annual Meeting & Exhibition of the International Association for Dental Research, San Diego, CA, March 2011.
34. *Walker MP, Mitts DA, Shin TP, **Melander JR**, and McDonald SK. "Effect of Elastomeric Impression Material Stiffness/Hardness on Impression Removal Difficulty." Oral Presentation, 89th Annual Meeting & Exhibition of the International Association for Dental Research, San Diego, CA, March 2011.
35. *Weiler RA, **Melander JR**, Miller BD, Kilway KV, Bonewald LF, and Eick JD. "Physical Properties of Filled Chemically Initiated Silorane Biomaterials." Poster Presentation, 89th Annual Meeting & Exhibition of the International Association for Dental Research, San Diego, CA, March 2011.
36. *Miller BD, Weiler RA, **Melander JR**, Nalvarte EL, Kilway KV, Bonewald LF, and Eick JD. "Biocompatibility of a Chemically Initiated Silorane Resin." Poster Presentation, 89th Annual Meeting & Exhibition of the International Association for Dental Research, San Diego, CA, March 2011.
37. *Kilway KV, Weiler RA, **Melander JR**, Miller BD, Bi LX, Schuman TP, Day DE, Bonewald LF, and Eick JD. "Development of a novel biomaterial for orthopaedic applications." Oral Presentation, 2010 Midwest Regional Meeting of the American Chemical Society, Wichita, KS, October 2010.
38. ***Melander JR**, Weiler RA, Miller BD, Kilway KV, and Eick JD. "Model of Silorane Composite for Bone Stabilization Application." Oral Presentation, ASME 2010 Summer Bioengineering Conference, Naples, FL, June 2010.
39. ***Melander JR,** Ghotbi A, Thiagarajan G, McDonald S, and Walker MP. "Assessment of Modifications to Notched Triangular Prism Method." Oral Presentation, 39th Annual Meeting & Exhibition of the American Association of Dental Research, Washington, DC, March 2010.
40. **Melander JR**, Weiler RA, Miller B, Kilway K, and *Eick JD. "Flexural Properties of Mixed-Initiator Silorane Bone Stabilizer." Poster Presentation, 39th Annual Meeting & Exhibition of the American Association of Dental Research, Washington, DC, March 2010.
41. *Kilway, KV, Weiler RA, **Melander JR**, Miller BD, Schuman T, Velez M, Day D, Bonewald, L, and Eick JD. "Investigation of Mixed Initiated Cationic Polymerization of a Silorane Resin." Poster Presentation, **39th Annual Meeting & Exhibition of the** American Association of Dental Research, Washington, DC, March 2010.
42. ***Melander JR**, Weiler RA, Miller B, Kilway KV, and Eick JD. "Properties of Chemically Activated Silorane Polymers for Use as Bone Stabilizers." Poster Presentation, 2009 Biomedical Engineering Society Annual Fall Meeting, Pittsburgh, PA, October 2009.
43. Eick JD, Weiler RA, Sylvester D, Hendricks K, **Melander JR**, and *Kilway KV. "Optimization and Investigation of Acid-Catalyzed Polymerization of SilMix®." Poster Presentation, 86th Annual Meeting & Exhibition of the International Association for Dental Research, Miami, FL, April 2009.

44. *__Melander JR__, Weiler RA, Kilway KV, and Eick JD "Properties of chemically initiated silorane bone stabilizers." Poster Presentation, 86th Annual Meeting & Exhibition of the International Association for Dental Research, Miami, FL, April 2009.
45. *__Melander JR__, Walker MP, Fricke B and Dunn, WP. "Development/Preliminary Validation of a Modified Notchless Triangular Prism Protocol." Oral Presentation, 37th Annual Meeting & Exhibition of the American Association for Dental Research, Dallas, TX, April 2008.
46. *Spencer P, Ye Q, Wang Y, Walker MP, Misra A, Marangos O, Kostoryz EL, **Melander JR**, and Gorman N. "Structure/Property Relationships in Environmentally Stressed Dentin Adhesives**." Oral Presentation,** 36th Annual Meeting & Exhibition of the International Association for Dental Research, New Orleans, LA, March 2007.
47. *Ye Q, Wang Y, **Melander JR**, Gorman N, Marangos O, Misra A, and Spencer P. "Water-compatible Photoinitiators and Nano-Phase Separated Dentin Adhesives." Poster Presentation, 36th Annual Meeting & Exhibition of the International Association for Dental Research, New Orleans, LA, March 2007.
48. *__Melander JR__ and Bashford GR. "Ultrasonic Detection of Tooth Fracture." Oral Presentation, Heartland Biomedical Engineering Symposium, Omaha, NE, April 18, 2005.
49. *Bashford GR, Morse JL, and **Melander JR**. "Novel fusion algorithms for medical ultrasound tomography." 49th SPIE Annual Meeting: Advanced Signal Processing Algorithms, Architectures, and Implementations. Denver, CO, August 2004.

*indicates presenter

Section 2.1.8 Invited Talks

1. From Player to Paradigm Shifter: Changing Mental Models through Games. No Coast SciComm Fun and Games Symposium: Playing with Purpose, virtual, September 17, 2025.
2. We are Growable: Developing Systems Thinking Through Games. Climate Hub Project Education and Outreach Cohort, virtual, September 16, 2024.
3. We are Growable: Developing Systems Thinking Through Games. Makerere University, Kampala, Uganda, July 8, 2024.
4. Prairie Protector Game Development. Girls Inc., Lincoln, NE. July 31, 2023.
5. How Game-Based Learning Tackles the Green Glacier. Boundary-Spanning Seminar Series – Center for Environmentally Beneficial Catalysis, University of Kansas. Lawrence, KS. February 16, 2023.
6. We Are Growable: Developing systems thinking through games. Agronomy and Horticulture Seminar Series – UNL. Lincoln, NE. September 23, 2022.
7. Prairie Protector Game Development. Girls Inc., Lincoln, NE. July 25, 2022.
8. Prairie Protector, RFD TV – Live Shot. Lincoln, NE, July 26, 2022.
9. Game-based learning to support systems thinking and agroecosystem sustainability. Nebraska 4-H Inservice, Lincoln, NE. March 23, 2022.
10. Game-Based Learning to Support Systems Thinking. Elevating Conservation: Empowering + Connecting Nebraska Nature + Science Educators, virtual, January 18-19, 2022.
11. Staying Connected During a Season of Social Distancing. PD Power Hour, Nebraska Extension. April 3, 2020
12. Cultivating Science Literacy through Wonder and Curiosity. Family Science and Ag Field Day at Haskell Ag Lab, July 24, 2019.
13. Science Literacy: Empowering Decision Makers and Problem Solvers. BSE Colloquium. Department of Biological Systems Engineering, University of Nebraska-Lincoln, February 21, 2018.
14. What Does Agricultural Science Literacy Bring to the Table? Growing Nebraska Summit. Lincoln, NE. November 8. 2017.
15. Engaging Female Students in STEM. Altria Grow Grant Webinar. Online. May 17, 2017.
16. Engineering Empowerment: Science Literacy through Engineering Design. Agronomy and Horticulture Seminar Series – UNL. Lincoln, NE. February 3, 2017.
17. STEM Education through Agricultural Sustainability. Ag Builders of Nebraska meeting. Lincoln, NE. January 11, 2017.
18. Engineering Empowerment: Science Literacy through Engineering Design. SCICOMM 2016, University of Nebraska-Lincoln, Lincoln, NE. September 24, 2016.

19. Biomedical Engineering as a Vehicle for Science Literacy. Surgery Research Forum. University of Nebraska Medical Center. Omaha, NE. August 10, 2016.
20. Promoting Science Literacy through Agricultural and Biological Engineering. Department of Biological and Agricultural Engineering, Kansas State University. Manhattan, KS. February 26, 2016.
21. K-12 Engineering and Electronic Valentines. Aurora HuskeyEd Camp. Aurora, NE. February 13, 2015.
22. Breaking Bones & K-12 Engineering. Teacher training day at ESU #2. Fremont, NE. February 12, 2015.
23. Teaching Coding and Engineering through Wearable Technologies. Nebraska Information Technology Commission. Lincoln, NE. January 31, 2015
24. The Importance of Science Literacy in Society. Nebraska Citizens for Science Forum. Lincoln, NE. January 15, 2015
25. K-12 Engineering. LINKS (Leadership in Nebraska KICKS (Keep Improving Content Knowledge and Skills)) meeting. Omaha, NE. July 22, 2014.
26. More Food for Everyone: Precision Agriculture's Use of GIS. Broadband Connecting Nebraska. Kearney, Nebraska. October 16, 2013
27. The Diagnosis and Treatment of Biopolymer Stress. Oral Biology Seminar, Department of Oral Biology, School of Dentistry, University of Missouri-Kansas City, February 15, 2012
28. Silorane Composites for Orthopaedic Applications. Oral Biology Seminar, Department of Oral Biology, School of Dentistry, University of Missouri-Kansas City, June 1, 2011
29. Stabilization of Bone Fractures using a Silorane Composite. Alumni Presentation, Department of Biological Systems Engineering, University of Nebraska-Lincoln, April 7, 2010

Section 2.1.9 Other Publications

1. **Keshwani J.** Building community in a virtual space. March 2018. http://vrmakerspace.org/blog/2018/03/09/building-community/
2. **Keshwani J.** What motivates students to pursue an engineering career? Click2SciencePD blog post. February 2018. http://www.click2sciencepd.org/blog-post/what-motivates-students-to-pursue-an-engineering-career
3. **Melander J**. How to make sense of inconsistencies in science. Prairie Fire. September 2014. http://www.prairiefirenewspaper.com/2014/09/how-to-make-sense-of-inconsistencies-in-science
4. **Melander J**. Testing and Re-Testing. Click2SciencePD blog post. July 2014. http://www.click2sciencepd.org/blog-post/testing-and-re-testing

Section 2.2 Grantsmanship Record

Section 2.2.1 Internally Funded Research Grants

1. $81,703. J. Hay, and **J. Keshwani**. Microgrid Mastermind: The Quest for Reliable Electricity. Nebraska Center for Energy Sciences Research. 2024-2025.
2. $150,000. H. Akin, T. Gilmore, M. Harner, and **J. Keshwani**. Pilot and Assessment of Cyberinfrastructure for Image-based Environmental Monitoring and Education. University of Nebraska Collaboration Initiative. 2023-2025.
3. $150,000. Y. Ge, **J. Keshwani**, et al. SPACE2: Space, Policy, Agriculture, Climate, and Extreme Environment. Grand Challenges Catalyst Competition – Planning Grants. 2022-2023.
4. $15,981. **J. Keshwani**, E. Ingram, P. Bishop. Beyond the Box – CASNR Edition. 2021-2022. (my share: 100%)
5. $19,494. A. Guru, H. Yu, D. Bastola, M. De Guzman, **J. Keshwani**, K. Roche, D. Nielson, M. Pegg, J. Cole, and J. Subbiah. Systems Thinking for Sustainable Future – Undergraduate Community-Based Research. Rural Futures Institute. 2017-2019. (my share: $0)
6. $5,000. Ndao, S. and **J. Keshwani**. TeckTal – An online STEM literacy platform for African students and educators. IANR Office of Global Engagement International Impact Award, University of Nebraska-Lincoln. 2016. (my share: $2,000)
7. $385,463. Forbes, C. and **J. Keshwani**. Development and Testing of a 3rd-Grade Life Science Unit to Foster 3rd-grade Students' Agricultural Literacy and Life Science Learning. ARD Hatch Multistate Research Enhanced, University of Nebraska-Lincoln. 2015-2018. (my share: $0)

8. $10,000. Borck, H., K. Elsen, E. Janning, **J. Keshwani**, and L. Luck. Ag-Citing Adventure Mobile App/Website. UNL Extension, University of Nebraska-Lincoln, 2014-2015. (my share: $0)
9. $7,000. Weitzenkamp, D., L. Chichester, C. Reimers-Hild, C. Forbes, and **J. Keshwani**. Big RED Talks. UNL Extension, University of Nebraska-Lincoln, 2013-2015. (my share: $0)
10. $10,000. Barker, B. and **J. Keshwani**. Wearable Technologies Project. Research Council Faculty Seed Grants, University of Nebraska-Lincoln. 2013-2014. (my share: $1,000)

Section 2.2.2 Externally Funded Research Grants

1. $1,100,000. P. Hanson, D. Twidwell, and **J. Keshwani**. Grassland Conservation for America's National Parks. Department of the Interior-NPS. 2025-2030.
2. $597,589. M. Mamo, L. Sandall, **J. Keshwani**, D. Uden, and C. Cordova. Fostering the Next Generation of Inclusive Agricultural and Natural Resources Professionals. USDA-NIFA. 2024-2027.
3. $200,000. **J. Keshwani**, E. Ingram, L. Sandall, J. Obermeyer, D. Keshwani, and M. Hayes. Cultivate Resilience. USDA-NIFA. 2023-2026.
4. $749,825**. J. Keshwani**, E. Ingram, L. Sandall, D. Keshwani, E. Blankenship, T. Gilmore, H. Akin, and M. Emery. Cultivate ACCESS to Data Science in Agriculture. USDA-NIFA. 2023-2027.
5. $99,795. R. Herpel, **J. Keshwani**, G. Panther, and D. Snow. Know Your Well High School Curriculum Development. EPA. 2023-2025
6. $80,000. **J. Keshwani**, L. Sandall, D. Keshwani, S. Everhart, and J. Obermeyer. Cultivate ACCESS Diversity Fellows Program. CHS Foundation. 2020-2021
   SAP WBS Account #: 26-6321-0446-001
7. $44,500. **J. Keshwani**, E. Ingram and Brandy VanDeWalle. Garden TOOLS for Corn. Nebraska Corn Board. 2020-2021
   SAP WBS Account #: 26-6321-0440-001
8. $17,835. D. Golick, **J. Keshwani**, and T. Weissling. Milkweed in the Classroom. Nebraska Environmental Trust. 2019-2020
   SAP WBS Account #: 26-6328-0309-001
9. $206,667. D. Twidwell, **J. Keshwani**, Enhancing Livestock Production from Rangelands in the Great Plains. US Department of Agriculture-NIFA. 2019-2024.
   SAP WBS Account #: 26-6222-0954-001
10. $94,387. **J. Keshwani**, J. Bray-Obermeyer, S. Everhart, D. Keshwani, and L. Sandall. Cultivating ACCESS: Agriculture Career Communities to Empower Students in STEM. US Department of Agriculture-NIFA. 2017-2020.
    SAP WBS Account #: 25-6321-0365-001
11. $299,539. Barker, B., S. Farritor, and **J. Keshwani.** Nebraska Innovative Maker Co-Laboratory (NiMC). National Science Foundation. 2017-2018.
    SAP WBS Account #: 25-6329-0138-001
12. $50,000. Barker, B., **J. Keshwani**, C. Nelson, D. Valentine, A. Zimbroff. 2017 National Youth Science Day: Smart Fitness. National 4-H Council. 2017.
    SAP WBS Account #: 26-6329-0131-001
13. $300,000. Mamo, M., **J. Keshwani**, D. Lambe, D. Lee, G. Matkin, L. Sandall, W. Schacht, and C. Speth. Fostering the Next Generation of Agricultural and Natural Resource Professionals through Experiential Learning in Research, Education and Extension. US Department of Agriculture-NIFA. 2017-2019.
    SAP WBS Account #: 25-6222-0800-001
14. $91,000. **Keshwani J.** and R. Koelsch. Introducing Environmental Sustainability Principles for Food Production into High School Science. Environmental Protection Agency. 2017-2018.
    SAP WBS Account #: 25-6321-0341-001
15. $999,644. Subbiah, J., J. Chen, A. Guru, D. Keshwani, **J. Keshwani**, R. Koelsch, D. Rosenbaum, E. Thompson. Immersive Educational Game Simulations to Enhance Understanding of Corn-Water-Ethanol-Beef System Nexus. National Science Foundation. 2016-2019.
    SAP WBS Account #: 25-6321-0333-001
16. $48,722. **Keshwani, J**., A. Pannier, N. Iverson, and K. Adams. Improving Teacher Quality through Biomedical Engineering BLAST! Workshops. Nebraska Coordinating Commission for Postsecondary Education. 2016-2017.

SAP WBS Account #: 26-6321-0314-001

17. $984,189. Barker, B., **J. Keshwani**, M. Krehbiel, C. Nelson, G. Nugent, and W. Weiss. Nebraska Wearable Technologies. National Science Foundation. 2014-2017.
    SAP WBS Account #: 25-1714-0096-001
18. $75,130. Barker, B., **J. Keshwani**, and C. Nelson. Nebraska Blast! Improving Teacher Quality through STEM Workshops. Nebraska Coordinating Commission for Postsecondary Education. 2014-2015.
    SAP WBS Account #: 26-6329-0095-001
19. $1,000. Borck, H., K. Elsen, E. Janning, **J. Keshwani**, and L. Luck. Ag-Citing Adventure Mobile App/Website. Poultry and Egg Division, Nebraska Department of Agriculture, 2014-2015.
    SAP WBS Account #: NA
20. $6,000. Borck, H., K. Elsen, E. Janning, **J. Keshwani**, and L. Luck. Ag-Citing Adventure Mobile App/Website. Nebraska Corn Board, 2014-2015.
    SAP WBS Account #: NA
21. $500. **J. Keshwani**. Biomedical Engineering Workshop. Nebraska Department of Education. 2014.
    SAP WBS Account #: 26-6321-0271-001
22. $15,000. Borck, H. and **J. Keshwani**. Monsanto and 4-H Challenging Youth to be the Solution. National 4-H Council. 2014
    SAP WBS Account #: 26-6342-0182-001

Section 2.2.3 External Research Grants Submitted

1. $154,307. **J. Keshwani**, L. Sandall, D. Keshwani, and J. Obermeyer. Cultivate ACCESS. CHS Foundation. 2026-2027

Section 2.2.4 External Research Grants Submitted but not Funded

1. $59,902. **J. Keshwani**, E. Ingram, I. Buhaug, & T. Frantsen. Eco TOOLS. Volda University, UTFORSK. 2024-2028.
2. $9,985,336. D. Santra, **J. Keshwani**, et al. Development and Assessment Of Sustainable Hemp Feedstock For The Bioeconomy. USDA-NIFA. 2024-2029
3. $9,999,982. G. Erickson, **J. Keshwani**, et al. Circular economy for integrated crop-beef systems: Improving N circularity while achieving net-zero greenhouse gas emissions. USDA-NIFA. 2023-2028
4. $9,997,987. S. Pitla, **J. Keshwani**, et al. Decentralized Farms for Decarbonization, Climate-Smart Farming, and Resilient Rural Communities (DeFa4DeCa). USDA-NIFA. 2024-2029
5. $719,080. C.C. Nwaizu, C. Bourke, Z. Cyamani, and **J. Keshwani**. Facilitating transdisciplinary practice-based learning through MUSCLE (Multiuser VR-AR hybrid based Shared Remote Collaborative Learning Environment in Education for Sustainability Development. NSF. 2023-2026
6. $4,000,000. J. Luck**, J. Keshwani**, et al. Growing Climate Smart Practices across the Midwest: Nebraska Future Agricultural Research and Management Systems (NFARMS). USDA-NIFA. 2023-2027.
7. $600,000. S. Pitla, T. Brown-Brandl, **J. Keshwani**, and L. Perry. Agricultural Technology Product Innovation Fellows. USDA-NIFA. 2023-2027.
8. $38,100. **J Keshwani** and E Ingram. Garden TOOLS for Corn. Nebraska Corn Board. 2022-2023
9. $749,670. M. Mamo, **J. Keshwani**, et al. Fostering the next generation of agricultural and natural resources professionals through experiential learning in research, education, and extension. USDA-NIFA. 2023-2027.
10. $83,188**. J. Keshwani**, L. Sandall, J. Obermeyer, D. Keshwani. Cultivate ACCESS Educator Community of Practice. Women Investing in Nebraska. 2022-2023.
11. $1,874,933. A. Thomas, K. Buchheister, E. Ingram, **J. Keshwani**, T. Wonch-Hill. STEMulate Elementary Mathematics. NSF. 2022-2026.
12. $2,936,000. J. Luck, **J. Keshwani**, et al. Growing Agricultural Sustainability and Resiliency through Technological Innovations: The Nebraska Farm of the Future. USDA-NIFA. 2022-2026.
13. $26,000,000. K. Rajurkar, **J. Keshwani**, et al. NSF Engineering Research Center for Cellular Agriculture in Food Engineering and Manufacturing (CAFE). NSF. 2022-2027.
14. $10,000,000. M. Wilkins, **J. Keshwani**, et al. Development and Assessment of a Sustainable Industrial Hemp Feedstock for the Bioeconomy. USDA-NIFA.

15. $300,000. J. Keshwani, E. Ingram, and T. Sessions. Integrating Social-Emotional and Computational Thinking Skills by Design (INSECTS x Design). NSF. 2021-2023.
16. $9,985,466. M. Wilkins, S. Irmak, D. Keshwani, **J. Keshwani**, and L. Pytlik-Zillig. Reducing High Plains Aquifer depletion through lignin valorization and drought-tolerant crop plant design: from Burning to Earning (B2E). USDA AFRI. 2020-2025.
17. $26,000,000. K. Rajurkar, **J. Keshwani**, and… 17 colleagues. NSF Engineering Research Center for Advanced Food Engineering and Manufacturing (CAFÉ). NSF. 2020-2025.$1,199,844. B. Barker, S. Farritor, **J. Keshwani**, G. Nugent, and D. Valentine. STRATEGIES: Nebraska Innovation Network. National Science Foundation. 2018-2021.
18. $150,000. **J. Keshwani**, E. Ingram, S. Frerichs, J. Wu-Smart, and S. Pitla. Garden TOOLS (Technology Opportunities in Outdoor Learning Spaces). US Department of Agriculture-NIFA. 2019-2021.
19. $499,442. S. Pltla, J. Bradley, D. Dev, J. Herr, **J. Keshwani**, H. Nemala, and Y. Shi. Next-Generation Interdisciplinary Student Workforce Development for Addressing Engineering and Technology Needs of Agricultural Sciences. US Department of Agriculture-NIFA. 2019-2023.
20. $15,000. **J. Keshwani**, N. Iverson, R. Wachs and F. Kievit. Biomedical Engineering BLAST! Beyond School Bells. 2018.
21. $2,377,990. B. Barker, **J. Keshwani**, C. Nelson, G. Nugent, and D. Valentine. STEM+C: N*Spark IoT (Internet of Things). National Science Foundation. 2018 - 2022.
22. $998,775. Y. Ge, J. Hay, S. Irmak, **J. Keshwani**, J. Schnable, and J. Yang. Integrating Advanced Genomics and Phenomics to Improve Energy Sorghum for Nebraska and Beyond. US Department of Agriculture-NIFA. 2018-2022.
23. $15,000,000. Cahoon, E., M. Anderson-Knott, S. Banerjee, R. Cantrell, C. Creech, B. Dutton, J. Groskopf, R. Harveson, **J. Keshwani**, A. Liska, D. Santra, and E. Thompson. Camelina Renewable Bioproduct and Fuel Oil Network (CaRBON). US Department of Agriculture-NIFA. 2017-2022.
24. $2,500,000. J. Subbiah, M. Anderson-Knott, J. Chen, L. Fulginiti, A. Guru, M. Hayes, J. Hay, D. Keshwani, **J. Keshwani**, R. Koelsch, R. Perrin, C. Ray, J. Smith, C. Syron, and H. Yang. INFEWS/T2: An Integrated Decision-Making Tool for Crop-Water-Energy-Livestock Nexus. National Science Foundation. 2017-2022.
25. $640,000. Krehbiel, M., A. Abts, B. Barker, G. Jones, **J. Keshwani**, and P. Wonch-Hill. NE CYFAR Sustainable Community Project 2016. US Department of Agriculture-NIFA. 2016-2021.
26. $2,499,885. Barker, B., A. Guru, **J. Keshwani**, C. Nelson, and G. Nugent. Technologies (N*Spark + IoT) Project. National Science Foundation. 2016-2019.
27. $300,000. Mamo, M., J. Carroll, **J. Keshwani**, D. Lambe, D. Lee, G. Matkin, L. Sandall, W. Schacht, and C. Speth. Fostering the Next Generation of Agricultural and Natural Resources Professionals through Experiential Learning in Research, Education and Extension. USDA-AFRI. 2016-2018.
28. $23,000. L. Luck, K. Anderson, and **J. Keshwani**. Developing the EquiMove Horse Sensor and Instructional Design Website: An online resource to educate people on health and fitness of their horses. American Association of Equine Practitioners Foundation. 2015-2016.
29. $27,720. L. Luck, K. Anderson, and **J. Keshwani**. Equimove Sensor and Instructional Design Website. USA Equestrian Trust. 2015-2016.
30. $2,499,917. Barker, B., G. Bashford, **J. Keshwani**, G. Nugent, and J. Pedersen. WearTec + IoT (Internet of Things). NSF. 2015-2018.
31. $387,525. Stains, M., K. Adams, B. Couch, J. Dauer, J. Dauer, C. Forbes, D. Golick, M. Griep, **J. Keshwani**, M. Kuzila, Y.-J. Lai, M. Pegg, and A. Zygielbaum. REU Site: Immersion into the Science, Technology, Engineering, and Mathematics (STEM) Education Research Community. NSF. 2015-2018.
32. $34,965. Hay, J. and **J. Keshwani**. Benchmarking Energy Literacy in Nebraska. NE Energy Office. 2014.
33. $2,953,460. Barker, B., **J. Keshwani**, C. Nelson, and G. Nugent. Project SENSE. NSF. 2013-2017.

Section 2.3 Research Patents and Awards

Section 2.3.1 Research Patents

None

Section 2.3.2 National and International Research Awards and Recognition

2024 ASABE IDEA (Inclusion, Diversity, Equity, and Access) Award

2023 Jack Everly Journal Award, NACTA
Speth C, Ramirez II S, Ibach R, Lee D, Sandall L, Mamo M, ***Keshwani J****, Lambe D, Matkin G, and Schacht W. Student Perceptions of Mentoring Practices During Undergraduate Research Experiences. NACTA Journal 2022 Volume 66*

Section 2.3.3 Regional and Local Research Awards and Recognition

2022 IANR Omtvedt Innovation Team Award
2022 Robert B. Daugherty Water for Food Institute Fellow

Section 3 Teaching Accomplishments

Section 3.1 Ph.D. Students

Section 3.1.1 Ph.D. Graduated

None

Section 3.1.2 Ph.D. in Progress

1.	2024 – present	Karisma Yumnam	Ph.D.	Agricultural & Biological Systems Engineering

Section 3.1.3 Ph.D. Student Committees Served On

1.	2024 – present	Julie Obermeyer	Ph.D.	Ag Leadership, Education, & Communication
2.	2022 – 2025	Karen Nieto Flores	Ph.D.	Food Science
3.	2020 – present	Heydi Calderon Ambelis	Ph.D.	Agricultural & Biological Systems Engineering
4.	2017 – 2021	Wheaton Schroeder	Ph.D.	Chemical Engineering
5.	2016 – 2020	Zoe Falls	Ph.D.	Educational Studies: Instructional Technology

Section 3.2 M.S. Students

Section 3.2.1 M.S. Graduated

1.	2022 – 2024	Logan Newman	M.S.	Education Administration
2.	2020 – 2022	Yi Xuen Tay	M.S.	Education Administration
3.	2018 – 2020	Rachel Ibach	M.S.	Applied Science
4.	2017 – 2018	Nathan Rice	M.S.	Agricultural & Biological Systems Engineering
5.	2015 – 2018	Holly Carr	M.S.	Applied Science

Section 3.2.2 M.S. in Progress

1.	2023 – 2025	Samereh Soleimani Babadi	M.S.	Agricultural & Biological Systems Engineering
2.	2015 – 2017	Tyler Wolken	M.S.	Applied Science (withdrew from program)

Section 3.2.3 Non-Thesis Graduate Students Advised

1.	2016 – present	Karly Black	M.S.	Applied Science

Section 3.2.4 Graduate Student Independent Research Projects Supervised

None

Section 3.2.5 M.S. Student Committees Served On

1.	2023 – 2024	Bridget McKinley	M.S.	Agronomy & Horticulture

2.	2022	Casey Carriker	M.S.	Applied Science
3.	2021	Karla Melgar Velis	M.S.	Mechanized Systems Management
4.	2018 – 2020	Agustin Olivo	M.S.	Mechanized Systems Management
5.	2019 – 2020	Rahmi Aulia	M.S.	Dental Biomaterials, UNMC
6.	2018	Brandy Wagner-Schulze	M.A.S.	Applied Science
7.	2015 – 2017	Carol Thompson	M.S.	Animal Science
8.	2015 – 2016	Dagen Valentine	M.A.S.	Applied Science
9.	2014 – 2016	Molly Brandt	M.A.S.	Applied Science
10.	2013	Jessica Taylor	M.S.	Agricultural & Biological Systems Engineering

Section 3.3 Undergraduate Students

Section 3.3.1 Independent Research/UCARE

1.	2024 – 2025	Emily Sileuangthong Ethan Gaddie	Biological Systems Engineering Uganda Nebraska Action Partnership
2.	2022 - 2025	Nia Kaufmann	Entomology Growable social media and content designer
3.	2022	Aspen Rittgarn	Environmental Studies Agricultural Education & Literacy Rates
4.	2022	Abigail Lutjelusche	Agricultural Leadership, Education and Communication Know Your Well Curriculum Development
5.	2021 – 2022	Huey-Xian Wong Shelly Dinh Annie Nelson	Psychology, UNL UCARE: Investigation of afterschool social impacts
6.	2021	Junior Gustavo Armando Ariza Guerrero	Agroindustrial Production Engineering, University de La Sabana, Columbia
7.	2020 – 2021	Olivia Drennon	Agricultural Leadership, Education and Communication Cultivate ACCESS lead ambassador
8.	2019 – 2021	Taylor Nielson	Agricultural Leadership, Education and Communication Cultivate ACCESS lead ambassador
9.	2019 – 2021	Kayla Ney	Biological Systems Engineering, UNL Biomedical Engineering Youth Workshop, Honors Thesis
10.	2018 – 2019	Alexander Zbojniewicz	Computer Engineering, UNL Virtual Reality Education Specialists, Nebraska Innovative Maker Co-Laboratory
11.	2018 – 2019	Miranda Earnest	Agronomy & Horticulture, UNL Community Gardens to Promote Science Literacy
12.	2018 – 2019	Jeremiah Cantu	Computer Engineering, UNL Computer hardware support and design, Nebraska Innovative Maker Co-Laboratory
13.	2018	Grace McDonald	Agricultural Leadership, Education and Communication Biomedical Engineering BLAST! Video Production

14.	2017 – 2018	Matt Boren Matt McManigal Ashley Nelson	Biological Systems Engineering, UNL Virtual Reality Education Specialists, Nebraska Innovative Maker Co-Laboratory
15.	2016	Emily Long	Agricultural & Environmental Sciences Communication, UNL Online STEM Literacy Platform for African Students and Educators
16.	2015 – 2016	Bennett Turner	Agricultural Engineering, UNL Equimove: Horse sensor development
17.	2015 – 2016	Meghan Biegert	Biological Systems Engineering, UNL Wear-TEC projects and curriculum development
18.	2015 – 2016	Katie Meiergerd	Biological Systems Engineering, UNL UCARE: K-12 Engineering outreach activity development
19.	2014 – 2015	Whitney Schultz	Mechanized Systems Management, UNL National Center for Agricultural Literacy
20.	2014 – 2015	Mackenzie Miller	Biological Systems Engineering, UNL Wear-TEC teacher trainings and student workshops
21.	2013 – 2014	Nikolai Reitz	Biological Systems Engineering, UNL UCARE: Development and Validation of E-Textile Activities to Teach Elementary Students the Engineering Design Process
22.	2013	Maggie Clay	Mechanical Engineering, UNL Mad Science Mondays at the Edgerton Explorit Center, Aurora, NE
23.	2012	Grant Meyer	Mechanical Engineering, UMKC Material Properties of Experimental Biopolymers for Dental and Orthopaedic Applications
24.	2012	Daniel Rodman	Chemistry, UMKC Material Properties of Experimental Biopolymers for Dental and Orthopaedic Applications
25.	2011 – 2012	Ryan Holmes	Civil Engineering, UMKC Material Properties of Experimental Biopolymers for Dental and Orthopaedic Applications
26.	2011	Aaron Dorsett	Mechanical Engineering, UMKC Mechanical Testing of Silorane Bone Cement
27.	2002 – 2003	Hajira Ahmad	Biological Systems Engineering, UNL

Section 3.3.1.1 Senior Design Teams Advised

1. 2017 – 2018 Kyle Downey, Will Dudley, Blake Hass, and Neng Huynh
   Enhanced Functionality of Tablets in Point-of-Care Ultrasound

2. 2016 – 2017 Freshta Baher, Calin Kachek, Emily Thrailkill and Kevin Vakilzadian
Dental Implant Device

3. 2015 – 2016 Zach Janecek, Brinson Chapp, Michael Moeller and Kate Watts
Stimulating Cognitive Development in Disabled Infants through Positive Feedback

4. 2014 – 2015 Jared Beyersdorf, Ted Kocher, Kelli Rice and Emily Harrison
McKenzie's Mobility Team

5. 2012 – 2013 Monica Krause, Jared Ostdiek, and Katelyn Stanley
Abdominal Pressure Sensing Dressing

6. 2011 – 2012 Beth Cowles, Liz Hungerford, and Tyler Borcyk (client)
Bone Cement Mixing Device

7. 2010 – 2011 Johnathon McCoy, Allison Mettler, Cady Sargus, and Ted Kocher (client)
Placement Guide for Internal Silorane Fracture Stabilization

Section 3.3.2 Average number of Undergraduates Advised per Year

Year	Average Number Advised
2012	0
2013	15
2014	12
2015	15
2016	19
2017	10
2018	7
2019	8
2020	10
2021	13
2022	11
2023	5
2024	8

Section 3.4 Teaching Awards and Recognition

Section 3.4.1 National and International Teaching Awards and Recognition

2024 ASEE Pre-College Engineering Education Meritorious Service Award

2018 Early Achievement Award, ASEE Biological and Agricultural Engineering Division

Section 3.4.2 Regional and Local Teaching Awards and Recognition

2023 BSE Recruitment & Retention Certificate of Appreciation
2016 Junior Faculty Holling Family Award for Teaching Excellence
2015 UNL Parents Recognition Award

Section 4 Service Accomplishments

Section 4.1 Professional Service

Section 4.1.1 Journal Editorship

None

Section 4.1.2 Technical Reviewer for Journals

On average I review 12 papers a year.

- Education Sciences
- ASEE Computers in Education
- Social Sciences Journal
- Sustainability Journal
- Journal of Cleaner Production
- Journal of Pre-College Engineering Education Research (J-PEER)
- Transactions of the American Society of Agricultural and Biological Engineering

Section 4.1.3 Leadership Positions in International and National Organizations

1. June 2025 – present **Nominating Committee**
   American Society of Agricultural and Biological Engineers

2. July 2018 – 2023 **EOPD-01 Executive/Steering Committee**
   American Society of Agricultural and Biological Engineers
   Meetings Council Representative, July 2022 – July 2023
   Chair, July 2021 – July 2023
   Vice Chair, July 2019 - 2021
   Secretary, July 2018 – July 2019

3. July 2014 – 2018 **EOPD-203 Undergraduate & Graduate Instruction**
   American Society of Agricultural and Biological Engineers
   Past Chair, July 2017 – July 2018
   Chair, July 2016 – July 2017
   Vice Chair, July 2015 – July 2016
   Secretary, July 2014 – July 2015

4. June 2014 – 2020 **Precollege Engineering Education Division**
   American Society of Engineering Education
   Incoming Chair, June 2025 - present
   Past Program Chair, June 2024 – June 2025
   Program Chair, June 2023 – June 2024
   Past Program Chair, June 2019 – June 2020
   Program Chair, June 2018 - June 2019
   Program Chair Elect, June 2017 - June 2018
   Workshop Chair, June 2015 – June 2017
   Committee member, K-12 Workshop Committee, June 2014-2017

5. June 2013 – 2020 **New Engineering Educators Division**
American Society of Engineering Education
Past Chair & Awards Chair, June 2019 – June 2020
Chair, June 2018 – June 2019
Program Chair, June 2017 – Jun 2018
Program Chair Elect, June 2016 – June 2017
Treasurer, June 2015 – June 2016
Secretary, June 2013 – June 2015

Section 4.1.4 Leadership Positions in Regional and Local Organizations

1. 2024 – 2025 Treasurer and membership chair, ASABE Nebraska Section
2. 2023 – 2024 Publications chair, ASABE Nebraska Section
3. 2022 – 2023 Secretary, ASABE Nebraska Section

Section 4.1.5 Membership in Professional Organizations

1. 2023 – present Nebraska Alliance for Conservation and Environmental Education (NACEE)
2. 2021 – 2022 National Association of Extension Program & Staff Development Professionals (NAEPSDP)
3. 2013 – present American Society of Agricultural and Biological Engineers (ASABE)
4. 2013 – present American Society of Engineering Education (ASEE)
5. 2013 – 2016 North American Colleges & Teachers of Agriculture (NACTA)
6. 2009 – 2012 American Society of Mechanical Engineers (ASME)
7. 2006 – 2012 International Association of Dental Research (IADR)
8. 2001 – 2004 Biomedical Engineering Society (BMES)

Section 4.1.6 National and International Service Awards

None

Section 4.1.7 Regional and Local Service Awards

None

Section 4.1.8 Research Review Panels and Dates of Service

1. Discovery Research PreK-12 (DRK-12), National Science Foundation
January 2018

Section 4.2 University Service

Section 4.2.1 Leadership Positions

1. 2017 – present Trust Edge Facilitator, Nebraska Extension

2. 2019 – 2020 Chair, IANR Liaison Committee

3. 2014 – 2016 Coordinator, National Center for Agricultural Literacy

Section 4.2.2 Committee Memberships

1. 2023 – 2024 IANR Ad Hoc Committee on P&T Standards

2. 2018 – 2019 Advisory Board, Center for Transformative Teaching

4. 2017 – 2020 IANR Liaison Committee

5. 2015 – present College STEM Education graduate minor committee

6. 2015 – 2016 Extension Professional Orientation & Campus Visit Host

Section 4.3 College Service

Section 4.3.1 Leadership Positions

1. 2018 – 2019 Chair, CASNR Teaching and Learning Improvement Council

Section 4.3.2 Committee Memberships

1. 2022 – 2024 CASNR Student Success Working Group

2. 2015 – 2019 CASNR Teaching and Learning Improvement Committee

3. 2015 – 2018 Masters of Applied Science – Science for Educators Committee

Section 4.4 Unit Service

Section 4.4.1 Leadership Positions

1. 2024 – present Associate Department Head, Engagement and Extension
2. 2022 – present External Relations, chair
3. 2022 – 2024 Extension Committee, chair
4. 2019 – 2022 Extension Committee, co-chair

Section 4.4.2 Committee Memberships

1. 2021 – present Student Success Committee
2. 2020 – 2024 Social Committee
3. 2019 – present Extension Committee
4. 2019 – present External Relations Committee
5. 2019 – 2020 Awards Committee
6. 2018 – 2019 Scholarship Committee
7. 2014 – 2019 Curriculum Committee

College of Engineering
UtahStateUniversity

Biological Engineering

Dr. David Jones
Dean, College of Engineering
Utah State University
Logan, UT 84322

October 7, 2025

Dear Dean Jones,

I am pleased to write this letter to support the promotion of Dr. Jennifer Keshwani to Full Professor at Utah State University. Dr. Keshwani is considering joining us from the University of Nebraska–Lincoln, bringing with her a remarkable record of leadership, creativity, and impact in Extension education.

Jennifer's work is rooted in the land-grant mission: connecting science with society and empowering communities through education. Her approach is transformational. She builds ecosystems of learning, where students, educators, and stakeholders are not just recipients of knowledge but co-creators of change.

Her leadership in Cultivate ACCESS is a prime example. What began as a mentoring initiative for high school students has grown into a statewide and international model for inclusive agSTEM engagement. Through this program, Jennifer has helped students from historically excluded backgrounds see themselves as scientists, engineers, and leaders. She has built mentoring networks, developed culturally responsive curricula, and fostered a sense of belonging that transcends classrooms.

Jennifer's work is also deeply innovative. She has pioneered game-based learning in Extension, designing tools like *Prairie Protector*, *Ripple Effects*, and *Microgrid Masterminds*, which invite learners to explore complexity, make decisions, and understand the interconnectedness of agriculture, environment, and society. These games are not just educational, but empowering.

Her teaching reflects the same values. In courses like *Engineering Properties of Biological Materials* and *Systems Thinking through Food, Energy, Water, and Societal Systems*, Jennifer creates spaces where students feel seen, supported, and challenged. She blends technical rigor with creativity, and always centers the human experience.

As she transitions to Utah State University, Jennifer brings with her a portfolio of successful programs and over $3 million in competitive funding, along with a compelling vision for the future of Extension: collaborative, interdisciplinary, and deeply rooted in the communities we serve. Her recent appointment as Associate Head for Extension and Engagement at the University of Nebraska–Lincoln is a strong testament to her leadership and her ability to build meaningful connections across departments, institutions, and sectors.

I strongly and enthusiastically support her promotion to Full Professor and look forward to working with her in the near future.

Best,

Dr. Jixun Zhan
Department Head and Professor
Department of Biological Engineering
Utah State University

College of Engineering
UtahStateUniversity

Dean David D. Jones

October 6, 2025

Provost Laurens Smith
Utah State University
1435 Old Main Hill
Logan, UT 84322-1435

Dear Provost Smith,

In recognition of her outstanding accomplishments, extensive experience and exceptional credentials, I recommend that Dr. Jenny Keshwani be granted tenure and hired at the rank of Professor in the College of Engineering.

A Tenure & Promotion committee was convened to evaluate Dr. Keshwani's qualifications. Both the committee and the department head have expressed their support for his appointment. I fully concur with their assessment and enthusiastically endorse the recommendation for tenure.

Sincerely,

David Jones
Dean

Deepak Keshwani, PhD

7957 Nob Hill Rd, Lincoln, NE 68516 | deepakrk@hotmail.com | (919) 607-6388

Professional summary

Experienced academic leader and educator with a strong record of advancing student access and success, designing curriculum, and managing academic programs in engineering and technology. Demonstrated expertise in pedagogical innovation, student success frameworks, and the development of assessment tools. Conducts research at the intersection on systems modeling and sustainability analysis with a focus on agricultural and circular bioeconomy systems for decision support and educational impact. Brings a systems-thinking perspective to academic planning, program development, and learner engagement across campus and statewide settings.

Education history

- 2009 Ph.D., Biological and Agricultural Engineering with a minor in Mathematics
  NC State University, Raleigh, NC
- 2004 M.S., Agricultural and Biological Systems Engineering
  University of Nebraska-Lincoln, Lincoln, NE
- 2002 B.S., Biological Systems Engineering
  University of Nebraska-Lincoln, Lincoln, NE

Employment history

University of Nebraska-Lincoln (UNL), 2009 to present

- Associate Professor and Director of Undergraduate Programs, Biological Systems Engineering (75% appointment: 50% Teaching and 25% Research)
- Interim Director for Academic Pathways and Learner Engagement, College of Agricultural Sciences and Natural Resources (25% appointment)
- Courtesy faculty, UNL Department of Agricultural Leadership, Education, and Communication
- Faculty Fellow, Daugherty Water for Food Global Institute
- Faculty Fellow, College of Agricultural Sciences and Natural Resources (2017-2024)

Summary of Formal Leadership Roles

Director of Undergraduate Programs, Biological Systems Engineering (2021-present)
Provide strategic leadership for recruiting, retention, and student success for three undergraduate majors with a collective enrollment of 240 students. Manage fiscal resources for including teaching budgets, scholarships, and foundation accounts. Coordinate academic processes and supervise student services staff. Establish partnerships with community colleges and other departments on campus. Represent Biological Systems Engineering (BSE) in undergraduate initiatives at the college and university level. Facilitate curricular innovation in the department. Key accomplishments include:

- Established the BSE student services team including hiring of two new staff members
- Key member of the Department ABET Accreditation Team.

- Led approval of program name change and curricular reform for our technology program
- Led approval of ecological engineering minor and online Irrigation Technology certificate
- Leveraged foundation funds to support student professional development
- Initiated department undergraduate student ambassador program
- Implemented a new advising model for the department featuring professional department advising supplemented by faculty mentoring
- Doubled student credit hour generation in service courses offered by the department through engagement of key stakeholders across the college

Faculty Fellow (2017-2024) and Interim-Director for Academic Pathways and Learner Engagement, College of Agricultural Sciences and Natural Resources (2024-present)
Member of the College of Agricultural Sciences and Natural Resources (CASNR) Deans Leadership. Conceptualize and implement new pathways to engage diverse learners across Nebraska. Facilitate partnerships with post-secondary institutions in Nebraska. Coordinate the interdisciplinary and online degree programs in the college. Lead transformation of cocurricular learning initiatives. Represent CASNR at university initiatives at the request of the Dean.

Significant Leadership Development Activities

2022-2024 Leadership Fellow, Nebraska University (NU) System Developing Excellence in Academic Leaders Program
Selected for Two-year program for current and emerging academic leaders from each of the four NU System Campuses. Emphasis on change management, budgets, decision-making within the NU System, and donor relations.

2020-2023 Fellow for the PASS (Promoting-At-Promise Student Success) Initiative, a partnership between University of Nebraska-Lincoln, Susan Buffet Foundation, and USC Pullias Center for Higher Education
Selected by the UNL Senior Associated Vice Chancellor to be a member of a cross-functional team to develop strategies for culture change and adoption of ecology of validation-centered strategies across campus to support student success. Emphasis on faculty and staff development, evaluation of existing policies and procedures, and evaluation tools to assess culture change.

LEAD21 Leadership Program (Class 12)
Nominated by the CASNR Dean to participate in LEAD21 program is designed to develop leadership in land grant institutions and their strategic partners through a focus on self-awareness, group and team dynamics, resource management, and broader systemic issues. As part of the program, I completed a holistic analysis of the college's student success ecosystem and made recommendations for change.

Major Honors and Recognitions

- 2024 College of Agricultural Sciences and Natural Resources Distinguished Teaching Award, University of Nebraska
- 2023 James V. Griesen Exemplary Service to Students Award, University of Nebraska
- 2023 Inductee, the Honor Society of Agriculture, Gamma Sigma Delta

- 2022 Omtvedt Innovation Award for Teams (Cultivate ACCESS), Institute of Agriculture and Natural Resources, University of Nebraska
- 2021 Outstanding Young Alumni, College of Agricultural Sciences and Natural Resources, NC State University
- 2019 L.K. Crowe Undergraduate Advising Award, College of Agricultural Sciences and Natural Resources, University of Nebraska
- 2019 A.W. Farrell Young Educator Award, American Society of Agricultural and Biological Engineers
- 2017 IANR Omtvedt Innovation Award for Teaching, University of Nebraska
- 2016 Holling Family Master Teacher Award, University of Nebraska
- 2016 College of Engineering Distinguished Teaching Award, University of Nebraska
- 2014 Holling Family Junior Faculty Award for Teaching Excellence in Agriculture and Natural Resources
- 2013 Presidential Citation, American Society of Agricultural and Biological Engineers
- 2012 Henry Y. Kleinkauf Family Distinguished New Faculty Teaching Award, College of Engineering, University of Nebraska-Lincoln
- Recognized 9 times by the UNL Parents Association for Contribution to Students.

Professional development activities

- Certified as ABET Program Evaluator, April 2025.
- Ethics Everywhere! Co-creating Meaningful Ethics Assignments across Engineering Curriculum Development Workshop, 2024 ASEE Annual Conference, Jun 23, 2024
- Supporting First-generation Students. Faculty Workshop, November 2023, UNL
- Navigating Conflict on College Campuses. August 2023, Constructive Dialogue Institute.
- Intercultural Development Inventory (IDI) coaching, Helen Fagan and Associates, 2022
- Data Utilization Workshop at 2022 ASEE Conference, June, 2022
- UNL Team Member, American Association of Colleges and Universities (AACU) Institute on General Education and Assessment, June 7-10, 2022.
- Universal Design for Learning, ASEE Virtual Workshop, July 22, 2020
- Expanding Resources that Connect Diversity, Equity, Access, & Inclusion with Ethics Education, ASEE Virtual Workshop, June 21, 2020
- Indigeneering: The Future of Engineering Education. ASEE Virtual Workshop, May 27, 2020
- UndocuAlly Training, UNL Office of Academic Success and Intercultural Services. January 2020
- UNL suicide prevention gatekeeper training program (REACH), January 2019
- SENCER Summer Symposium on Science Education through Civic Engagement. August 2016.
- American Society of Engineering Education Workshop - Improving first-year engineering student retention, success, and time to graduation, June 2015
- Academic Recovery Coach Training, UNL Office of Academic Affairs. July 2012
- Recruiting 101 Workshop, August 2010. UNL Office of Admissions
- Bioenergy Engineering Extension and Workforce Development Workshop, October, 2009
- NURAMP (Research Administration Management Program). UNL Office of Research and Economics Development. 2009-2010.

Competitive Grants and Contracts

Funded grants to date (Total of $4.3 Million in grants with $1.6 Million as Lead *)

External

- **USDA NIFA Women and Minorities in STEM (WAMS) program.** 09/15/2023 - 09/14/2026. Cultivating Resilience. Amount: $200,000. *The overall goal of this project is to support K-12 educators and youth through professional development, mentoring, and culturally responsive climate resilience curriculum development that integrates STEM, DEI and the future of work.*
- **USDA FANE program.** Cultivate ACCESS Cultivate ACCESS to Data Science in Agriculture. 09/01/2023 - 08/31/2027. Amount $749,825. *The overall goal of this project is to promote youth acquisition of systems thinking skills and development of collective action skills to enhance consumer confidence in ag technologies, and, awareness and understanding of STEM-related careers through immersive educational video games and modules, near-peer mentoring, and social media engagement.*
- ***Nebraska 4-H Foundation.** Developing a Food Systems Market Dynamics Game based on Scientific Data and Modeling. 08/01/2022- 5/31/2025. Amount: $ 200,000 *The overall goal of this project is to create an online multiplayer educational video game focused on market dynamics associated with the corn-ethanol-beef nexus*
- ***National Science Foundation.** Immersive Educational Game Simulations to Enhance Understanding of Corn-Water-Ethanol-Beef System Nexus. 10/01/2016-09/30/2022. Amount: $999,644. *The overall goal of this work is to use current research-based models to develop an educational immersive simulation game to enhance understanding of the complex interactions of CWEB system nexus.*
- **CHS Foundation.** Cultivate ACCESS Diversity Fellows Program. 09/01/2020 - 10/15/2022. Amount: $ 83,426. *This project will create a cohort of High school ag educators will participate in a community of practice to build Diversion & Inclusion skills.*
- ***Nebraska 4-H Foundation** Designing Research-based Games. Pilot Project. 07/01/2021 – 07/30/2022. Amount: $3,875. *Pilot project to build a framework for a research-based food-chain game.*
- **USDA NIFA Women and Minorities in STEM (WAMS) program.** Cultivating ACCESS: Agricultural Career Communities to Empower Students in STEM. 09/01/2017 - 08/31/2021. Amount: $94,387. *The CULTIVATE ACCESS project will increase participation by women and minorities from rural areas in STEM-related agricultural careers through the creation of communities to foster mentoring relationships between a target audience of high-school students, college students, and industry professionals throughout the grain production-to-processing framework.*
- **USDA Higher Education Challenge Program.** Excellence in Education for Food, Energy, and Water (E2FEW). 05/01/2017- 05/14/2021. Amount: $150,000. *The Excellence in Education for Food, Energy, and Water (E2FEW) project at the University of Nebraska-Lincoln (UNL) supported the development, implementation, and evaluation of a 24-month sustained professional development program and synergistically enhance the impact of the Food, Energy, and Water in Society (FEWs) undergraduate minor in the UNL College of Agricultural Sciences and Natural Resources.*
- **CLAAS Omaha Inc.** Integration of CLAAS Telematics into grain harvest logistics model. 04/01/2015 - 03/31/2018. Amount: $ 111,057. *The proposed project will continue to work from the prior collaboration by integrating the CLAAS Telematics system into the harvest simulation framework. The objective will be to come up with a field specific, machinery management decision-making tool incorporating the telematics data into harvesting logistics model.*

- **Intertek Testing Services NA, Inc. (Prime sponsor: U.S. Department of Energy).** Agricultural Industry Advanced Vehicle Technology Benchmark Study. 03/05/2013 - 06/30/2014. Amount: $150,000. *The goal of this project was to summarize petroleum consumption in the agricultural sector for major cropping systems through extensive literature review, preliminary research, and survey of industries and producers. The project identified opportunities to reduce or displace petroleum consumption.*
- ***CLAAS Omaha Inc.** Validation and Expansion of In-Field Models for Logistics and Economics of Biomass Collection. 07/01/2012 - 08/01/2014. Amount: $61,478. *The goal of this project was to continue research efforts to model logistics of grain and biomass harvest through field-scale validation of the modeling framework. Validation data from combines and grain carts was collected from farms across Nebraska and Kansas and analyzed in regards to the model predicted values for field efficiencies of equipment systems.*
- **USDA National Institute of Food and Agriculture (NIFA).** Effects of Food Processing on Food Allergens - Assessment and Improvement of Detection Methods. 01/01/2011 - 12/31/2015. Amount: $500,000. *The goal of this project was to evaluate the effects of various food processing technologies on our ability to detect specific food allergens.*
- **U.S. Department of Energy.** Sustainable Energy Options for Rural Nebraska. 09/01/2010 - 08/31/2014. Amount: $499,835 (plus $96,321 UNL cost-share). *The goal of this project was to deploy a suite of renewable energy systems at the Haskell Agricultural Laboratory. Solar arrays, wind turbines, and ethanol driven irrigation systems were installed, and data was gathered to assess their performance.*
- **CLAAS Omaha Inc.** Logistics and Economics of Dual Harvesting of Grain and Biomass. 07/01/2009-12/31/2011. Amount: $60,000. *The goal of this project was to develop a computational tool to model and analyze the logistics and economics of grain and biomass harvesting*

Internal

- **Grand Challenges Catalyst Competition - Planning Grant**. Community Climate Resilience on the Great Plains. 09/01/2023 – 05/31/2025. Amount: $80,000. *The overall goal is to develop a community-based climate resilience institute at UNL.*
- ***Daugherty Water for Food Global Institute Graduate Student Support** An integrated framework to account for temporal, spatial, and climate variability in the Corn-Water-Ethanol-Beef nexus system. 07/01/2021 – 06/30/2024. Amount: $52,500. The overall project goal is to develop identify and evaluate sources of variability and their impacts on the CWEB nexus
- ***Daugherty Water for Food Global Institute Graduate Student Support**. Integrated modeling and analysis of the Corn-Water-Ethanol-Beef System. 06/01/2018 – 07/30/2020. Amount: $34,000. PI: Keshwani, D. R. (100%). The overall project goal is to develop a decision support system through integrated modeling of the CWEB nexus.
- ***UNL IANR (Institute of Agriculture and Natural Resources) – USDA Meat Animal Research Center (MARC).** Active RFID tracking system for real time swine management decision support. 01/17/2017 – 02/01/2018. Amount: $44,316. *The goal of this project is to move towards a real-time decision support system for precision animal management by developing data filtering and data processing capabilities.*
- ***ARD Multistate Hatch Funding**. S1041: The Science and Engineering for a Biobased Industry and Economy. Nebraska sub-title: Optimization of Biomass conversion and Feedstock Logistics to Support Nebraska's Biobased Industry. 10/01/2016-9/30/2018. Amount: $20,000. *The goal of*

this project is to develop modeling and control strategies to improve biomass conversion to support the emerging biofuels and bioproducts industry.

- **Rural Futures Institute.** The Nebraska Hayseed Project. 07/01/2014 -6/30/2016. Amount: $16,000. *This transdisciplinary teaching and engagement project brings together the Lied Center, College of Agricultural Sciences and Natural Resources, and the College of Journalism. The overall goal is to have CASNR students implement oral history projects for targeted rural communities across Nebraska and use those oral histories as part of an Arts across Nebraska Tour featuring Susan Werner, a famous folk musician.*
- *** IANR – USDA Meat Animal Research Center (MARC).** Deployment and evaluation of a tracking system for improved animal management. 05/01/2014 – 05/30/2016. Amount: $79,255. *The goal of this project is to deploy and evaluate an Active RFID system to track and model the behavior of pigs to enable precision animal management for improved productivity.*
- ***UNL Ag Research Division Strategic (Miscellaneous) Funding.** Multiplate fluorescence spectrometer for biomass conversion research. Amount $19,999. 6/18/2014.
- *** UNL Ag Research Division Hatch Equipment Grants.** Reactor Sampling and Control System for Biofuels and Food Safety Research. Amount: $29,605. 6/17/2013.
- ***UNL IANR Strategic Investments Competitive Seed Grant**. Improving Biochemical Conversion Efficiency of Lignocellulosic Biomass at High Solid Loadings. Amount: $51,680. 07/01/2010 – 06/30/2013. *The goal of this project is to explore various strategies to enhance the conversion of lignocellulosic biomass at high solid loadings. Issues such as particle size, pretreatment methods, and fed-batch strategies were explored.*
- ***UNL Layman Award, NU Foundation.** Effects of biomass particle size on alkaline pretreatment of switchgrass. 06/01/2010 - 12/31/2011. Amount: $9,750. *The goal of this project was to understand the role of particle size on sugar yield from enzymatic hydrolysis of lignocellulosic biomass*

Publications and scholarly outputs

Peer-reviewed journal articles

- Brown, J.B., Fudolig, M., Brown-Brandl, T., and Keshwani, D.R. 2023. Impacts on Teamwork Performance for an Engineering Capstone in Emergency Remote Teaching. Journal of the ASABE 66(2): 263-274
- Calderon-Ambelis, H.. and Keshwani, D.R. 2022. Sources of Variability and Uncertainty in Food-Energy-Water Nexus Systems. Journal of the ASABE. 65(6): 1191-1199
- Monhollon, L. and Keshwani, D.R. 2021. Leveraging Crop Budgets to Assess the Environmental Impacts of Agricultural Operations. Applied Engineering in Agriculture, 37(04): 573-582
- Argo, E.; Keshwani, D.R. 2019 Techno-Economic Implications of Fed-Batch Enzymatic Hydrolysis. Processes, 7, 847
- Anderson, R., Keshwani, D. R., Guru, A., Yang, H., Irmak, S., Subbiah, J. 2018. An integrated modeling framework for crop and biofuel systems using DSSAT and GREET models. Environmental Modelling and Software. 108: 40-50
- Cannayen, I., Tumuluru, J. S., Keshwani, D. R., Schmer, M., Archer, D., Liebig, M., Halvorson, J., Hendrickson, J., Kronberg, S. 2016 Biomass bale stack and field outlet locations assessment for efficient infield logistics. *Biomass and Bioenergy*.
- Tai, C., Keshwani, D. R., Voltan, D., Meyer, G. E., Kuhar, P. 2016. Fuzzy Logic Feedback Control for Fed-batch Enzymatic Hydrolysis of Lignocellulosic Biomass. *Bioprocess and Biosystems Engineering*.

- Tai, C., D.R. Keshwani, D.S. Voltan, P.S. Kuhar$_1$, and A.J. Engel. 2015. Optimal control strategy for fed-batch enzymatic hydrolysis of lignocellulosic biomass based on epidemic modeling. Biotechnology and Bioengineering
- Tai, C., Arellano, M.G., D.R. Keshwani. 2014. Epidemic based modeling of enzymatic hydrolysis of lignocellulosic biomass. Biotechnology Progress. 30(5): 1021-1028
- Tai, C., D.R. Keshwani. 2014. Enzyme adsorption and cellulose conversion during hydrolysis of dilute acid pretreated corn stover. *Energy and Fuels.* 28: 1956–1961
- Tai, C., D.R. Keshwani. 2014. Impact of Pretreatment with Dilute Sulfuric Acid Under Moderate Temperature on Hydrolysis of Corn Stover with Two Enzyme Systems. *Applied Biochemistry and Biotechnology*. 172 (5): 2628-2639
- Igathinathane, C., Archer, D., Gustafson, C., Schmer, M., Hendrickson, J., Kronberg, S., Keshwani, D., Backer, L., Hellevang, K. and Faller, T. 2014. Biomass Round Bales Infield Aggregation Logistics Scenarios. *Biomass and Bioenergy*. 66:12-26
- Zhang, S., D.R. Keshwani, Y. Xu, and M.A. Hanna. 2012. Alkali combined extrusion pretreatment of corn stover to enhance enzymatic hydrolysis. *Industrial Crops and Products*. 37 (1):352-357
- Young, S.L., G. Gopalakrishnan, and D.R. Keshwani. 2011. Invasive Plant Species as Potential Bioenergy Producers and Carbon Contributors. *Journal of Soil and Water Conservation* 66(2):45A-50A
- Redding, A.P., Z. Wang, D.R. Keshwani, and J.J. Cheng. 2011. High temperature dilute acid pretreatment of coastal bermuda grass for enzymatic hydrolysis. *Bioresource Technology*. 102(2):1415-1424.
- Keshwani, D.R., J.J. Cheng. 2010. Microwave-based Alkali Pretreatment of Switchgrass and Coastal Bermudagrass for Bioethanol Production. *Biotechnology Progress*. 26(3):644-652.
- Wang, Z., D.R. Keshwani, A.P. Redding and J.J. Cheng. 2010. Sodium hydroxide pretreatment and enzymatic hydrolysis of coastal Bermuda grass. *Bioresource Technology.*101(10):3583-3585
- Keshwani, D.R., J.J. Cheng. 2010. Modeling Changes in Biomass Composition during Microwave-based Alkali Pretreatment of Switchgrass. *Biotechnology and Bioengineering.* 105(1):88-97.
- Keshwani, D.R., J.J. Cheng. 2009. Switchgrass for Bioethanol and Other Value-Added Applications: A Review. *Bioresource Technology*. 100(4):1515-1523.
- Keshwani, D.R., D.D. Jones, G.E. Meyer, R.M. Brand. 2008. Rule-based Mamdani-type Fuzzy Modeling of Skin Permeability. *Applied Soft Computing*. 8(1):285-294.
- Chen, Y., R.R. Sharma-Shivappa, D. Keshwani, C. Chen. 2007. Potential of Agricultural Residues and Hay for Bioethanol Production. *Applied Biochemistry and Biotechnology.* 142(3):276-290.
- Keshwani, D.R., D.D. Jones, R.M. Brand. 2005. Takagi-Sugeno Fuzzy Modeling of Skin Permeability. *Cutaneaous and Ocular Toxicology*. 24(3):149-163.

Book-chapters

- Keshwani D., Lima B., and Keshwani J. 2024. The Role of Inclusion, Diversity, Equity, and Access in Biological and Agricultural Engineering . In Agricultural and Biological Engineering Education: Global Perspectives and Current Practice, ed. U. L. Opara, Boca Raton, FL: CRC
- Keshwani, D.R. 2017. Biomass Chemistry. In Biomass-to-Renewable Energy Processes, 2nd Editation. ed. J.J. Cheng, Boca Raton, FL: CRC Press.
- Jameel, H., D.R. Keshwani. 2017. Thermochemical Conversion of Biomass to Power and Fuels. In Biomass-to-Renewable Energy Processes, 2nd. ed. J.J. Cheng, Boca Raton, FL: CRC Press.
- Yuwan, W., Wang, Z.,and D.R. Keshwani. 2017. Biomass Resources In Biomass-to-Renewable Energy Processes, 2nd. ed. J.J. Cheng, Boca Raton, FL: CRC Press.

Other publications/products

- Ripple Effects: a serious educational game to teach youth about systems thinking, data science, and water management. Beta version available online at https://rippleffectsgame.com
- BECC's World: a serious educational game to teach youth about market dynamics in agriculture with a focus on corn, ethanol, beef nexus. Available online at https://beccsworld.com/
- Praire Protector: a serious educational game to foster decision making through understanding of invasive species on grasslands. Available online at https://prairieprotector.com/
- Agpocalypse: a serious educational game to foster systems thinking, increase understanding of agroecosystem sustainability, and raise awareness of STEM careers. Available at https://agpocalypse.com/

Invited talks

- Launching Professional Learning Communities for Student Success. Invited speaker and panelist, Omaha, NE. 2025 Susan Thompson Buffet Foundation Annual Research Meeting.
- Preparing CASNR Graduates for the Future of Work. Invited Speaker at the 2024 Water and Integrated Cropping Systems (WICS) Hub conference, Oct 29th, 2024, University of Nebraska,
- Reimagining Responsive Teaching. Invited Speaker at the 2024 InnovatED Symposium, University of Nebraska Meical Center, Sep 11, 2024, Omaha, USA
- Next Gen. ASM programs: What does ASM/ATM look like in 2030? Invited Speaker and Panelist, 2023 ASABE Annual International Meeting, July 8-11, 2023, Omaha, USA
- It's time for new IDEAs: enhancing our engineering profession and academic institutions. Invited talk to Equity, Diversity, and Inclusion Series of McGill Bioresource Engineering Department, Thursday, Feb 16, 2023 (Virtual).
- Practical Tips to Create Inclusive Classrooms. Invited Speaker and Moderator, 2022 ASABE Annual International Meeting. July 17-20, 2022, Houston, USA.
- reFEWSing to give-up: Reflections on a multi-year effort to develop research-based educational video games on agroecosystem sustainability and systems-thinking. Invited Speaker, UNL Discipline-Based Education Research (DBER) STEM Seminar Series, Sep 15th, 2022, Lincoln, NE.
- reFEWSing to give-up: Reflections on a multi-year effort to develop research-based educational video games on Corn-Water-Ethanol-Beef Nexus. Invited Plenary Panel. 2022 NSF INFEWS Workshop organized by Princeton University, Feb 10th, 2022 (Virtual)
- Game-based learning to support systems thinking. Invited workshop for Nebraska Environmental Education Conference (Virtual), Jan 19, 2022.
- Increasing diversity in the agriculture industry: why it matters and what we can do about it. 2019 Nebraska State FFA Pathway to Careers Conference and Ag Ed Symposium, November 16, 2019, Kearney, NE.
- Science Communication: starting with ourselves. 2019 Daugherty Water for Food Institute Faculty and Student Research Forum, April 4, 2019, Lincoln, NE.
- Changing Face of Agriculture and Competitiveness in a Global Environment (what we need from IANR to be success in a global market), a panel session. 2019 Ag Builders of Nebraska Annual Meeting, January 16, 2019.
- Scaling-up Nebraska's Emerging Bioeconomy. Ag Builders of Nebraska. July 8, 2016
- An epidemic model for enzymatic hydrolysis of lignocellulosic biomass. 2014 Institute of Biological Engineering Annual Meeting. Invited Session – ASABE Perspectives of Biological Engineering. March 6, 2014.
- Bioprocessing of Lignocellulosic Biomass: Addressing Challenges at Multiple Scales. UNL Department of Agronomy and Horticulture Seminar Series. March 3, 2011

Peer-reviewed conference publications

- Keshwani, D. R., & Keshwani, J., & Newman, L. R., & Ibach, R., & King, T. (2024, June), *A Department-wide Approach to Student Success Based on Ecological Validation* Paper presented at 2024 ASEE Annual Conference & Exposition, Portland, Oregon. 10.18260/1-2—46435
- Han, H., & Palala, H., & Keshwani, J., & Keshwani, D. R. (2023, June), *Community Building through Technology in a Biological Systems Engineering Course* Paper presented at 2023 ASEE Annual Conference & Exposition, Baltimore , Maryland. 10.18260/1-2—43245
- Ingram, E., & Keshwani, J., & Keshwani, D., & Lunn, C., & BINFIELD, J. (2022, August), *Prairie Protector: Systems thinking and STEM-informed decision-making in agroecosystems through game-based learning* Paper presented at 2022 ASEE Annual Conference & Exposition, Minneapolis, MN. 10.18260/1-2—40545
- Rice, N. C., & Keshwani, J., & Keshwani, D. R. (2020, June), *Role of Agricultural Simulation Games to Promote Youth-Adult Discussions Related to Agricultural Sustainability* Paper presented at 2020 ASEE Virtual Annual Conference Content Access, Virtual On line . 10.18260/1-2—35167
- Ibach, R., & Keshwani, J., & Keshwani, D. R., & Everhart, S. E., & Sandall, L. (2020, June), Work in Progress: Impacts on Self-Efficacy and Employability Skills of Women and Minority Participants of the Cultivate ACCESS Program Paper presented at 2020 ASEE Virtual Annual Conference Content Access, Virtual On line . 10.18260/1-2--35676
- Rice, N. C., & Guru, A., & Keeler, C. N., & Keshwani, D. R., & Keshwani, J. (2018, June), Comparison of Game-based Learning and Traditional Lecture Approaches to Improve Student Engagement and Knowledge Transfer in STEM Education Paper presented at 2018 ASEE Annual Conference & Exposition , Salt Lake City, Utah. 10.18260/1-2--30209
- Keshwani, D. R., & Keshwani, J. (2019, June), *Work in Progress: Understanding Student Successes, Challenges, and Perceptions of Community* Paper presented at 2019 ASEE Annual Conference & Exposition , Tampa, Florida. 10.18260/1-2—33660
- Keshwani, D. R., & Anderson, R. D., & Keshwani, J., & Subbiah, J., & Guru, A., & Rice, N. C. (2017, June), *Educational Immersive Simulation Game Design to Enhance Understanding of Corn-Water-Ethanol-Beef System Nexus* Paper presented at 2017 ASEE Annual Conference & Exposition, Columbus, Ohio. 10.18260/1-2—28198
- Barnes, B, Keshwani, D.R. Brown-Brandl, T. 2017. Deployment and Evaluation of an Active RFID Tracking System for Finishing Pigs. Proc 8th European Conference on Precision Livestock Farming, Sept. 12-14, 2017, Nantes, France

Conference presentations

- Stowell, R. Heeren, D and Keshwani, D. 2024. Strengthening Student Skills in Evaluating Technical and Economic Aspects of Ag Technology Systems through Capstone Projects. 2024 ASABE Annual International Meeting, June 29th, 2024, Anaheim, CA.
- Calderson-Ambelis, H., and Keshwani D. 2023. Integrating an agent-based simulation model with a VAR model to evaluate a Corn-Water-Ethanol-Beef system over time. Circular Bioeconomy Systems Symposium. 2023 ASABE Annual International Meeting. July 9, 2023, Omaha, USA.
- Calderson-Ambelis, H., and Keshwani D. 2022. The value of circularity for a corn-based ethanol biorefinery. 2022 ASABE Annual International Meeting. July 17-20, 2022, Houston, USA.
- Monhollon, L., and Keshwani, D. 2020. A framework for incorporating spatial variability into LCAs of agricultural systems. 2020 American Center for Life Cycle Assessment (ACLCA) Virtual Conference.

- Lunn, C., Keshwani, D., and Monhollon, L. 2020. Immersive Educational Video Game Design to Enhance Understanding of Agricultural Systems. 2020 Virtual ASABE Annual International Meeting.
- Monhollon, L., and Keshwani, D. 2020. Leveraging Crop Budgets to Assess Environmental Impact of Agricultural Operations. 2020 Virtual ASABE Annual International Meeting.
- Frerichs, N., **Keshwani, D.** 2020. Designing Effective Faculty-Staff Partnership Models. 39th Annual Conference on First-Year Experience. February 21-24, 2020, Washington D.C., USA
- Keshwani, D., and Brumm, T. 2019. The Future of Ag Systems Management and Technology Programs. 2019 ASABE Annual International Meeting. July 7-Aug 11, 2019, Boston, MA.
- Mabie, D., Curtis, E., Keshwani, D. 2018. Analysis of math competencies in a general physics course for agricultural science majors to identify at risk populations. 2018 ASABE Annual International Meeting. July 29-Aug 1 2018, Detroit, MI.
- Anderson, R., Keshwani, D. Guru, A., Subbiah, J. 2018. An integrated modeling framework for corn, ethanol, and beef systems using service-oriented architecture. 2018 ASABE Annual International Meeting. July 29-Aug 1, 2018, Detroit, USA.
- Keshwani, D., Boesen, B., Quinlan, M., Wahlquist, P. 2018. The Nebraska Hayseed Project: A transdisciplinary teaching initiative linking agriculture, performing arts, and oral history, 2018 ASABE Annual International Meeting July 29-Aug 1 2018, Detroit, MI.
- Emanuel, E.$_1$, Keshwani D.R. 2017. Techno-economic implications of fed-batch enzymatic hydrolysis for cellulosic ethanol production. 2017 ASABE Annual International Meeting. July 2017, Spokane, WA.
- Keshwani, J., Keshwani, D.R., Curtis, E. 2017. Student Identification of Challenges and Success in Agricultural and Biological Engineering. 2017 ASABE Annual International Meeting. July 2017, Spokane, WA.
- Anderson, R., Guru, A., Keshwani, D.R., Subbiah J. 2017. Developing an integrated model for the Corn-Water-Ethanol-Beef Nexus System. 2017 ASABE Annual International Meeting. July 2017, Spokane, WA.
- Emanuel, E., Keshwani D.R. 2016. Process simulation of fed-batch enzymatic hydrolysis for cellulosic ethanol production. 2016 ASABE Annual International Meeting. July 2016, Orlando, FL
- Mabie, D., Keshwani D.R., Curtis, E.T. 2016. Potential risks of increased online and blended course delivery in a technical applied physics course. 2016 ASABE Annual International Meeting. July 2016, Orlando, FL.
- Emanuel, E., Keshwani D.R. Process simulation of fed-batch enzymatic hydrolysis for cellulosic ethanol production. 2016 ASABE Annual International Meeting. July 2016, Orlando, FL
- Barnes, B., Keshwani D.R., Brown-Brandl, T, Dustin D. Implementation and testing of an active RFID tracking system for monitoring and understanding finishing swine activity and space utilization Process simulation of fed-batch enzymatic hydrolysis for cellulosic ethanol production. 2016 ASABE Annual International Meeting. July 2016, Orlando, FL
- Canneyen, I., Keshwani D.R., Tumuluru, J. Efficient biomass bales infield logistics through bale stack and field outlet locations. 2016 ASABE Annual International Meeting. July 2016, Orlando, FL
- Emanuel, E., Keshwani D.R. Enzyme adsorption and cellulose conversion during hydrolysis of alkali-pretreated corn stover. 2015 ASABE Annual International Meeting. July 2015, New Orleans, LA
- Keshwani D.R., Tai, C. Enzyme adsorption and cellulose conversion during hydrolysis of alkali-pretreated corn stover. 2015 ASABE Annual International Meeting. July 2015, New Orleans, LA

- Schaardt, W., Keshwani D.R., Luck, J.D., Kocher M.F. Validation of Grain Only Harvest Simulation Model. 2014 ASABE Annual International Meeting. July 2014, Montreal, Canada.
- Kuhar, P.S. and Keshwani D.R. 2014. Characterization of Genetically Modified High Biomass Producing Tobacco Plant. 2014 ASABE Annual International Meeting. July 2014, Montreal, Canada.
- Tai, C. and Keshwani D.R. 2014. Modified epidemic modeling for enzymatic hydrolysis of dilute acid pretreated corn stover. 2014 ASABE Annual International Meeting. July 2014, Montreal, Canada.
- Tai, C. and Keshwani D.R. 2013. Developing a hybrid control approach for fed-batch enzymatic hydrolysis of pretreated lignocellulosic biomass. 2013 ASABE Annual International Meeting. July 2013, Kansas City, MO
- Schaardt, W., Keshwani D.R., Jones, D.D., Wold M. 2013. Integration of Yield Maps into Modeling of In-Field Logistics and Economics for Biomass Collection. 2013 ASABE Annual International Meeting. July 2013, Kansas City, MO
- Dhir, R. and Keshwani D.R. 2012. Effect of biomass particle size on enzymatic hydrolysis of lignocellulosic biomass at different solid loadings. 2012 ASABE Annual International Meeting. July 29-August 1, 2012, Dallas, TX.
- Wold, M. T., Kocher M. F., Keshwani D. R., and Jones, D. M. 2012. Modeling Single-Pass Crop Residue Collection: Economics. 2012 ASABE Annual International Meeting. July 29-August 1, 2012, Dallas, TX.
- Igathinathane, C., Archer, D., Gustafson, C., Schmer, M., Hendrickson, J., Kronberg, S., Keshwani, D., Hellevang, K., Nowatzki, J., Backer, L., Thorson, C., Faller, T. and Roth, M. 2011. Infield Aggregation Transport of Biomass Round Bales. 2011 ASABE Annual International Meeting.. August 7-10, 2011, Lousiville, KY.
- Redding, A.P., D.R. Keshwani, J.J. Cheng. 2009. Process Simulation of Dilute Acid Pretreatment of Coastal Bermudagrass for Bioethanol Production. 2009 ASABE Annual International Meeting.. June 21-24, 2009. Reno, NV.
- Keshwani, D.R., J.J. Cheng. 2008. Modeling of Microwave-based Chemical Pretreatment of Switchgrass. 2008 ASABE Annual International Meeting. Paper number 083954. June 29-July 2, 2008. Providence, RI.
- Keshwani, D.R. 2008. International Graduate Student Learning in USA. International Learning Experiences Session. 2008 ASABE Annual International Meeting. June 29-July 2, 2008. Providence, RI.
- Wang, Z., D.R. Keshwani, A.P. Redding, J.J. Cheng. 2008. Alkaline Pretreatment of Coastal Bermudagrass for Bioethanol Production. 2008 ASABE Annual International Meeting. Paper number 084013. June 29-July 2, 2008. Providence, RI.
- Redding, A.P., A. Wang, D.R. Keshwani, J.J. Cheng. 2008. High Temperature Dilute Acid Pretreatment of Coastal Bermudagrass. 2008 ASABE Annual International Meeting. Paper number 084148. June 29-July 2, 2008. Providence, RI.
- Keshwani, D.R., J.J. Cheng. 2008. Microwave-based Alkali Pretreatment of Lignocelluloses. IBE 2008 Annual Conference. March 6-9, 2008. Chapel Hill, NC.
- Keshwani, D.R., J.J. Cheng, J.C. Burns, L. Li, V. Chiang. 2007. Microwave Pretreatment of Switchgrass to Enhance Enzymatic Hydrolysis. ASABE Annual International Meeting. Paper number 077127. June 17-20, 2007. Minneapolis, MN
- Keshwani, D.R., D.D. Jones, R.M. Brand. 2004. Rule Based Modeling of Skin Permeability. Nebraska Biomedical Engineering Research Workshop. May 1, 2004. Lincoln, NE

Teaching and Student Development Activities

Classes taught

- AGEN/BSEN 100, Intro to Agricultural and Biological Systems Engineering (2024-present)
- AGEN/BSEN 303 Principles of Process Engineering (2023-present)
- ENGR 010, First-year Engineering Seminar (2022-present)
- AGRI 192, AgFutures Learning Community Seminar (2012-present)
- AGEN/BSEN 470 and 480 (Senior Design I and II) (2018-2021)
- AGST 162, Intro to Agricultural Systems Technology (2009-present)
- AGST 362, Agricultural Products Processing and Handling (2010-present)
- AGST 262, Problem Solving for Agricultural Systems Technology (2010-2024)
- AGSY 262, Techno-economic Project Management (2024-present)
- AGST 462, Capstone for Ag Systems Technology (2010-2017)
- BSEN 444/844, Biomass and Bioenergy (2012-2014)

Advising and mentoring

- Currently serving as academic adviser for 60 undergraduate students in the department
- Faculty adviser for American Society of Agricultural and Biological Engineers Student Branch (2021-present)
- Faculty Mentor, Ag Futures Learning Community, College of Agricultural Sciences and Natural Resources and University of Nebraska-Lincoln Housing (2016-2025)
- Adviser, Justin Smith Morrill Scholars Program, College of Agricultural Sciences and Natural Resources (2013-2019)
- Undergraduate research/creative projects mentored:
    - Ky Gann (May 2024 - present). Creating a data-science focused interactive game on water systems.
    - Sam (Claire) Woods (Jan 2022 – Aug 2024). Creating a multi-player online gaming interface.
    - Uri Herszbaum-Harding (Jan 2021 – May 2021). Optimizing a 2-D interface for a serious educational game.
    - Ben Buckwalter (Aug 2021 – Dec 2021). Optimizing server performance for web-based games connected to research models.
    - Calvin Shafer (May 2020 – Aug 2020). Developing back-end features for end-user flexibility in 2-D web-based games.
    - Ashley Slattery (Jan 2019 – May 2020). Integrating art into a STEM video game.
    - Emanuel, Ellen (May 2014-May 2015). Enzymatic Hydrolysis of Alkali Pretreated Corn Stover.
    - Burchell, Julia (August 2014-May 2015). Development of Sensor-based System for Greenhouse Plant Monitoring.
    - Smith, Danielle (2010-2012). Modeling Biochemical Conversion of Lignocellulosic Biomass.

    - Schmidt, Ashley (Summer 2012). Development of web-based interface to stream real-time power generation from wind and solar energy systems.
    - Kocher, Ted (Summer 2012). Exploring potential of ILOG optimization software for biomass supply chain modeling.

- Graduate students advised to completion:
    - Anderson, R. M.S. in Agricultural Biological Systems Engineering
    - Barnes, N. M.S. in Agricultural Biological Systems Engineering
    - Dhir, R. M.S. in Agricultural Biological Systems Engineering
    - Emmanuel, E. M.S. in Agricultural Biological Systems Engineering
    - Kuhar, K. M.S. in Agricultural Biological Systems Engineering
    - Lanick, Q. M.S. in Computer science
    - Monhollon, L. M.S. in Agricultural and Biological Systems Engineering
    - Tai, C. PhD in Biological Engineering

- Graduate students currently being advised:
    - Han, H. PhD in Biological Engineering
    - Swanson, C. Master of Applied Science
    - Patel, S. M.S. in Computer Science

Summary of service activities

Professional service

- Member, University of Arkansas Department of Biological Engineering Advisory Board (current)
- Member, NC State University Biological and Agricultural Engineering Department Advisory Board (2020-2023)
- External member for Academic Program Review for Agricultural and Biological Engineering Department, Purdue University (April 2023)
- American Society of Agricultural and Biological Engineers (Member since 1999)
    - Current leadership and service roles:
        - Chair, E-03 Inclusion, Diversity, Equity, and Access (IDEA) Committee
        - Chair of Pharos of Alexandria Global Learning Award Committee
        - Chair of EOPD 412, Professional Ethics Committee
        - Member, Board of Trustees Taskforce on serving the needs of Ag Systems Management and Technology Professionals.
        - Member of E-06, Foundation Liaison Committee to pilot the new ASABE Ambassador Initiative
        - Trustee, ASABE Foundation
    - Past leadership and service roles:
        - Elected member, ASABE Nominating Committee
        - Community Editor for Education, Outreach and Professional Development, ASABE Journals
        - Chair, Meetings Council
        - Chair, EOPD and PRS Executive Committees
        - Chair of numerous EOPD and PRS Committees
        - Chair of Nebraska Section
- American Society for Engineering Education (ASEE)

- Member of Division of Biological and Agricultural Engineering (BAE), Division of Engineering Ethics, and Division of First-year Programs.
- Served as Chair of the BAE Division (2017-2018)

University-level service

- College representative, University Curriculum Committee)
- Member of selection committee for NU System President's Award of Excellence for Innovations in Student Success (2024-present)
- Member of Search Committee for UNL Executive Vice Chancellor (2022)
- Task force to review and revise UNL General Education Program. UNL Office of Academic Affairs (2022)
- Faculty Teaching Mentor, UNL Center for Transformative Teaching (2020-present)
- Campus Advising Leaders, CASNR representative, University of Nebraska-Lincoln (2020-2022)
- Nebraska Student Information System Executive Advisory Committee. University of Nebraska – Office of the President. 2015-2020
- The Nebraska Commission of 150 - Diversity & Inclusion Subcommittee, March-December 2018
- Member of Search Committee for UNL College of Engineering Dean (2018)
- UNL Teaching Council, Office of Academic Affairs. 2015-2018
- Student Matriculation Taskforce for UNL Strategic Planning. University of Nebraska-Lincoln Office of Chancellor. 2016-2017
- UNL Career Services Career Development Committee. 2015-2017
- University of Nebraska Higher Learning Commission Accreditation Task Force. Office of Senior Vice Chancellor of Academic Affairs. 2015
- University of Nebraska Higher Learning Commission Quality Initiative Year 2 Project team (College Representative). 2014-2015
- Student Success Council (College Representative). UNL Office of Senior Vice Chancellor of Academic Affairs. 2012-2013
- UNL Review of Teaching Project – Coordinator for First-year Project Participants. UNL Office of Academic Affairs (2012-2015)

College-level service

- Member, CASNR Curriculum Committee (2023-2025
- Search Committee, CASNR Recruitment Associate (Aug 2022)
- IANR Faculty Representative, Department of Food Science Academic Program Review. Institute of Agriculture and Natural Resources. October 3 – 7, 2021
- Chair, Search Committee, CASNR Adviser Position (June-August 2019)
- Chair, UNL CASNR First-year retention and orientation course Taskforce. (October 2016-Januay 2017)
- Chair, UNL College of Engineering Task Force to evaluate admission requirements (December 2015-February 2016)
- Chair, Search Committee, CASNR Student Development Coordinator Position (May 2014-August 2014)
- Chair, College of Agricultural Sciences and Natural Resources Faculty Advisory Council (2012-2013)

- Program Reviewer for Assessment. College of Agricultural Sciences and Natural Resources (CASNR) (2013-present)
- Vice-Chair, College of Agricultural Sciences and Natural Resources Faculty Advisory Council (2011-2012)
- UNL College of Engineering Complete Engineering Steering Committee. (2020-2021)
- Search Committee, College of Engineering Learning Assessment Coordinator Search Committee, (October 2018)
- Search Committee, CASNR Recruitment Associate (Aug 2017)
- Search Committee, CASNR Recruitment Associate (August 2016-September 2016)
- College of Engineering Curriculum & Academic Standards Committee. (2014-2016)
- College of Agricultural Sciences and Natural Resources Internship Learning Outcomes Advisory Committee (2014)
- Food, Energy, Water Minor Development Team. College of Agricultural Sciences and Natural Resources (CASNR) (2013-2018)
- College of Agricultural Sciences and Natural Resources Faculty Advisory Council (2011-2015)
- Search Committee, 4-H Teaching and Learning Specialist, Institute of Agriculture and Natural Resources (December 2014-November 2015)
- Search Committee, CASNR Recruitment Associate (November 2015-December 2015)
- Search Committee, Science Literacy Specialist, Institute of Agriculture and Natural Resources (April 2013-July 2013)
- Search Committee, Director of Career Development & Corporate Relations, College of Agricultural Science and Natural Resources (January 2013-February 2013)
- Search Committee, Director of Forensic Science, College of Agricultural Science and Natural Resources (January 2012-September 2012)

Unit-level service

- Member, ABET Accreditation Assessment committee (Aug 2021-present)
- Undergraduate Education Committee (formerly curriculum committee) (August 2019-present)
- Lead for Teaching and Learning Mission, BSE Strategic Planning Alignment Team (October 2020-January 2021)
- Chair, BSE Adviser Search Committee (March-April 2022)
- Chair, BSE Recruitment Associate Search Committee (September -October 2021)
- Chair, Student Success Committee, Biological Systems Engineering (August 2019-July 2021)
- Chair, Curriculum Committee, Biological Systems Engineering (July 2014-August 2017)
- Search Committee, Food Manufacturing Engineer (September-December 2022)
- External Relations Committee (August 2019-present)
- Continuous Improvement and Program Assessment Committee (2009 – 2019)
- Awards Committee (2018 – 2019)
- Curriculum Committee (2009 – 2019)
- Graduate Committee (2009 – 2011)
- Scholarship Committee (2011 – 2019)
- Nebraska Tractor Test Board of Engineers (2010 – 2012)
- Search Committee, Academic Services Coordinator, Department of Biological Systems Engineering (July 2015-August 2015)
- Search Committee, Bioprocess Engineer, Department of Biological Systems Engineering (April 2015-August 2015)

- Search Committee, Food Manufacturing Engineer (November 2014-Apri l 2015)
- Search Committee, Advanced Machinery Systems Engineer, Department of Biological Systems Engineering (January 2013-May 2013)
- Search Committee, Recruiting Advising Coordinator, Department of Biological Systems Engineering (February 2013-April 2013)
- Search Committee, Department Head, Department of Biological Systems Engineering (December 2011-July 2012)
- Search Committee, Larsen Tractor Museum Manage (May 2012-June 2012)
- Search Committee, Engineer, Nebraska Tractor Test Laboratory (December 2011-January 2012)
- Search Committee, Precision Agriculture Engineer, Biological Systems Engineering (June 2011-October 2011)

Significant outreach and engagement service

- CASNR Lincoln Northeast (LNE) High School FEWSS Pathways Program (2021- present)
    - Organized and led BSE-focused outreach activity for 200 students
    - Participated in after-school CLC at Lincoln Northeast
- Nebraska Agricultural Youth Institute (2009-present))
- Nebraska Science Olympiad Event Supervisor (2015-2022)
- 4-H Youth Outreach Volunteer – Member of Nebraska Tournament Committee and Head Referee for First Tech Challenge (2013-2018)
- UNL Advisory Task-force to reduce High-risk Student Drinking (May 2017)
- CASNR Experience the Power of Red Open House (2009-present))
- University of Nebraska Big Red Road Show (2009-2012)
- Osher Lifelong Learning Institute (OLLI) Outreach (2011, 2013)

Community service and involvement

- Directional team member, Mosaic Church, Lincoln NE
- Refugee resettlement volunteer, Lutheran Family Services
- Refugee family mentor, Juniper Refuge
- Past board member, Blixt Arts Lab

Dr. David Jones
Dean, College of Engineering
Utah State University
Logan, UT 84322

September 27, 2025

Dear Dean Jones,

It is my pleasure to write this letter to support Dr. Deepak Keshwani's promotion to Full Professor. I have reviewed Dr. Keshwani's materials, and his accomplishments in teaching, research, academic leadership, and service are exemplary, reflecting the qualities we value in senior faculty.

Dr. Keshwani's faculty appointment includes 75% teaching and 25% research. His teaching philosophy, grounded in the Ecological Validation Framework, demonstrates a holistic and strengths-based approach to education. He has developed and taught transformative courses such as AGST 262: *Techno-Economic Project Management* and AGEN/BSEN 303: *Principles of Process Engineering*, which integrate technical rigor with real-world relevance. It is also impressive that he has advised over 300 undergraduate students and developed a hybrid advising-mentoring model. His teaching and advising have earned many regional and national recognitions, including the College Distinguished Teaching Award, the 2019 L.K. Crowe Undergraduate Advising Award, the UNL Parents Association Award, and the 2019 American Society of Agricultural and Biological Engineers (ASABE) A.W. Farrell Young Educator Award.

His leadership in developing high-resolution ABET rubrics for design and ethics outcomes has had a significant impact on engineering education, both within the institution and nationally. These tools have been adopted across curricula and requested by peer institutions, demonstrating their scalability and relevance.

Dr. Keshwani's research portfolio, though representing 25% of his appointment, is solid and impactful. He has received over $4.3 million in competitive funding. His work on systems modeling for sustainability, such as modeling circularity in the Corn-Water-Ethanol-Beef Nexus, has advanced the field through methodological innovation and interdisciplinary collaboration. His creative development of serious educational video games such as AgPocalypse and BECC's World demonstrates his ability to translate complex systems into engaging learning tools.

As an academic leader, Dr. Keshwani has demonstrated exceptional administrative and strategic capabilities. His tenure as Director of Undergraduate Programs and Interim Associate Dean has resulted in transformative changes in advising, mentoring, curriculum development, and student engagement. He has strengthened retention, enhanced academic pathways, and fostered a culture of excellence.

Dr. Keshwani's service to the profession is equally outstanding. He has held leadership roles in ASABE and the American Society for Engineering Education (ASEE), chaired national committees on ethics and inclusion, and served as an external reviewer for top-ranked programs such as Purdue's Agricultural and Biological Engineering Department.

In summary, Dr. Keshwani is a visionary educator, a rigorous scholar, and a collaborative leader. His promotion to Full Professor is not only well-deserved but essential to advancing the university's mission of engineering education and

innovation. I fully endorse the recommendation of the Promotion Advisory Committee and offer my strongest support for Dr. Keshwani's promotion to Full Professor.

Best,

Dr. Jixun Zhan
Department Head and Professor
Department of Biological Engineering
Utah State University

College of Engineering
UtahStateUniversity

Dean David D. Jones

October 6, 2025

Provost Laurens Smith
Utah State University
1435 Old Main Hill
Logan, UT 84322-1435

Dear Provost Smith,

Dr. Deepak Keshwani has been appointed as the Associate Dean for Academic Programs in the College of Engineering. In recognition of his outstanding accomplishments, extensive experience and exceptional credentials, we formally request expedited tenure for him.

A Tenure and Promotion committee was convened to evaluate Dr. Keshwani's qualifications. Both the committee and the department head have expressed their support for his appointment. I wholeheartedly concur with the assessment and fully endorse his tenure.

Sincerely,

David Jones
Dean

College of Veterinary Medicine
UtahStateUniversity

Office of the Dean

Date: July 17, 2025

To: Laurens H. Smith
Provost & Executive Vice President

From: Dirk K. Vanderwall
Dean, College of Veterinary Medicine

Subject: Recommendation for Tenure for Dr. Bettina Willie

This letter is written as a recommendation for tenure for Dr. Bettina Willie who has been hired (effective January 1, 2026) as a Professor in the Veterinary Clinical and Life Sciences Department (VCLS) in the College of Veterinary Medicine (CVM). I have received a positive assessment and recommendation from Dr. Ralph Meyer, Head of the VCLS department and Dr. Willie's Tenure Advisory Committee (TAC). Based upon my independent evaluation of Dr. Willie's materials that were submitted for review, **I fully endorse a recommendation for appointment as a tenured Professor in the VCLS department**.

The letters provided by Dr. Willie's TAC and Dr. Meyer have fully articulated her extensive, and internationally recognized, accomplishments in research, and demonstrated success in teaching, service, and administration, so I will not try and further articulate them. Notably, Dr. Willie's TAC is comprised of tenured professors from three different USU departments (rather than the more typical single "outside" member), and further, three different colleges are represented on the TAC! Therefore, the unanimous recommendation from the TAC for awarding tenure to Dr. Willie represents a wide "swath" of the academic/research enterprise at USU providing an extremely strong endorsement of her professional accomplishments and stature.

As a new college with a small, but growing, team of faculty members, bringing in an accomplished research faculty member of Dr. Willie's caliber adds a new level of seniority and expertise our more junior faculty members can immediately benefit from. For example, in light of the recent upheaval in the realm of federal research funding, Dr. Willie's demonstrated success obtaining on-going support from a spectrum of sources, including non-profit organizations such as Shriners Hospitals for Children (with a hospital in Salt Lake City) and the National Marfan Foundation; and industry partners such as Mereo BioPharma, Angitia Biopharmaceuticals, and Mesentech; provides a funding model our faculty can work to emulate, and I will look to Dr. Willie to help our faculty achieve success in these arenas. I am confident that Dr. Willie will provide mentorship and leadership for our faculty in many other professional domains as well.

In conclusion, **I unequivocally support awarding tenure to Dr. Willie and her appointment as a Professor in the VCLS department in the CVM**, and I look forward to having her join our college in January 2026.

Cc: Bettina Willie, Candidate
Ralph Meyer, Dept. Head of VCLS
Arnaud Van Wettere, TAC Chair,
Thomas Baldwin, TAC
Kerry Rood, TAC
Alan Savitzky, TAC
Zhongde Wang, TAC

College of Veterinary Medicine
UtahStateUniversity

Veterinary Clinical and Life Sciences

Memorandum

To: Dirk K. Vanderwall, Professor and Dean
College of Veterinary Medicine (CVM)

From: Ralph G. Meyer, Professor and Head,
Department of Veterinary Clinical and Life Sciences (VCLS)

Date: July 11, 2025

Re: Evaluation and Recommendation for Dr. Bettina Willie

Dr. Willie is currently a full professor with tenure and serves as Associate Dean of Research and Graduate Education at McGill University in Montreal, Canada. She was hired as full professor in the Veterinary Clinical and Life Sciences (VCLS) Department of the College of Veterinary Medicine on April 29, 2025, effective January 1st, 2026.

In accordance with Utah State University (USU) Policy Manual (Code) 4004.11.4(3), as Department Head, I have reviewed the materials associated Dr. Willie's review for awarding tenure at USU. After receiving the evaluation letter from Dr. Willie's tenure committee, I communicated with her to provide an opportunity to bring forth any updates to his dossier. These are reflected in this letter in which I provide my evaluation and recommendation for awarding tenure to Dr. Willie.

Dr. Willie obtained her BS in Biology and PhD degree in Bioengineering from the University of Utah in 2005. She underwent postdoctoral training at the University of Ulm in Germany and the Hospital for Special Surgery, Weill Cornell Medical College in NYC, USA. From 2008-2015, she led a research group at the Charite-Universitätsmedizin Berlin, Germany. Dr. Willie joined McGill University as an Associate Professor in 2015 and was promoted to Professor with tenure in 2022 in the Faculty of Dental Medicine and Oral Health Sciences at McGill. Bettina has also been an Associate Member in the Department of Pediatric Surgery since 2022. McGill University is an outstanding institution that was ranked #3 among universities in Canada (https://edurank.org/geo/na/).

Relevant to this tenure review, since 2022, her role at McGill University has been defined by activity roles of research (60%), teaching (15%), administration/leadership (20%), and service (5%). From 2015 to 2022, her role was defined as research (70%), teaching (20%), and service (10%). These relative emphases of activity were taken into consideration for my assessment of Dr. Willie's performance and my recommendation for awarding her tenure at Utah State University.

Research (primary emphasis role)

Dr. Willie's interdisciplinary research has been using computational and experimental approaches to understand the causes, detection, and treatment of skeletal fragility, especially in aging and in rare bone diseases. Her research interests are particularly focused on understanding how mechanical forces influence bone adaptation and regeneration, and on the role of osteoblastic cells

(osteocytes and osteoblasts) in these mechanical parameter-sensing processes. These cell types comprise the primary sensor and effector cells of mechanical cues. Dr. Willie's background in biomedical engineering, specifically biomechanics, skeletal imaging, and cell biology, has been positioning her ideally to achieve her long-term goals of identifying the mechanisms of bone adaptation to mechanical stimuli to develop treatment strategies to enhance bone mass and reduce the burden of fractures in low bone mass conditions, especially in rare diseases. Bettina Willie collaborates closely with clinicians and pharmaceutical industry partners to facilitate and support her translational research in that area.

Research Impact

Over her career, Dr. Willie has published 102 peer-reviewed publications and 18 reviews and book chapters. Her Google Scholar h-index is 38, and her Scopus h-index is 33, where both values indicate respectable scientific impact for a faculty member in life sciences at the professor rank. Her work is internationally recognized by the scientific community. In the past five years alone, Dr. Willie has been invited 35 times to present her research at conferences, government meetings, or as a visiting professor at academic institutions. She has been invited to serve as an external ad hoc reviewer for international funding agencies (e.g. Ludwig Boltzmann Institute, Belgian National Fund for Scientific Research, French National Research Agency, German Research Foundation, and Arthritis Research UK). She served on numerous PhD student graduate committees at various universities (e.g. Stuttgart University, Queensland University of Technology, and the Hebrew University of Jerusalem). She also served on the organizing committees for international research conferences and workshops. Taken together, Dr. Willie is a scientist of impressive international stature and a highly respected scientist in her field.

Her track record of working with graduate students is an important aspect of Dr. Willie's overall impact as a scholar and as an educator. She trained 13 MSc students, 16 PhD students, 4 postdoctoral fellows, 7 research assistants, 4 MD students, 2 DVM students, 1 DMD student, and 31 undergraduate students, which is excellent and shows her dedication to graduate education.

Research Funding

Dr. Bettina Willie has consistently sustained her research program with extramural funding throughout her career. Since 2020, Dr. Willie's research projects have been awarded over $10 million CAD in operating funds, of which 5.4 million was her portion of these grants, and 1.5 million $CAD in equipment funds. While a large part of her funding has been from Canadian federal agencies, she has also received funding from US-based nonprofit organizations, such as Shriners Hospitals for Children and the National Marfan Foundation, as well as from international industry partners, such as Mereo BioPharma, Angitia Biopharmaceuticals, and Mesentech. Dr. Willie has recently submitted an NIH grant application to examine craniofacial and dentalalveolar abnormalities in adults and children with osteogenesis imperfecta (https://grants.nih.gov/grants/guide/pa-files/PAR-24-206.html) as PI, which is part of an existing U45 Specialized Center grant renewal at McGill University, the BBDC (https://bbd.rarediseasesnetwork.org/), with a transferable component. This NIH U54 grant has been scored favorably with a priority score of 26 and has been recommended for funding, with a letter of award from NIH still pending. She has also submitted an NIH R01 grant as PI, examining osteocyte dysregulation in X-linked hypophosphatemia in preparation of her planned relocation to the United States. If funded, this grant would also be transferable. Dr. Willie is furthermore negotiating with Angitia Biopharmaceuticals about a contract for a clinical trial to start in the fall (approximately $500,000). In total, Dr. Willie has 7 currently 7 grant applications under review, on which she is the PI of 3 of them.

Taken together, there is no doubt in my mind that Dr. Bettina Willie has been demonstrating excellence in research as her primary activity role.

Teaching (secondary emphasis role)

Dr. Bettina Willie has been actively contributing to classroom teaching at the undergraduate and graduate level, including lecturing, course management, and new course development. Her previous and current teaching encompasses diverse subjects, including biomechanics, mechanobiology, bone biology, and tissue engineering courses. The diversity of subjects highlights Dr. Willie's versatility as a teacher. Her student teaching evaluations are positive and indicate that her instruction is effective and well received by students and effective.

Her teaching philosophy is centered on fostering critical thinking, and on instilling a desire in her students to reach their full potential by recognizing their strength and weaknesses to pursue their desired career paths.

One important outcome of the graduate training is the student's success in their future career. It is a testament to Dr. Willie success in that area that she has trained a number of graduate students who have been highly successful (see Research section above). All of her students have taken outstanding positions in academia and industry or went on to attend medical or veterinary school.

Dr. Willie's classroom teaching load and portfolio have been consistent over the past 10 years, and my assessment is that she has been fulfilling her teaching role at the very least effectively, but more likely even with excellence, particularly in the realm of graduate education.

Service

While service itself is not considered for tenure and promotion, Dr. Bettina Willie's service record appears relevant to this tenure assessment because it reflects her international standing as a faculty member. She has been providing a substantial amount of Professional Service to her national and international professional societies, such as the American Society for Bone and Mineral Research (ASBMR) and the Orthopedic Research Society (ORS) and she has been contributing to international conferences associated with these and other professional societies. Those contributions were significant and impactful and included international workshops such as the "Developing Best Practices for Mouse Models of In Vivo Loading" workshop at the ORS Annual meeting, San Diego, 2017, the workshop "In vivo MicroCT Imaging: Longitudinal Assessment of Skeletal Microstructure, Strength, and (Re)modeling Dynamics" at the ORS, New Orleans, 2018, and the mini-symposium "Interplay between biological & mechanical factors in bone adaptation" for the 13th World Congress on Computational Mechanics, NYC, 2018**.**

Also indicative of her national and international reputation as a scientist, Dr. Willie has been a member of the Canadian College of Reviewers and has been serving as a reviewer for different committees of the Canadian Institute of Health Research (CIHR). She has also been invited to provide external reviews for international funding agencies, including the Wellcome Trust (UK), the Belgian National Fund for Scientific Research, the French National Research Agency, and the German Research Foundation (DFG). She also routinely reviews for numerous international journals and currently serves as editorial board member for Journal of Bone & Mineral Research, which is the highest-ranking journal in the bone research field.

Taken together, the nature of Dr. Willie's professional service activities underscores her status as an internationally renowned expert in the field of bone physiology and pathology, whose expertise is sought after and valued.

In conclusion, my assessment of Dr. Bettina Willie's performance during her past 5 years of service as professor with tenure at McGill University is that she has clearly demonstrated excellence in her research role and, at the very least, effectiveness in her teaching role if not excellence, considering her

outstanding graduate teaching record. Based on my detailed assessments, which confirm Dr. Willie's impressive stature as an internationally renowned scholar, I enthusiastically and unequivocally support awarding Dr. Bettina Willie tenure in the VCLS department of the CVM at Utah State University, a conclusion that is fully supported by the unanimous recommendation from her tenure committee (see letter).

cc: Bettina Willie (candidate)
Arnaud Van Wettere, committee chair
Tom Baldwin
Zhongde Wang
Alan Savitzky
Kerry Rood

5600 Old Main Hill | Logan, UT 84322-5600 | (435) 797-1774 | ralph.meyer@usu.edu

College of Veterinary Medicine
UtahStateUniversity

July 1, 2025

To: Ralph Meyer, Ph.D.
VCLS Department Head
Utah State University
Logan, UT 84322

Re: Tenure recommendation for Dr. Bettina Willie

Dear Dr. Meyer,

Dr. Willie's Tenure Advisory Committee (TAC) met on July 1, 2025, to evaluate her tenure dossier. Dr. Willie was hired recently as a full professor in the Veterinary Clinical and Life Sciences department in the College of Veterinary Medicine, with her appointment starting in January 2026. This meeting was set to provide a review of her dossier and to hold a vote on recommending her for tenure. The committee members included Drs. Arnaud Van Wettere (chair), Kerry Rood, Tom Baldwin, Zhongde Wang (ADVS), and Alan Savitzky (Biology), with Paul Johnson serving as ombudsperson. Dr. Willie's role statment at USU is defined as research (60%), teaching (35%), and service (5%). She provided the commitee with a well-written and complete dossier documenting steady productivity for the last 25 years. Dr. Willie has worked at institutions in the USA, Germany, and Canada, with the last 10 years spent at McGill University, in Canada. Dr. Willie is an internationally recognized researcher and has achieved the rank of Full Professor with tenure at the Faculty of Dental Medicine and Oral Health Sciences, McGill University, Montreal, Canada. She has demonstrated exceptional achievements in her research career. The TAC committee members reviewed the dossier and unanimously concurred that Dr. Willie's outstanding achievements over her career exceed the expectation for awarding tenure at USU. As chair of the Tenure Advisory Committee, I am pleased to report that the committee unanimously voted to recommend awarding tenure to Dr. Bettina Willie.

Research

The main appointment of Dr. Willie at McGill University is research (60%). Dr. Willie leads an interdisciplinary research program that centers on identifying the mechanisms of bone adaptation to mechanical stimuli and developing treatment strategies to enhance bone mass and reduce the occurrence of fractures in health conditions with low bone mass. Her research has produced 102 peer-reviewed original manuscripts, 18 reviews/book chapters/editorials, and 260 conference abstracts over her career. Her expertise in skeletal mechanobiology is internationally recognized, as demonstrated by her numerous invited presentations (66), service on Canadian and international grant review panels (5), an international scientific advisory board, multiple Ph.D. committees at international universities, and service as a member of the editorial board of the *Journal of Bone and Mineral Research*. Dr. Willie maintains a well-funded research program, with over 10 million $CAD in operating funds and 1.5 million $CAD in equipment funds awarded since 2020. She currently has 7 grants under review, 6 active grants, and 2 active contracts with industry partners. Her outstanding research accomplishments demonstrate excellence in research.

Teaching

Dr. Willie has a minor teaching appointment (15%) at McGill University, but she has made significant contributions to teaching, including developing and implementing a new course in oral health sciences. She has taught various classes, including classes on biomechanics, bone biology and tissue engineering, at the

undergraduate and graduate levels at McGill University, the Berlin-Brandenburg School of Regenerative Medicine, and the Charité-Universitätsmedizin Berlin, Germany. She has supervised 3 M.Sc. students, 16 Ph.D. students, 4 postdoctoral fellows, 7 research assistants, 4 M.D. students, 2 D.V.M. students, 1 D.M.D students, 31 undergraduate students, and 12 high school students. She regularly attended seminars and workshops to improve her teaching skills. Dr. Willie was also involved in curriculum development as part of her role as Graduate Program Director and Associate Dean of Research and Graduate Education during the past three years. The committee noticed that the dossier did not contain peer evaluations of teaching and only one course evaluation was provided, but this does not decrease her clear accomplishments in teaching. Her dossier certainly demonstrates effectiveness in teaching.

Administration

While her position in the VCLS department at USU does not have an administrative component, Dr. Willie has experience as an administrator, serving as PhD Program Director in 2022-2023 and Associate Dean of Research and Graduate Education in the Faculty of Dental Medicine and Oral Health Sciences at McGill University since July 2023 (20% administration appointment).

Service

Dr. Willie has a minor service appointment (5%) at McGill University and contributed in various capacities to the academic mission at the departmental, college, and university levels, including as an elected member of the university senate. She also served on committees for several professional societies in the field of bone biology. As an expert in bone biology, she has served as a grant reviewer for the Canadian Institute Health Research and for similar research agencies in Belgium, Germany, and France. She is on the scientific advisory board of the Ludwig Boltzmann Institute of Osteology in Vienna, Austria. She also serves on the editorial board of the *Journal of Bone and Mineral Research*, and she reviews articles for multiple scientific journals.

Conclusion

In conclusion, the material provided by Dr Willie demonstrates sustained excellence in research, and certainly effectiveness in teaching, and service in her appointments at McGill University. It is expected that she would continue on the same trajectory at USU. The TAC committee members unanimously support awarding tenure to Dr. Willie.

Sincerely,

Arnaud Van Wettere
box SIGN 1J53Q983-4PRJQPL3

Arnaud Van Wettere, Chair

Tom Baldwin
box SIGN 1R7R7X2P-4PRJQPL3

Tom Baldwin, Committee Member

Kerry Rood
box SIGN 17J86YVZ-4PRJQPL3

Kerry Rood, Committee Member

box SIGN 186QJ8QK-4PRJQPL3

Al Savitzky, Committee Member

Zhongde Wang
box SIGN 4LWY3P32-4PRJQPL3

Zhongde Wang, Committee Member

box SIGN 17K3X883-4PRJQPL3

Paul Johnson, Ombudsperson

I certify that due process was followed in this review meeting.

Cc: Bettina Willie, Candidate
Committee Members

Date of Last Revision: May 10 2025____

1. IDENTIFICATION

Name: Bettina Maria Willie
Address: Shriners Hospitals for Children-Canada, 1003 Decarie Blvd, Montreal H4A 0A9, Canada
Telephone: 514-282-7156
Email: Bettina.willie@mcgill.ca

ORCID: https://orcid.org/0000-0003-2907-3580
Scopus: https://www.scopus.com/authid/detail.uri?authorId=6603137523
Github: https://github.com/BWillieLab

2. EDUCATION:

2007–2008	Postdoctoral Fellow, Hospital for Special Surgery/Weill Medical College of Cornell University, New York City, NY, USA Research topic: Osseointegration and Bone Adaptation to Mechanical Loading*, (Supervisor: Mathias Bostrom*)
2005–2007	Postdoctoral Fellow, Institut für Unfallchirurgische Forschung und Biomechanik, Universität Ulm, Ulm, Germany Research topic: Mechanobiology of Bone Healing*, (Supervisor: Lutz Claes*)
2001–2005	Ph.D., Bioengineering, University of Utah, Salt Lake City, USA Thesis Title: Quantifying the effects of sterilization and aging on the oxidative degradation and wear of crosslinked and conventional polyethylene used in total joint replacement, *(Supervisor: Roy Bloebaum)*
1992–1998	B.S., Biology (Chemistry minor), University of Utah, Salt Lake City, USA B.A., English, University of Utah, Salt Lake City, USA

3. APPOINTMENTS:

07/2023- current	Associate Dean of Research and Graduate Education, Faculty of Dental Medicine and Oral Health Sciences, McGill University, Montreal, Canada
2022- current	Full Professor with Tenure, Faculty of Dental Medicine and Oral Health Sciences, McGill University, Montreal, Canada
2023- current	Associate Member, Department of Pediatric Surgery, McGill University, Montreal, Canada
2015- current	Associate Member, Department of Biomedical Engineering, McGill University, Montreal, Canada
2015- current	Investigator, Shriners Hospitals for Children – Canada, Montreal, Canada
2015- 2024	Associate Member, Department of Surgery, McGill University, Montreal, Canada
07/2022- 07/2023	PhD Program Director, Faculty of Dental Medicine and Oral Health Sciences, McGill University, Montreal, Canada

2022	Full Professor, Faculty of Medicine and Health Sciences, Department of Pediatric Surgery, McGill University, Montreal, Canada
2015- 2022	Associate Professor, Faculty of Medicine and Health Sciences, Department of Pediatric Surgery, McGill University, Montreal, Canada
2008–2015	Research group leader, Mechanobiology of bone adaptation and regeneration, Julius Wolff Institute for Biomechanics and Musculoskeletal Regeneration, Charité - Universitätsmedizin Berlin, Berlin, Germany

4. SALARY SUPPORT AWARDS AND RECOGNITION

10/2022	Shriners Hospitals for Children Board Awards, Grand Inspirer -Category Research Staff
07/2021-06/2023	Fonds de recherche du Québec–Santé (FRQS), Research Scholars Senior Career Salary Award program *Causes, détection et traitement des maladies causant des fragilités osseuses (Causes, detection and treatment of skeletal fragility disorders)*
07/2018-06/2020	Fonds de recherche du Québec–Santé (FRQS), Research Scholars Junior 2 Career Salary Award program *Étude des mécanismes biomécaniques impliqués dans la régénération et l'adaptation de l'os (Study of the biomechanical mechanisms involved in bone regeneration and adaptation)*
April 2012	Lydia Rabinowitsch Stipendium, Charité - Universitätsmedizin Berlin *Verbessert mechanische Stimulation die Knochenheilung unter Gabe eines Sklerostin-neutralisierenden Antikörpers? (Does fixation stiffness modulate the efficacy of sclerostin-neutralizing antibody treatment during bone healing*?)

5. TEACHING

1. Contributions to classroom teaching

McGill University Course Teaching

2023-current	DENT 701-PhD Comprehensive Examination, Faculty of Dental Medicine and Oral Health Sciences
2016-current	PHGY550 Molecular and Cellular Physiology of Bone, Department of Physiology
2023	DENT 700-Comprehensive Exam Skills, Faculty of Dental Medicine and Oral Health Sciences
2023	DENT 688-Bone Mechanobiology, Faculty of Dental Medicine and Oral Health Sciences
2023-2024	DENT 786-Foundations of Oral Health Sciences I and II, Faculty of Dental Medicine and Oral Health Sciences
2018-2024	BMDE 505-Cell and Tissue Engineering, Department of Biomedical Engineering
2023	DENT 683 Readings in Dentistry & Health Research, Faculty of Dental Medicine and Oral Health Sciences

2018-2023	BBME 501-Selected Topics in Biomedical Engineering, Department of Biomedical Engineering
2019-2022	INDS 123-Research Fundamentals 1, Faculty of Medicine and Health Sciences
2019-2022	INDS 223-Research Fundamentals 2, Faculty of Medicine and Health Sciences
2018	EXSU 601-Knowledge Management, Lecture, Department of Physiology
2017	DENT 673 Biotechnology and Entrepreneurship, Faculty of Dentistry,

Charité-Universitätsmedizin & Berlin-Brandenburg School for Regenerative Medicine (BSRT) Course Teaching

2014	Phenotyping Bone in the Mouse, *BSRT*
2013	Mechanical principles in biology, *BSRT*
2011-2012	Problem-Oriented Learning (POL) for Medical Students, *Charité*
2010-2011	Histology of Bone Regeneration, *BSRT*
2010-2011	Cell and Tissue Mechanics, *BSRT*
2010	Insights into pediatric surgery, *Charité*
2010	Joint loading, cartilage damage, & treatment in osteoarthritis, *Charité*

2. Research Trainees Supervised

Ph.D students

2024/8-present	Nicolas Plays, McGill University, Faculty of Dental Medicine & Oral Health Sciences, Thesis Title: Craniofacial and dentoalveolar abnormalities in osteogenesis imperfecta, (Co-Supervisor with Elizabeth Zimmermann)
2024/4-present	Meghan Morrell, McGill University, Faculty of Dental Medicine and Oral Health Sciences, Thesis Title: Anabolic strategies to enhance Bone Healing (Principal Supervisor)
2024/4-present	Leanne Van der Merwe, McGill University, Faculty of Dental Medicine and Oral Health Sciences, Thesis Title: Circadian rhythm's role in mechanoadaptation (Co-Supervisor with Suzanne Morin)
2023/8-present	Abhimanyu Mertiya, McGill University, Faculty of Dental Medicine & Oral Health Sciences, Thesis Title: Bone adaptation to mechanical loading in osteogenesis imperfecta, (Principal Supervisor)
2023/8-present	Setareh Khorshidparast, Faculty of Dental Medicine & Oral Health Sciences, Thesis Title: Skeletal fragility in egg laying hens, (Principal Supervisor)
2021/8-present	Priyesh Patel, McGill University, Faculty of Dental Medicine & Oral Health Sciences, Thesis Title: Modelling collagen pathophysiology in osteogenesis imperfecta using novel computational methods, (Co-Supervisor with Svetlana Komarova)
2021/1-present	Taylor DeVet, McGill University, Department of Biomedical Engineering Thesis Title: Examining the role of osteocyte lacunar canalicular networks, (Principal Supervisor)

2021/8-2024/10 Isabela Vitienes, McGill University, Department of Biomedical Engineering
Thesis Title: Understanding the determinants and improving detection of bone fragility in female chickens, (Principal Supervisor).

2020/8-2024/12 David Bertrand, McGill University, Department of Experimental Surgery
Thesis Title: Investigating Mechanisms of Bone Formation and Regeneration in Response to Anabolic Therapies, (Principal Supervisor).

2019/8-2024/11 Celine Agnes, McGill University, Department of Biomedical Engineering
Thesis Title: Encapsulation of Glycogen Synthase Kinase 3 Beta Phosphorylation Inhibitor, 6-Bromoindirubin-3'- Oxime, in the Guanosine Diphosphate Crosslinked Chitosan Scaffold for the Treatment of Critical Size Bone Defects, (Co-Supervisor with Maryam Tabrizian).

2018/12-2023/07 Seyedmahdi Hosseinitabatabaei, McGill University, Department of Biomedical Engineering, Thesis Title: Improving the Reliability of HR-pQCT Measurements in Longitudinal Studies of Individuals with Osteogenesis Imperfecta, (Principal Supervisor)

2016/8-2021/03 Aren Bezdjian, McGill University, Department of Experimental Surgery
Thesis Title: Surgical Innovations and Stability Outcomes of Bone Anchored Hearing Implants, (Co-Supervisor with Sam Daniel)

2017/1-2021/3 Maximilian Rummler, McGill University, Dept of Experimental Surgery
Thesis Title: Rare diseases in bone-evaluating models to testing treatments, (Principal Supervisor)

2015/1-2020/3 Maximilian Rummler, Technische Universität Berlin, Dept Material Science
Thesis Title: Adaptive response of bone to mechanical loading in a mouse model of myeloma bone disease, (Principal Supervisor)

2014/8-2019/08 Laia Albiol Sanchez, Technische Universität Berlin, Dept Mechanical Engineering, Thesis Title: Influence of age and *Sost* deficiency on the bone (re)modelling response to mechanical loading, (Co-Supervisor with Georg Duda)

2010/8-2015/11 Annette Birkhold, Technische Universität Berlin, Dept Mechanical Engineering, Thesis Title: A 4D imaging approach to monitor bone remodeling, (Co-Supervisor with Georg Duda)

2010/8-2015/3 Marta Aido, Technische Universität Berlin. Dept Material Science
Thesis Title: The Influence of Age and Mechanical Loading on Bone Structure and Material Properties, (Co-Supervisor with Georg Duda)

MSc students

2023/8-2023/12 Sara Shalviry, McGill University, Faculty of Dental Medicine & Oral Health Sciences, Thesis Title: Understanding the therapeutic potential of inhibiting Lair-1 for fracture healing (Co- Supervisor with Svetlana Komarova)

2023/1-2023/12 Meet Shah, McGill University, Faculty of Dental Medicine & Oral Health Sciences, Thesis Title: Mechanoadaptation in Chickens and Mice (Principal Supervisor)

2022/1-2024/03 Jack Chapman, McGill University, Department of Biomedical Engineering

Thesis Title: Examining the efficacy of a novel prostaglandin E2 receptor 4 agonist in bone defect healing (Principal Supervisor)

2023/1-2024/4 Meghan Morrell, McGill University, Faculty of Dental Medicine and Oral Health Sciences, (Principal Supervisor; fast-tracked to PhD program).

2023/1-2024/4 Leanne Van der Merwe, McGill University, Faculty of Dental Medicine and Oral Health Sciences, (Principal Supervisor; fast-tracked to PhD program).

2019/8-2021/8 Isabela Vitienes, McGill University, Department of Biomedical Engineering (Principal Supervisor; fast-tracked to PhD program).

2018/1-2020/8 David Bertrand, McGill University, Department of Experimental Surgery (Principal Supervisor; fast-tracked to PhD program).

2020/1-2021/12 Beatrice Steyn, McGill University, Department of Biomedical Engineering
Thesis Title: Mechanoresponse in a mouse model of gerodermia osteodysplastica, (Principal Supervisor)

2018/8-2021/06 Kyle Kaverseri, McGill University, Department of Biomedical Engineering
Thesis Title: Cell therapy and mechanical stimulation to enhance bone healing, (Principal Supervisor)

2018/5-2020/12 Alice Bouchard, McGill University, Department of Experimental Surgery
Thesis Title: The Effect of the Circadian Rhythm on Load-Induced Bone Formation, (Principal Supervisor)

2017/1-2018/12 Chrisanne Dsouza, McGill University, Department of Biotechnology, Non-thesis, Master's Applied, Project: Determining if time of loading affects osteoblast and osteocyte gene expression during bone adaptation, (Principal Supervisor)

2014/7 - 2015/8 Anne Seliger, Hochschule Albstadt-Sigmaringen/ Charité-Universitätsmedizin Berlin
Thesis Title: Bone adaptation during aging: examining regulation by mechanical loading and sclerostin antibody treatment, (Principal Supervisor)

2008 - 2010 Tobias Thiele, Beuth Hochschule für Technik Berlin/ Charité-Universitätsmedizin Berlin
Thesis Title: Role of Interleukin-6 in the adaptive response to mechanical loading, (Principal Supervisor)

Post-doctoral students

2023/7-2024/8 Michael Bruccoleri, Project Title: Role of Circadian Rhythms in Bone Adaptation, (Principal Supervisor)

2020/8-2021/8 Pouyan Asgharzadeh, McGill University, Project Title: Data-driven analysis of bone structure in osteogenesis imperfecta using HR-pQCT images and machine learning, (Principal Supervisor)

2019/1-2020/08 Nicholas Mikolajewicz, McGill University, Project Title: HR-pQCT cross-calibration across multiple centres and timepoints, (Principal Supervisor)

2016/1-2017/02 Haisheng Yang, McGill University, Project Title: Bone adaptation in mouse models of premature aging, (Principal Supervisor)

Research Assistants

2022/1-present Mayumi Umebayashi, McGill University, Project Title: Various projects, (Co-Supervisor)
2016/3-present Catherine Julien, McGill University, Project Title: Various projects, (Principal Supervisor)
2022/1-2023/12 Josephine Tauer, McGill University, Project Title: Various projects, (Co-Supervisor)
2019/7-2021/06 Marie-Helene Gaumond, McGill University, Project Title: Setrusumab for the treatment of adults with osteogenesis imperfecta, (Co-Supervisor)
2017/1-2020/06 Elizabeth Zimmermann, McGill University, Project Title: Various projects, (Principal Supervisor)
2015/8 - 2016/12 Anne Seliger, Charité-Universitätsmedizin Berlin, Project Title: Bone adaptation in mouse models of premature aging, (Principal Supervisor)
2009/1 - 2016/12 Tobias Thiele, Charité-Universitätsmedizin Berlin, Project Title: Various projects, (Principal Supervisor)

Human, Dental, Veterinary medicine

2022/8-present Michal Kulasek, McGill University, MD student (Principal Supervisor)
2021/12-2024/7 Sara Kavari, McGill University, DMD student (Principal Supervisor)

German doktorarbeit with Thesis

2013/7-2019/1 Alex Buettner, MD student, Charité-Universitätsmedizin Berlin, Faculty of Medicine, Thesis Title: Alters- und geschlechterspezifische Effekte von mechanischer Belastung auf den durch das SOST-Gen regulierten Knochenumbau, (Principal Supervisor)
2011/7-2019/6 Bettina Kruck, MD student, Charité-Universitätsmedizin Berlin, Faculty of Medicine, Thesis Title: Die Behandlung mit Sclerostin-neutralisierenden Antikörpern fördert die Knochenbildung, kann jedoch eine mechanisch bedingte Heilungsverzögerung nicht ausgleichen, (Principal Supervisor)
2011/7-2017/1 David Pflanz, MD student, Charité-Universitätsmedizin Berlin, Faculty of Medicine, Thesis Title: Einfluss der Skelettreifung auf die Knochenmasse und adaptive Knochenantwort bei mechanischer Belastung in *Sost* KO/Sclerostin-defizienten Mäusen, (Principal Supervisor)
2019/7-2013/1 Sophie Damerow, DVM student, Freien Universität Berlin, Thesis Title: Histologische Beurteilung der Auswirkungen des Proteins Sklerostin und der mechanischen Belastung auf die Knochenstruktur und die Knochenheilung in einem Mausmodell, (Principal Supervisor)
2012/7-2016/1 Michele Demel Forner, DVM student, Freien Universität Berlin, Thesis title: Analyse des Einflusses des Biomaterialparameters Mikrosteifigkeit neuartiger Gelatinescaffolds auf die Knochenregeneration in einem Rattendefektmodel, (Principal Supervisor)

Undergraduate Students supervised at McGill University

Jan 2025- present Fiona Newsome, McGill University
Oct 2024-present Shahd Audi, McGill University

Sept 2024-present	Hosna Akhgary, McGill University
Jan 2024-present	Karim Elsayed, McGill University
Nov 2023-present	Veronique Wirth, McGill University
Sept 2024-Jan 2025	Zainah Islam, McGill University
Oct. 2021- Sept 2024	Elena Nehme, Concordia University
June 2021-9/2021, 6/2022-12/2023	Carolyn Denton, John Abbott College, McGill University
Nov 2023-June 2024	Anthony El Helou, McGill University
April 2024-Aug 2024	Annie Mao, McGill University
May 2023-June 2024	Nabhaan Farooqi, McGill University
May 2023-Aug 2024	Rose Sullivan, McGill University
Nov 2023-Aug 2024	Richard Ilianu, McGill University
June 2021- May 2024	Annie-Laurine Sezikeye, McGill University
Nov 2023-Jan 2024	Peter Scartozzi, Concordia University
April 2023-Oct 2023	Matthew Angoh, McGill University
Sept2023-Nov 2023	Eman Rawi, South Valley University, Egypt
June 2022-Sept 2022	Richard Denton, TAV College
May 2022- Sept 2023	Aijing (Coco) Shen, McGill University
May 2021-Aug 2022	Samantha McCluskey, McGill University
Jan. 2021-April 2021	David Hartal, McGill University
June 2020-Aug 2022	Joseph Sayegh, McGill University
Aug 2019-Sept 2022	Gabriella Graceffa, John Abbott College
May2019-Dec 2019	Christine Andrea, McGill University

Undergraduate Students supervised at Charité-Universitätsmedizin Berlin

2013	Erin Thomson, RISE program, Charité-Universitätsmedizin Berlin
2012	Shereen Elmaghrab, RISE program, Charité-Universitätsmedizin Berlin
2012	Elliott Goff, RISE program, Charité-Universitätsmedizin Berlin
2011	Shalini Vysalini Akshintala, Freien Universität Berlin
2011	David Narrow, RISE program, Charité-Universitätsmedizin Berlin
2010	Nadja Kretzschmar, Beuth Hochschule für Technik Berlin
2008	Jenny Möhring, Beuth Hochschule für Technik Berlin

High School Summer students supervised at McGill University

2024	Antoine Fillon	2022	Lyla Roth
2023	Tamara Droual	2021	Kate Datsenko
2023	Stella Tutino	2021-2023	Hanna Gonzalez Hernandez
2023	Lilly Challen	2019	Annie-Laurine Sezikeye
2023	Raya Hussain	2019	Jenna Tetrault
2022-2023	Alexander Datsenko	2019	Kira Sikorska

Visiting Scholars hosted in my lab

2025	Leila Roshangar, PhD, Univ. of Tabriz, Dept of Anatomical Sciences, 6 months
2019	Pouyan Asgharzadeh, PhD Univ. of Stuttgart, Dept. Computer Science, 3 months

2018 Victoria Schmerz, PhD University of Potsdam, Dept of Material Science, DAAD travel award recipient, 3 months.
2013 Madge Martin, MSc, École Des Ponts Paris Tech, Dept. Bioengineering, 6 months
2012 Etienne Berthet, MSc, AgroParisTech, Dept. Bioengineering, 6 months

3. Invited Lectures, Talks, Presentations

International

1. Guest speaker, Meet-the-Professor session: Use of HR-pQCT to study bone density, microarchitecture, and strength in pediatric and adult populations**,** *2025 Annual Meeting of the American Society for Bone and Mineral Research*, Seattle, WA, USA, September 7, 2025.
2. Guest speaker, MicroCT- and HR-pQCT-based timelapse imaging of bone (re)modeling in mice and humans, *3rd Gordon Conference on Tissue Microstructure Imaging*, Stonehill College, MA, USA, July 13-18, 2025.
3. Guest speaker, A bispecific antibody targeting sclerostin and DKK-1 enhances bone microstructure, strength and (re)modeling in the Brtl/+ mouse model of osteogenesis imperfecta, *Osteogenesis Imperfecta Foundation Annual Scientific Meeting*, Rosemont, IL, USA, April 9, 2025.
4. Keynote speaker, Applying for a Grant - Tips for Success as an Emerging Scientist, *International Society for Children's Bone Health New Investigator webinar*, Remote, February 28, 2025. https://theiscbh.org/new-investigators/
5. Guest speaker, Insights in skeletal mechanobiology, *Research Seminar, Department of Mechanical Engineering, Brigham Young University*, Provo, UT, USA, February 4, 2025.
6. Guest speaker, Insights in skeletal mechanobiology**,** *Research Seminar, College of Veterinary Medicine, Utah State University*, Logan, UT, USA, January 29, 2025.
7. Guest speaker, Bone adaptation to mechanical loading and osteogenesis imperfecta**,** *Shriners Hospitals for Children Organizational Grand Rounds Scientific Meeting*, Remote, February 21, 2024.
8. Guest speaker, Adaptive response to mechanical loading in OI mouse models, *Osteogenesis Imperfecta Foundation Annual Scientific Meeting*, Rosemont, IL, USA, April 13, 2023.
9. Guest speaker, Noninvasive quantification of bone remodeling dynamics in adults with OI using time-lapse high resolution peripheral quantitative computed tomography, *American Society for Bone and Mineral Research Pre-Meeting Symposium on Rare Diseases: From Molecules and Mechanisms to Therapeutics*, Austin, TX, USA, September 9-12, 2022.
10. Guest speaker, HR-pQCT in children with osteogenesis imperfecta, *International Conference on Children's Bone Health (ICCBH)*, Dublin, Ireland, July 3, 2022.
11. Keynote speaker, Insights in Skeletal Mechanobiology, *International Conference on Advancements in Interdisciplinary Research (AIR-2022)*, Motilal Nehru National Institute of Technology Allahabad, Prayagraj (U.P.), India (virtual attendance), May 6-7th 2022.
12. Guest speaker/Visiting professor, HR-pQCT for fracture risk assessment, *Charité - Universitätsmedizin Berlin*, Berlin, Germany, December 2, 2021.
13. Guest speaker/Visiting professor, Insights in Skeletal Mechanobiology, *Department of Biomedical Engineering at City College of New York* (Virtual), September 22, 2021.

14. Keynote speaker, Time-lapse in vivo imaging of bone formation and resorption in mouse models and humans using microcomputed tomography and high-resolution peripheral quantitative computed tomography, *16th U.S. Congress on Computational Mechanics*, In minisymposium "Imaging-based Methods in Computational Medicine", Chicago (Virtual), USA, July 27, 2021.
15. Guest speaker, Insights into mechanobiology of bone adaptation and regeneration, *Musculoskeletal System Symposium at the University of Stuttgart*, Stuttgart, Germany, July 16, 2020 (COVID-19 canceled).
16. Guest speaker, Finite element analysis in osteogenesis imperfecta, *Osteogenesis Imperfecta Foundation Scientific Meeting*, Rosemont, USA, April 2, 2020 (COVID-19 canceled).
17. Guest speaker/Visiting professor, Mechanobiology in mineralized tissues, *Faculty of Dentistry Grand Rounds, Charité - Universitätsmedizin Berlin*, Berlin, Germany, March 25, 2020 (COVID-19 canceled).
18. Guest speaker, Mechanoresponse during aging, *Julius Wolff Institute's anniversary symposium on "Advanced therapies in musculoskeletal regeneration: Novel strategies and challenges for regeneration in compromised patients*" Berlin, Germany, June 15, 2018.
19. Guest speaker, In vivo microCT imaging: Longitudinal Assessment of Skeletal Microstructure, Strength, and (Re)modeling Dynamics, *Orthopaedic Research Society Workshop*, New Orleans, USA, March 13, 2018.
20. Guest speaker, The mechanobiology of the growing skeleton, *International Conference on Children's Bone Health*, Würzburg, Germany, 10 June 2017.
21. Guest speaker, Introduction to HRpQCT & 3D time-lapse in vivo morphometry, *Asteroid Study Investigators' Meeting,* Miami, USA, March 29, 2017.
22. Guest speaker, Quantifying adaptive (re)modeling in mouse models with low & high bone mass, *Orthopaedic Research Society Preclinical Models Section Meeting*, San Diego, USA, March 19, 2017.
23. Guest speaker, In vivo imaging of bone formation and resorption to assess bone adaptation to mechanical loading in aging mice. *7th World Congress of Biomechanics*, In symposium on "High Resolution ECM Imaging in Cell and Molecular Mechanobiology", Boston, MA, USA, July 11, 2014.
24. Guest speaker, The role of mechano-sensitivity in age-related trabecular bone loss. *7th World Congress of Biomechanics*, In symposium on " Biomechanical meet molecular cues: impact on tissue formation, regeneration and adaptation " Boston, USA, July 11, 2014.
25. Guest speaker, How mechanics influences modelling and remodeling of bone cells. *Berlin-Brandenburg School for Regenerative Therapies Summer School* "The Influence of metabolism on regeneration processes" Berlin, Germany, June 20, 2014.
26. Guest speaker, The role of mechano-sensitivity in age-related trabecular bone loss. *Deutschen Rheuma-Forschungszentrum Berlin*, Symposium" Osteoarthritis-The Challenge, Berlin, Germany. February 3, 2014.
27. Guest speaker, Mechano-sensitivity in age-related bone loss. *2nd Fragility Fracture Network Global Congress*, Berlin, Germany, August 31, 2013.

28. Guest speaker, Project & personnel management, *DFG Nachwuchsakademie Medizintechnik:* Vom lebenden Material lernen, technische Materialien für die Geweberegeneration und für medizinische Implantate entwickeln, Berlin, Germany, Aug. 25, 2011.
29. Guest speaker, The musculoskeletal system: a systems approach to understanding pathology and treatment. *European Calcified Tissue Society PhD Training Course*, Berlin, Germany, September 12, 2010.
30. Guest speaker, Rat healing models: external fixation of the tibia and femur. *Research symposium Homburg Hornbach Monastery: Small animal fracture models & non-union formation*, Bad Homburg, Germany, April 16, 2010.
31. Guest speaker, Collaborations between Bioengineers and Orthopedic Surgeons in Research. *Deutschen Kongress für Orthopädie und Unfallchirurgie*, Berlin, Germany, Oct. 24, 2008.
32. Guest speaker, Polyethylene past & present, *University of Utah, Orthopedic Grand Rounds,* Salt Lake City, USA, October 1, 2003.
33. Guest speaker, Biocompatibility testing of porous coated implants and crosslinked polyethylene in retrieved knee and hip replacements, *Centerpulse Orthopedics (formerly known as Sulzer Orthopedics),* Austin, USA, December 20, 2002.
34. Guest speaker, Biocompatibility testing of porous coated implants. *The 122nd Meeting of the Association of Clinical Scientists*, Salt Lake City, USA, May 5, 2002.
35. Guest speaker, Calcium stearate's contribution to UHMWPE degradation, *University of Utah, Orthopedic Grand Rounds*, Salt Lake City, USA. February 2, 2000.

National (Canadian)

1. Guest speaker, High-resolution analysis of structure and materials*, University of Calgary, OsNET Summer School*, Calgary, Canada, June 17, 2025.
2. Guest speaker, How to Get Your Work Published and the Peer Review Process*, Le Réseau de recherche en santé buccodentaire et osseuse*, Montreal, Canada, April 4, 2025.
3. Guest speaker, Basic research at the Shriners Hospitals for Children-Canada*, Spring Weekend Shrine association*, Moose Jaw, Canada, February 21, 2025.
4. Guest speaker, Academic Panel Session*, Canadian undergraduate biomedical engineering conference (CUBIC),* Montreal, Canada, January 25, 2025.
5. Keynote speaker, Skeletal mechanobiology in rare disease. *Canadian Connective Tissue Conference,* London, Canada, May 14, 2024.
6. Guest speaker, Bone adaptation to mechanical loading and osteogenesis imperfecta. *Department of Experimental Surgery / Surgical and Interventional Sciences Program 2023-2024 Virtual Seminar Series, McGill University*, Montreal, Canada, March 19, 2024.
7. Guest speaker, Skeletal Mechanobiology for Beginners. *Soup and Science Series, Faculty of Science, McGill University*, Montreal, Canada, September 26, 2023.
8. Guest speaker, Insights in Skeletal Mechanobiology. *50th Anniversary of Shriners Hospitals for Children-Canada Research Centre Symposium*, Montreal, Canada, August 16, 2023.
9. Guest speaker, Research Overview and Mechanobiology in Osteogenesis Imperfecta. *Annual Supreme Queen visit with Canadian Daughters of the Nile*, In Shriners Hospitals for Children Research Center, Montreal, Canada, June 27, 2023.
10. Guest speaker, Role of circadian rhythms in bone adaptation to mechanical environment, *6th Conference of the Canadian Society for Chronobiology*, Univ. of Guelph, June 14, 2023.

11. Guest speaker, Musculoskeletal health of laying hens, Comité Recherche & Vulgarisation, *Fédération des producteurs d'oeufs du Québec*, Longueuil (Virtual), Canada, Dec. 9, 2022.
12. Guest speaker, Insights into skeletal mechanobiology, *McGill University, Faculty of Dental Medicine and Oral Health Sciences Seminar (DENT 671),* Montreal, Canada, Nov. 23, 2022.
13. Guest speaker, Bone adaptation in the skull, 14th *Annual David R. Murphy Visiting Professorship Day at the MCH, Craniosynostosis Multidisciplinary Minisymposium, Department of Pediatric Surgery, McGill University,* Montreal, Canada, April 7, 2022.
14. Guest speaker, Bone adaptation to mechanical loading is affected by circadian rhythms**,** *Shriners Hospital for Children-Canada Research Committee Board meeting,* Montreal, Canada, March 14, 2022.
15. Guest speaker, Musculoskeletal health of laying hens, Comité Recherche & Vulgarisation, *Fédération des producteurs d'oeufs du Québec*, Longueuil (Virtual), Canada, Dec. 9, 2021.
16. Guest speaker, HR-pQCT for fracture risk assessment, *Endocrinology Grand Rounds, McGill University,* Montreal, Canada, October 28th, 2021.
17. Guest speaker, Skeletal mechanoadaptation, Current Trends in Bone Tissue Research and Engineering Symposium, *Réseau de recherche en santé buccodentaire et osseuse, AGORA group (*other speakers Helen Lu and Enrico Dall'Ara*),* Montreal (Virtual), May 28, 2021.
18. Guest speaker, Bone fragility and mechano-responsive in hens, Comité Recherche & Vulgarisation, *Fédération des producteurs d'oeufs du Québec*, Longueuil (Virtual), December 16, 2020.
19. Career Panel member: Multidisciplinary and multi-sectoral experts to provide insights into their career pathways, perspectives and pitfalls, *Canadian Connective Tissue Society Trainee Workshop,* Montreal, Canada, May 29, 2019.
20. Guest speaker, How to get your work published and the peer review process**,** *Chronobiology Mini-School at Canadian Society for Chronobiology 2019,* Montreal, Canada, May 26, 2019.
21. Guest speaker, Anabolic therapies to improve bone health**,** *Shriners Hospital for Children-Canada Annual Board meeting,* Montreal, Canada, May 13, 2019.
22. Guest speaker, Distraction Osteogenesis for long bones, *Pediatric Surgical Grand Rounds, McGill University,* Montreal, Canada, March 28th, 2019.
23. Guest speaker, Skeletal mechanoresponse changes with age, *International Workshop on Musculoskeletal and Neuronal Interactions*, Montreal, Canada, October 6-8, 2017.
24. Guest speaker, Mechanoresponsiveness in egg laying hens, *Fédération des producteurs d'oeufs du Québec*, Longueuil, Canada, December 16, 2016.
25. Guest speaker, Insights into mechanobiology of bone adaptation and regeneration, *McGill University, Department of Cell Biology and Anatomy,* Montreal, Canada, Sept. 14, 2016.
26. Guest speaker, Osteocytes in bone adaptation and regeneration, *McGill University, Pediatric Surgery Grand Rounds,* Montreal, Canada, May 19, 2016.
27. Guest speaker, Insights into mechanobiology of bone adaptation & regeneration, *McGill University, Depart. of Biomedical Engineering Seminar,* Montreal, Canada, April 15, 2016.
28. Guest speaker, Osteocytes: mechanical strain sensors in bone, *McGill University, Faculty of Dentistry Advanced Research Seminar and Workshop,* Montreal, Canada, April 14, 2016.

29. Guest speaker, Insights into mechanobiology of bone adaptation & regeneration, *Réseau de recherche en santé buccodentaire et osseuse annual meeting*, Montreal, Canada, Nov. 3, 2016.
30. Guest speaker, How the mechanical environment affects bone formation. *Annual Ladies Christmas Program*, In Shriners Hospitals for Children Research Center, Montreal, Canada, December 17, 2015.
31. Guest speaker, Mechanobiology of bone regeneration. *13th Annual Eugene Rogala Visiting Professor In Pediatric Orthopaedic Surgery*, Montreal, Canada, November 10, 2015.

4. Contribution to public education

Press release for publication on EDAI framework in Oral Health Care:
https://www.jmir.org/2024/1/e63356
https://www.newswise.com/articles/new-framework-champions-equity-in-ai-for-health-care

Reducing risk of bone fracture in people with rare genetic disorders, 2024/09/09
https://lightsources.org/2024/09/09/reducing-risk-of-bone-fracture-in-people-with-rare-genetic-disorder/
Interview with Bettina Willie, and Elizabeth Zimmermann.

Bone benefits: Measuring the impact of aviary rearing on bone health in pullets, By Jane Robinson, Canadian Poultry magazine, April 2023, pg 18-20.
https://mydigitalpublication.com/publication/?m=1191&i=786434&p=18&ver=html5
Interview with Bettina Willie, Svetlana Komarova, and Isabela Vitienes.

HR-pQCT: A revolution in bone imaging, Osteogenesis imperfecta federation Europe (OIEF) Magazine-Issue 3, 2022, https://oife.org/news-resources/oife-magazine/ or
https://oife.org/tag/bettina-willie/
Interview with Bettina Willie

Biological rhythms influence bone formation/removal When Responding to Applied Forces
https://www.facebook.com/ShrinersHospitalsforChildrenCanada (September 1, 2022)
https://www.shrinerschildrens.org/.../2022/08/bone-research (August 28, 2022)
Interview with Bettina Willie

Easing the transition: Enabling hens to thrive in new aviary systems, By Jane Robinson, Canadian Poultry magazine, December 2020, pg 20-22.
https://mydigitalpublication.com/publication/?m=1191&i=685321&p=20&ver=html5
Interview with Tina Widowski (mentioned collaboration with Bettina Willie).

06/19/2019 Bone Mechanobiology and Imaging workshop at Shriners Hospital, hosted 12 high school students from the Alexander von Humboldt German International School Montreal, Baie d'Urfe, Canada.

2017, 2019	Career day, at the Alexander von Humboldt German International School Montreal, Baie d'Urfe, Canada, 01/02/2019 and 02/10/2017.
07/18/2018	SHAD program, Canadian summer enrichment program for high-achieving high school students. Co-organized w/ Suzanne Morin half day tour and lectures of 64 SHAD scholars at Shriners Hospital for Children
2016	Judge at the Canada-Wide Science Fair

Other mentoring

10/2019-6/2022	WIN4Science mentoring program, meeting with three female doctoral students/postdocs, 9-12 times/year.
2022, 2023	CIHR project grant Reviewer in Training (RiT) program, served as a mentor

6. OTHER CONTRIBUTIONS

1. Journals

Editorial Boards

01/2022-current: *Editorial Board Member,* Journal of Bone and Mineral Research
08/2023-12/2023: *Guest Editor*, Collection: "Interdependencies and Interfaces in Bone Regeneration - The Immune System at its Core", Frontiers in Immunology, section Inflammation
06/2021-7/2023: *Editorial Board Member,* Frontiers in Skeletal Physiology
05/2018-03/2022: *Editorial Board Member,* Scientific Reports, Biomedical Engineering Section

Ad hoc Journal Article Reviews

Reviewer for more than 20 established international journals, including Proceedings of the National Academy of Sciences, Advanced Science, Science Advances, Journal of Bone and Mineral Research and Bone (two leading journals in bone biology); Acta Biomaterialia (a leading biomaterials journal, and Journal of Bone and Joint Surgery Am (a leading orthopedic journal).

Annual Conference Meeting Abstract Reviewing

2017, 2018, 2020, 2021	American Society for Bone & Mineral Research
2022	International Conference on Children's Bone Health
2016-2018, 2020-2021	Orthopaedic Research Society
2019, 2023	International Conferences on the Chemistry and Biology of Mineralized Tissues
2019	Canadian Connective Tissue Conference
2014, 2015	European Society for Biomechanics

2. Grant Reviews

Chair

June 18-19 2025	Canadian Foundation for Innovation Expert Committee in Regenerative Medicine

Scientific Officer

Spring 2022-Spring 2024	Canadian Institute for Health Research (CIHR) Peer review Committee: Biomedical Engineering, Project Grant Competition

Panel Review Member

June & Nov 2021	Canadian Institute for Health Research (CIHR) Peer review Committee: Biomedical engineering, Project Grant Competition
Feb & Nov 2021	Alberta Innovates, The Accelerating Innovations into CarE (AICE) – Concepts Program (the "Program")
October 30, 2018	Canadian Institute for Health Research (CIHR) Peer review Committee: Operating Grant: Understanding the Health Impact of Inactivity
April 24-25, 2017	Canadian Institute for Health Research (CIHR) Peer review Committee: Clinical Investigations B, Project Grant Competition - APPCL23 - Final Assessment Stage
February 1-3, 2017	Canadian Institute for Health Research (CIHR) Peer review Committee: Project Grant Competition - Stage 1, Canadian Institute for Health Research (CIHR)

Ad hoc reviews as an external member

2024	Belgian National Fund for Scientific Research – FNRS, Grants and Fellowships Call 2024
2024	Dutch Research Council (NWO), NWA-ORC research proposal
2024	ETH zurich grants
2024	Canadian Research Chair Awards
2024	Stem Cell Network (Judge for Summer studentship symposium)
2023	External Reviewer for a tenure/promotion dossier, University of Alberta, Department of Mechanical Engineering
2023	John R. Evans Leaders Fund (Canada Foundation for Innovation)
2023	FNRS (Basic Research funder for French speaking Belgium) PINT-BILAT-M: Bilateral mobility project" Call (1 proposal)
2021	NordForsk, "Japan-Nordic Frontier Research Projects for Healthy Longevity" (3 proposals)
2021	Research Foundation-Flanders (FWO) and the Belgian National Fund for Scientific Research (FNRS), Excellence of Science proposals (1 proposal)
2021	Belgian National Fund for Scientific Research – FNRS, Grants and Fellowships Call 2021 (2 proposals)
2020, 2021	New Frontiers in Research Fund-Exploration (3 proposals)
2018-2022	NSERC Discovery Grants (average of 2 proposals annually)
2020	Mitacs Acclerate proposal
2020	French National Research Agency (ANR) 2020 generic call
2019	Ministère de l'Agriculture, des Pêcheries et de l'Alimentation (le Programme Innov'Action agroalimentaire 2018-2023)
2019	Reseau de recherche en Sante buccodentaire et osseuse: Major Structuring Projects Competition,

2019	Reseau de recherche en Sante buccodentaire et osseuse: Student grant competition
2019	Canada Foundation for Innovation
2017, 2018, 2021, 2022	Deutsche Forschungsgemeinschaft (German Research Foundation) Project grants
2018	Wellcome Trust, Sir Henry Dale Fellowship
2018	The City College of New York – Memorial Sloan Kettering Cancer Center Partnership pilot research proposal,
2018	University of Utah, LS Peery research grant program,
2015	Arthritis Research United Kingdom, Project grants

3. Committees

McGill University Standing Committee Assignments

08/2023- current	Association of Canadian Faculties of Dentistry, Research Affairs Committee, representative for McGill University, 6 meeting hrs/yr
08/2024- current	McGill University Faculty Academic Planning and Operations Workgroup (FAPOW), member and representative for FDMOHS, 10 meeting hrs/yr
08/2024- current	Faculty of Dental Medicine and Oral Health Sciences, Executive committee, member, 6 meeting hrs/yr
08/2023- current	McGill University Academic Leadership Forum, member and representative for FDMOHS, 8 meeting hrs/yr
09/2022- current	Graduate Studies Committee, Faculty of Dental Medicine and Oral Health Sciences, member, 10 meeting hrs/yr
09/2022- current	Ad hoc Graduate Awards Committee, Faculty of Dental Medicine and Oral Health Sciences, member, 12 meeting hrs/yr
03/2019- current	Department of Pediatric Surgery, Faculty of Medicine, Research Core Committee, member, 12 meeting hrs/yr
05/2017- current	Fundamentals of Medicine and Dentistry Component Subcommittee, Member at large, 12 meeting hrs/yr
2020-2022	McGill University Senate member, elected representative of academic staff for the Faculty of Medicine
12/2020-8/2023	Awards Committee of the Department of Biomedical Engineering, member, 10 meeting hrs/yr
12/2020-8/2023	Fellowships Committee of the Department of Biomedical Engineering, member, 10 meeting hrs/yr
01/2017- 8/2023	Biological and Biomedical Engineering Department (BBME), Plenary Faculty Committee, member, 12 meeting hrs/yr

McGill University Ad hoc Committee Assignments

03/2025	Department of Family Medicine MSc and PhD Program Review committee member

12/2024	Search committee Chair for recruitment of tenure-track academic staff, Faculty of Dental Medicine and Oral Health Sciences
12/2024	Selection committee Chair for William Dawson Scholar Award, Faculty of Dental Medicine and Oral Health Sciences
9/2024	Reappointment committee member for a tenure track assistant professor, Faculty of Dental Medicine and Oral Health Sciences, member
6/2024	Selection committee Chair for CRC Tier 2 recipient, Faculty of Dental Medicine and Oral Health Sciences
8/2023	Selection committee Chair for recruitment of tenure-track academic staff, Faculty of Dental Medicine and Oral Health Sciences
8/2023	Reappointment committee member for a tenure track assistant professor, Faculty of Dental Medicine and Oral Health Sciences
4/2023- present	Chair of Research Day 2024 & 2025 Planning Committee, Faculty of Dental Medicine and Oral Health Sciences, 10 meeting hrs/yr
11/2022- 04/2023	Vice Chair of Research Day 2023 Planning Committee, Faculty of Dental Medicine and Oral Health Sciences, 10 meeting hrs/yr

Graduate student thesis advisory committee member

1. Lauren Kerr, PhD (Supervisor: Frank Rauch), McGill University, Faculty of Pediatrics, Thesis Title: TBD.
2. Madalina Patron, PhD (Supervisor: Svetlana Komarova), McGill University, Faculty of Dental Medicine and Oral Health Sciences, Thesis Title: TBD.
3. Mattias Neset, PhD (Supervisor: Svetlana Komarova), McGill University, Faculty of Dental Medicine and Oral Health Sciences, Thesis Title: TBD.
4. Sebastien Quetin, PhD (Supervisor: Farhad Maleki & Shirin Enger), Thesis Title: AI-based dosimetry and treatment planning for brachytherapy applications, Dept of Biomedical Engineering, McGill University, 2022-current, Chair's Rep.
5. Emad Moghaddam, PhD (Supervisor: Georgios Mitsis), Thesis Title: Quantifying the Dynamics of Task-Based Functional Connectivity, Dept of Biomedical Engineering, McGill University, 2021-current, Chair's Rep.
6. Azin Esmaelbeigi, PhD (Supervisors: Shirin Enger and Slobodan Devic), Thesis Title: Improvement of Dosimetry and Development of Applicators for Treatment of Rectal Cancer with XOFT, Dept of Biomedical Engineering, McGill University, 2021-current, Chair's Rep.
7. Caroline del Real Mata, PhD (Supervisor: Sara Mahshid), Thesis title: A fully automated fluidic device integrating a universal platform for sensitive detection of extracellular vesicles via surface-enhanced Raman Spectroscopy, Dept of Biomedical Engineering, McGill University, 2021-current, Chair's Rep.
8. Mahmoud Moussa, MSc and PhD (Supervisor: Svetlana Komarova), McGill University, Faculty of Dentistry, Thesis Title: The role of vasculature in bone responses to loading and unloading.
9. Aishwaria Scaria Aishwaria, MSc (Supervisor: Monsur Murshed), McGill University, Department of Experimental Surgery. Thesis Title: SMPD3 regulates MV-mediated bone mineralization.

10. Chrisanne Dsouza, PhD (Supervisor: Svetlana Komarova), McGill University, Department of Experimental Surgery. Thesis Title: Examining how loading time of day affects osteocyte gene expression during bone adaptation.
11. Hossein Poorhemati, PhD (Supervisor: Svetlana Komarova), McGill University, Dept of Biomedical Engineering. Thesis Title: Understanding the dynamics of calcium and phosphate homeostasis.
12. Matthew Goldsmith, MSc (Supervisor: Svetlana Komarova), McGill University, Faculty of Dentistry, Thesis Title: Meta-analysis of bone parameters measured in animals after spaceflight.
13. Victoria Schmerz, PhD (Supervisor: Peter Frazl), University of Potsdam, Dept of Material Science. Thesis title: Heterogeneity of the osteocyte network architecture and material structure across different tissue types in healing bone.
14. Erin Ross, MSc (Supervisor Tina Widowski), University of Guelph, Dept of Animal Bioscience. Thesis title: The effect of housing on musculoskeletal health of pullets.
15. Celine Julie Agnes, MSc (Supervisor: Maryam Tabrizian), McGill University, Faculty of Dentistry. Thesis Title: Using the guanosine diphosphate (gdp) cross-linked chitosan sponge as a platform for the co-culture of endothelial and pre-osteoblast cells in attempt to produce osteogenesis and angiogenesis.
16. Nicholas Mikolajewicz, PhD (Supervisor: Svetlana Komarova), McGill University, Faculty of Dental Medicine and Oral Health Sciences, Thesis Title: In silico mapping of the spatial-temporal dynamics of intercellular purinergic signalling in response to mechanical stimulation of single bone cells.
17. Muthu Lakshmi Muthu, PhD, (Supervisor: Dieter Rheinhardt), McGill University, Department of Anatomy and Cell Biology. Thesis Title: Regulation of adipose tissue homeostasis by fibrillin-1.
18. Saber Ghadakzadeh, PhD (Supervisors: Reggie Hamdy & Maryam Tabrizian), Comprehensive exam, McGill University, Department of Experimental Surgery. Thesis Title: Novel Approach to Enhance Bone Repair by Silencing the Inhibitors of Bone-forming Growth Factors.
19. Rayan Fairag, PhD (Supervisors: Lisbeth Haglund & Michael Weber), Comprehensive exam, McGill University, Department of Experimental Surgery.
20. Nabila Karam, PhD (Supervisor: Vahab D. Soleimani), McGill University, Department of Human Genetics. Thesis title: Characterization of bone remodelling in mice lacking MYF6, master regulator of key myokines, under steady and physically active state.
21. Michael Thelen, PhD (Supervisor: Uwe Kornak), Technische Universität Berlin, Thesis Title: Altered bone formation response to mechanical loading in a mouse model of the progeroid disorder gerodermia osteodysplastica, 2015/8 - 2018/12.
22. Rebecca Hörth, PhD (Supervisor: Peter Frazl), Technische Universität Berlin, Thesis Title: Structural and compositional changes of tissue during bone healing and implant integration, 2011/3 - 2015/3.
23. Hajar Razi, PhD (Supervisors: Sara Checa & Georg Duda), Technische Universität Berlin, Thesis Title: An *in silico* study of age-related changes in the mechanical regulation of bone adaptation, 2010/8 - 2015/4.

Thesis examination

Masters Degree Thesis Examiner

Oct 2024 Josh Webb, MSc (Supervisor Pierre Moffatt), Thesis title: Characterization of mouse model overexpressing OSTN in bone, McGill University, Department of Human Genetics, Internal reviewer.

Dec 2023 Samantha Robinson, MSc (Supervisor Pierre Moffatt), Thesis title: Characterization of Humanized Mouse Models for Type V and Atypical type VI Osteogenesis Imperfecta, McGill University, Department of Human Genetics, Internal reviewer.

March 2022 Dila Kavame, MSc (Supervisor Rene St-Arnaud), Thesis title: Partial Phenotyping of an Idiopathic Infantile Hypercalcemia Mouse Model, McGill University, Department of Human Genetics, Internal reviewer.

Aug. 2021 Erin Ross, MSc (Supervisor Tina Widowski), Thesis title: The effect of housing on musculoskeletal health of pullets, University of Guelph, Dept of Animal Bioscience. External reviewer.

Jan. 2020 Preeti Bhatt, PhD (Supervisor: Mari T. Kaartinen) "The role of plasma fibronectin in bone marrow adipogenesis" McGill University, Department of Experimental Surgery, Internal reviewer.

Sept. 2019 Celine Julie Agnes, MS (Supervisor: Maryam Tabrizian), Thesis Title: Using the guanosine diphosphate cross-linked chitosan sponge as a platform for the co-culture of endothelial and pre-osteoblast cells in attempt to produce osteogenesis and angiogenesis, McGill University, Faculty of Dentistry, Internal reviewer.

July 2017 Awatef Enagrat, MS (Supervisor: Monsur Murshed), Thesis Title: The cell-autonomous role of Phosphatase orphan 1 in skeletal tissue development, McGill University, Faculty of Dentistry, Internal reviewer.

Doctoral Thesis Examiner

May 2025 Hanna Liu, PhD (Supervisor: Kathryn Stok), The University of Melbourne, Thesis title: Time-lapse in vivo Joint Imaging of Osteoarthritis Onset and Progression. External reviewer.

Dec 2024 Mahdokht Mahmoodi, PhD (Supervisor: Mari Kaartinen), McGill University, Faculty of Dental Medicine and Oral Health Sciences, Thesis title: Novel roles of plasma fibronectin in energy metabolism and bone formation in vivo, Internal reviewer.

Nov 2024 Aram Bahmani (Supervisors: Jianyu Li and Francois Barthelat), Thesis title: Engineering of Grain-Based Materials with Mechanical Agitation, McGill University, Dept of Mechanical Engineering, Pro-Dean.

Aug 2024 Caitlin Anderson, PhD (Supervisor: Rene St-Arnaud), McGill University, Department of Human Genetics, Thesis title: The FIAT transcriptional repressor as a drug target for bone regeneration, Internal member.

May 2024 Sanjay Singh, PhD (Supervisors: Satwinder Jit Singh & Jitendra Prasad), Indian Institute of Technology Ropar, Dept of Mechanical Engineering, Thesis title: Bone adaptation role of fluid flow and pore pressure. External reviewer.

Sept 2023	Marzieh Golabbakhsh, PhD (Supervisor: Robert Funnel), McGill University, Dept of Biological and Biomedical Engineering, Thesis title: Finite-element modelling based on optical coherence tomography and corresponding X-ray microCT data for normal and pathological middle ears. Internal member.
Feb 2023	Michael Bruccoleri, PhD (Supervisor: Jean Vacher), McGill University, Department of Medicine Division of Experimental Medicine, Thesis title: Facet joint degeneration in scoliosis. Internal reviewer.
Jan 2023	Kathy Lee, PhD (Supervisor: Jane Mitchell and Marc Grynpas), University of Toronto, Graduate Department of Pharmacology and Toxicology, Thesis title: Investigating the in vivo effects of osteoblast-specific overexpression of Gαs and Gαq/11 on bone formation and remodeling during fracture repair. External reviewer.
Dec 2022	Daniel Bisson, PhD (Supervisor: Lisbeth Haglund), McGill University, Department of Experimental Surgery, Thesis title: Facet joint degeneration in scoliosis. Internal reviewer.
June 2022	Victoria Schmerz, PhD (Supervisor: Peter Frazl), University of Potsdam, Dept of Material Science. Thesis title: Heterogeneity of the osteocyte network architecture and material structure across different tissue types in healing bone. External reviewer.
Nov 2021	Nathalie Gharibeh (Supervisor: Hope Weiler), Thesis title: The determinants of bone health in infancy including vitamin D status at birth and postnatal vitamin D supplementation, McGill University, School of Human Nutrition. External member.
March 2021	Tianyu Zhong (Supervisor: Mark Andrews), Thesis title: Trapping Ferrofluid Patterns: Insights into Hierarchies of Order from Self-Organization of Magnetic Nanoparticles, McGill University, Dept of Chemistry, Pro-Dean.
May 2020	Pouyan Asgharzadeh (Supervisor: Oliver Roehrle), Thesis title: Image-based analysis of biological network structures using machine learning and continuum mechanics, Stuttgart University, Dept of Mechanical Engineering. External reviewer.
Jan. 2020	Kaushar Jahan, PhD (Supervisor: Maryam Tabrizian), Thesis Title: Development of a novel Injectable phosphate-releasing purine-crosslinked Chitosan scaffold for Bone tissue engineering, Faculty of Dentistry, McGill University. External member.
Sept. 2019	Ivy Mak, PhD (Supervisors: Hope Weiler & Monsur Murshed), "The biological importance and mechanisms of long-chain polyunsaturated fatty acids on bone growth in diet-induced obesity: investigation in children with obesity and rodents**",** School of Human Nutrition, McGill University, External member.
Sept. 2019	Hifang Sun, PhD, (Supervisor: Mari T. Kaartinen), The role of transglutaminases in osteoclastogenesis, Faculty of Dentistry, McGill University. External member.
July 2019	Tanvir Mustafy, PhD (Supervisors: Isabelle Villemure & Florina Moldovan), "The short and long-term effects of in vivo impact loadings applied during

pubertly on bone growth, morphometry, and biomechanics", Département de Génie Mécanique, l'Université de Montréal. External reviewer.

Feb. 2018 Betty Hoac, PhD, (Supervisors: Marc McKee & Monsur Murshed), **"**Enzymatic modifications of osteopontin and their role in mineralization", Faculty of Dentistry, Internal reviewer.

Jan 2017 Lamees Nayef, PhD, (Supervisor: Maryam Tabrizian), Thesis Title: Development of Injectable Multilayer Coated Nanoparticles and GDP- crosslinked Chitosan Sponge for BMP-7 delivery to Critical Size Defects and in Distraction Osteogenesis to Accelerate Bone Regeneration, Dept of Biomedical Engineering, McGill University. External member.

July 2016 Nicole Loechel, PhD (Supervisor: Devakar Epari) modifying fixation stiffness to improve bone healing, Institute of Health and Biomedical Innovation, Faculty of Science and Engineering, Queensland University of Technology. External reviewer.

03-2016 Anna Shipov, PhD (Supervisor: Ron Shahar/Steve Weiner) "Selected metabolic syndromes affecting cortical and cancellous bone in different animal models" The Hebrew University of Jerusalem/The Weizmann Institute of Science. External reviewer.

4. Professional and/or Learned Societies

Society Committees/Institute Advisory Board

12/2023-12/2027 Scientific advisory board member, Ludwig Boltzmann Institute of Osteology, Vienna, Austria.

01/2020-01/2025 Scientific advisory board member, Deutsche Forschungsgemeinschaft Collaborative Research Centre -1444 Directed Cellular Self-Organisation to Advance Bone Regeneration, Berlin, Germany.

01/2017-12/2021 Scientific advisory board member for adult and pediatric clinical trial design, Mereo BioPharma, UK.

2023-present Member of Steering Committee, *Network for Canadian Oral Health Research*

2023-present Member, *American Society for Bone and Mineral Research,* Advocacy Science Policy Committee

2018-present Scientific Advisory Board member, *International Conferences on the Chemistry and Biology of Mineralized Tissues*

2014– 2016 Member, Meetings and event coordinator committee, *International Society for Fracture Repair*

2012 – 2015 Member, Media relations committee, *Orthopaedic Research Society*

2008 – 2014 Member, Finance subcommittee, *International Society for Fracture Repair*

Workshop and Conference Organization

6/2026 Programme Organising Committee member, 12th International Conference on Children's Bone Health, Montreal, Canada.

11/2024 Session Co-Organizer/Presenter, Pediatric Bone Imaging workshop, *24th International Workshop on Quantitative Musculoskeletal Imaging,* Barossa Valley, Australia

10/2023 Session Moderator, Oral Presentations: Mediators of Mechanical Signals, *American Society for Bone and Mineral Research Annual Meeting,* Vancouver, Canada.

6/2023 Session Moderator and Judge, Student Oral Presentations Symposium, *6th Conference of the Canadian Society for Chronobiology*, Guelph, Canada.

7/2022 Programme Organising Committee member, *10th International Conference on Children's Bone Health (ICCBH)*, Dublin, Ireland.

6/2021 Best oral presentation judge, *5th Conference of the Canadian Society for Chronobiology*, Virtual meeting.

11/2020 Session Moderator, Osteogenesis imperfecta basic science, *ICCBH Bone fragility disorders in children,* Virtual meeting.

10/2019 Conference scientific advisory board member, *13th International conference on the Chemistry and Biology of mineralized tissues (ICCBHT)* Fairmont le Chateau Montebello, Canada

7/2019 Conference organizing committee member, *2nd conference on mechano-chemistry and mechanobiology (MechanoChemBio 2019)*, Montreal, Canada.

9/2018 Session Moderator, Skeletal mechanobiology, *American Society for Bone and Mineral Research Annual Meeting,* Montreal, Canada.

7/2018 Session Co-Chair, Minisymposium, Mechanobiology of Bone and Cartilage, *World Congress in Computational Mechanics*, New York City, USA.

3/2018 Session Co-Chair, *Orthopaedic Research Society Workshop*, In vivo MicroCT Imaging: Longitudinal assessment of skeletal microstructure, strength, & (re)modeling dynamics**,** New Orleans, LA.

10/2017 Conference organizing committee member, International Workshop on Musculoskeletal and Neuronal Interactions, Montreal, Canada.

3/2017 Session Co-Chair, *Orthopaedic Research Society, Preclinical Models Section at Annual Meeting*, "Developing Best Practices for Mouse Models of In Vivo Loading"**,** San Diego, CA.

7. RESEARCH

Research Grants and Industry contracts *(Note: NPA=nominated principal applicant, PA=principal applicant, Co-A=co-applicant, Col=collaborator), $ are in CND unless indicated.*

Under review

1/2026-12/2027 **Shriners Hospitals for Children**
Bettina Willie-PA, Frank Rauch-Co-A, Pierre Moffatt-Co-A, *Short stature in osteogenesis imperfecta*, (Total: $297,617USD)

1/2026-12/2028 **Shriners Hospitals for Children**
Bettina Willie-PA, Monzur Murshed-PA, Frank Rauch-Co-A, *Correcting Osteocyte-Associated Pathologies in X-Linked Hypophosphatemia*, (Total: $821,415 USD)

08/2025-08/2030 **NIH, PAR-24-206, U54: Rare Diseases Clinical Research Consortia (RDCRC) for the Rare Diseases Clinical Research Network (RDCRN)** Bettina Willie-PA, Frank Rauch-Co-A, Julia Levy-Cohen-Co-A, Jean-Marc Retrovey-Co-A, *Novel imaging outcomes in Osteogenesis Imperfecta,* Project grant within the Brittle Bone Disorders Consortium*,* (My portion: $428,202 USD)

7/2025-7/2030 **Canadian Institutes of Health Research (CIHR) project grant:** Bettina Willie-Co-A, Melissa Fiscaletti-NPA, Leanne Ward-PA, Frank Rauch-Co-A, *From Prediction to Prevention of Fractures in Duchenne Muscular Dystrophy: an Osteoporosis Clinical Trial Preparedness Study ("CAN-OPTIMIZE DMD"),* ($1,500,000)

07/2025-07/2030 **Canadian Institutes of Health Research (CIHR) project grant:** Bettina Willie-Col, Elizabeth Zimmerman-NPA, Jean Pierre Farmer-PA, Louis-Nicholas Veilleux-Co-A, Alessandra Carriero-Col, *Bone mass and microarchitecture and their relation to walking function in children with cerebral palsy,* ($1,200,000)

07/2025-07/2030 **Canadian Institutes of Health Research (CIHR) project grant:** Bettina Willie-Col, Zoha Kibar-NPA, *Investigating the role of notochord defects in the etiopathogenesis of congenital scoliosis,* ($1,000,000)

07/2025-07/2026 **Quebec Pain Research Network, Pilot projects:** Bettina Willie-Co-A, Elizabeth Zimmerman-NPA, Lander Manrique-Co-A, Emerson Krock-Co-A, *Susceptibility to nerve damage in osteogenesis imperfecta,* ($25,000)

<u>Currently funded</u>

5/2025-05/2027 **Shriners Hospitals for Children,** Leanne Ward-NPA, Frank Rauch-PA, Bettina Willie- Co-A, Monzur Murshed-Co-A, Cheryle Seguin-Co-A, Pierre Moffat-Co-A, Matthew Grol-Co-A, Argerie Tsimicalis-Co-A, Annie Sbrocchi-Co-A, *STAR proposal on rare bone disorders*, (Total:$400,000, My portion: $31,000).

11/2023-03/2028 **Canadian Poultry Research Council, Poultry Science Cluster** Bettina Willie PA, Alexandra Harlander-NPA, Tina Widowski-PA, Svetlana Komarova-PA, Russell Main-PA, Brett Tobalske-PA, Don Powers-PA, *Winging it or not? – influence of embryonic and pre-juvenile experience on development of musculoskeletal system and navigational ability in pullets and laying hens*, (Total: $1,405,190, My portion: $521,255)

07/2023-06/2025 **Canadian Institutes of Health Research (CIHR)** <u>Principal Applicants:</u> Steven Boyd, Angela Cheung, Suzanne Morin <u>Co-Applicants</u>: Alain Moreau, Alexandra Papaioannou, Allan Liew, Andrea Burden, Andrew Howard, Andrew Laing, Andy Karaplis, Andy Kin On Wong, **Bettina Willie,** Bradley Meulenkamp, Brent Edwards, Brent Lievers, Brent Richards, Caitlin McArthur, Cari Whyne, Carol Lam, Carrie Ye, Cathy Craven, Chelsey Grimbly, Cheryl Barnabe, Cheryl Quenneville, Christine Fahim, Christine Thomas, Christopher Kovacs, Claudia Gagnon, Dan

Romanyk, David Goltzman, Despoina Manousaki, Dominique Rouleau, Edward Harvey, Elizabeth Zimmermann, Emil Harald Schemitsch, Emily Lalone, Emma Billington, Fabrice Mac-Way, Frank Rauch, Greg Wohl, Gregory Berry, Gustavo Duque, Heidi-Lynn Ploeg, Janie Astephen Wilson, Janna Andronowski, JD Johnston , Jenna Gibbs, Julia Sorbara, Kathryn Grandfield, Laetitia Michou, Larry Funnell, Lauren Beaupre, Lauren Burt, Leanne Ward, Leigh Gabel, Lidan You, Lindsey Westover, Lisa Lix, Lora Giangregorio, Mansur Halai, Marc McKee, Marie-Eve Robinson, Marie-Josée Bégin, Mathieu Ferron, Maureen Ashe, Melissa Fiscaletti, Michael Doschak, Monzur Murshed, Munier Nour, Natalie Reznikov, Nathalie Alos, Nik Knowles, Philippe Campeau, Pierre Guy, Prism Schneider, Richard Kremer, Richard Walker, Roman Krawetz, Romina Pace, Ross Kenneth Leighton, Saija Kontulainen, Sarah Manske, Sarah West, Sharon Straus, Sidney Feldman, Stephane Pelet , Steven Papp, Suzanne Cadarette, Svetlana Komarova, Thomas Willett, Todd Alexander, Wendy Ward, William Leslie
Osnet: The Canadian Bone Health Research Network, (Total: $1,200,000)

01/2023-12/2025 **Contract with Angitia Biopharmaceuticals:** Bettina Willie-PA, *Hetero DS in Osteogenesis imperfecta mice*, ($323,786).

10/2022-09/2027 **Canadian Institutes of Health Research (CIHR) project grant:** Bettina Willie-NPA, Frank Rauch-PA, Richard Weinkamer-Co-A, *Mechano-adaptation in Osteogenesis Imperfecta,* (Total: $868,276; My portion: $763,276)

04/2022-03/2027 **Canadian Institutes of Health Research (CIHR) project grant:** Bettina Willie Co-A, Claudia Gagnon-NPA, Suzanne Morin-PA, Sonia Jean-PA, Andre Marette- Co-A; Andre Tchemof-CoA; Jenna Gibbs- Co-A, *Bone and muscle health following sleeve gastrectomy in men, premenopausal women and postmenopausal women* ($750,000)

03/2022-3/2026 **Contract with Mesentech:** Bettina Willie-PA, *Bone Anabolic Treatment for critical size defects in rodents*, ($156,865)

10/2021-9/2026 **Canadian Institutes of Health Research (CIHR) project grant:** Bettina Willie-NPA, Suzanne Morin-Co-A, Nicolas Cermakian-Co-A, *Role of circadian rhythms in bone adaptation to the mechanical environment* (Total: $739,910, My portion: $609,910)

<u>Past funded</u>

04/2023-04/2025 **Stem Cell Network, Fueling Biotechnology Partnerships Awards Program (FBP)**: Bettina Willie-CoA, Fabio Rossi-PA, Frank Rauch-CoA, *Bone targeted EP4 agonists as therapeutics for muscular dystrophy* (Total: $399,822, My portion: $108,740)

04/2019-3/2025 **NSERC-Discovery Grant (RGPIN-2019-05374): ** Bettina Willie-PA, Bone fragility in egg laying hens ($200,000+40,000 covid funds for 2024-2025)

12/2024 **SOLEIL Synchrotron:** Bettina Willie-PA, Paul Zaslansky-PA, "20240595: Preventing bone fractures in chickens: high contrast high resolution imaging of

osteocyte lacunae within the calcium reservoir, medullary bone" (Anatomix, 9 shifts (8hrs/shift), shift ~5,000 €, Total: 45,000 €)

09/2023-9/2024 **MITACS accelerate:** Bettina Willie-PA, Michael Bruccoleri-PA, Récupération sûre et rapide des fractures osseuses, ($15,000)

10/2023-10/2024 **CIHR Planning & Dissemination Grant, Institute Community Support project:** Bettina Willie Co-A, Elham Emami-NPA, Samira Abbasghlizadeh-Rahimi-PA, Svetlana Komarova- Co-A, Fatiha Chandad- Co-A, Pascale Caidor-CoA, Pascaline Kengne Talla-CoA, Claire Davies-CoA, Ahmed Faleh Tamimi-CoA, Christopher Bedos-CoA, Ajung Moon-CoA, Sreenath Madathil-CoA, Amal Idrissi Janati-CoA, Richa Shrivastava-CoA, Milka Nyariro-CoA; *Integrating Equity, Diversity, and Inclusion into the lifecycle of AI for health and Oral Healthcare,* ($50,000).

10/2019-9/2024 **Canadian Institutes of Health Research (CIHR) project grant**: Bettina Willie-PA, Svetlana Komarova-NPA, Role of extracellular ATP in bone adaptation to mechanical environment (Total: $573,750, My portion: $191,250)

03/2022-3/2024 **MITACS accelerate:** Bettina Willie-PA, *A Novel Bone Anabolic Treatment for critical size defects in rats*, ($180,000)

04/2022-3/2024 **Canadian Space Agency (21HLSRM03):** Bettina Willie-NPA, Svetlana Komarova-Co-A, *Role of circadian rhythms in mechanical unloading-related bone loss*, (Total: $150,000, My portion: $100,000)

01/2022-12/2024 **Shriners Hospitals for Children**
Bettina Willie-PA, Frank Rauch-Co-A, Richard Weinkamer-Col, *Mechano-adaptation in Osteogenesis Imperfecta,* (Total: $693,276, My portion: $543,276) (Note: funding for 2023-2024 was returned to Shriners since CIHR grant was awarded)

06/2023 **Canadian Foundation for Innovation-John R. Evans Leaders Fund (equipment grant):** Bettina Willie-PA, Svetlana Komarova-Co-A, Rene St-Arnaud-Co-A, *Mechanoadaptation and whole body bioenergetics in osteogenesis imperfecta and other metabolic bone diseases*, ($1,113,255).

06/2018-12/2023 **Mereo BioPharma**: Bettina Willie-NPA, Francis Glorieux-PA, *Natural history study: normative HRpQCT data in children with osteogenesis imperfecta*, *(*Total: $144,040*,* My portion $50,000)

11/15/2023 **SOLEIL Synchrotron:** Bettina Willie-PA, Paul Zaslansky-PA, Taylor DeVet-PA, "20230808: How are the characteristics of osteocyte lacuna and resulting bone micro porosity related to skull sutures?"(Anatomix, 5 shifts (8hrs/shift), shift ~5,000 €, Total: 25,000 €)

11/17/2023 **SOLEIL Synchrotron:** Bettina Willie-PA, Paul Zaslansky-PA, Taylor DeVet-PA, Leanne van der Merwe-PA, "20230832: Quantifying osteocyte lacuna characteristics and resulting bone micro porosity related to mechanical unloading?" (ID19, 6 shifts, (8hrs/shift), shift ~5,000 €, Total: 30,000 €)

01/2022-12/2023 **Réseau de recherche en santé buccodentaire et osseuse, Major structuring project:** Bettina Willie Co-A, Elham Emami-NPA, Samira Abbasghlizadeh-Rahimi-PA, Svetlana Komarova- Co-A, Fatiha Chandad- Co-A, Pascale

Caidor-CoA, Pascaline Kengne Talla-CoA, Claire Davies-CoA, Ahmed Faleh Tamimi-CoA, Christopher Bedos-CoA, Ajung Moon-CoA, Sreenath Madathil-CoA, Amal Idrissi Janati-CoA, Richa Shrivastava-CoA, Milka Nyariro-CoA; *Integrating Equity, Diversity, and Inclusion in the Development of Artificial Intelligence for Better Health and Oral Health Care: EDIAI Pilot Study,* ($50,000).

01/2023-12/2023 **Contract with NextCure:** Bettina Willie-CoA, Svetlana Komarova-PA, *Exploring immunomedicine for bone diseases (Lair-1 pilot study)*, ($25,730).

06/2023-09/2023 **Mitacs Global Research Award**: Bettina Willie-PI, David Bertrand-CoA, Taylor DeVet-CoA, *Osteocyte lacuna-canalicular network architecture and mechanoadaptation* ($12,000 for students to work at Max Planck Institute in Golm Germany for 12 weeks)

07/12/2023 **European Synchrotron Radiation Facility:** Bettina Willie-PA, Paul Zaslansky-PA, Taylor DeVet-PA, Jack Chapman-PA, David Bertrand-PA, "Fast Access at Beamline ID19: Microtomography; XLH mouse models". (ID19, 3 shifts, (8hrs/shift), shift ~5,000 €, Total: 15,000 €)

04/29-30/2023 **European Synchrotron Radiation Facility:** Bettina Willie-PA, Paul Zaslansky-PA, Taylor DeVet-PA, Jack Chapman-PA, David Bertrand-PA,**"** IH-SC-1767: Osteocyte-lacuna-canalicular network analysis in different mammalian and avian species**"**, (ID19, 6 shifts, (8hrs/shift), shift ~5,000 €, Total: 30,000 €)

04/2019-3/2023 **Collaborative Health Research Projects:** Bettina Willie-Co-A, Maryam Tabrizian PA, Monzur Murshed-PA, An Injectable Phosphate Releasing Bone Tissue Construct Encapsulating Adipose-Derived Stem Cells and Diphosphate Cleaving Enzymes to Promote Biomineralization in Critical Size Bone Defects (Total: $864,150, My portion $90,000)

04/2018-03/2023 **Canadian Poultry Research Council, Poultry Science Cluster**, which is supported by Agriculture and Agri-Food Canada as part of the Canadian Agricultural Partnership (grant # 054159),
Bettina Willie PA, Tina Widowski-NPA, Svetlana Komarova-PA, Karen Schwean-Lardner-PA, Alexandra Harlander-PA, Russell Main-PA, Brett Tobalske-PA, Don Powers-PA, Identifying developmental determinants of successful behavioral adaptation and musculoskeletal health of egg-laying hens*,* (Total: $1,882,325, My portion: $511,586)

01/2022-01/2023 **Réseau de recherche en santé buccodentaire et osseuse:** Bettina Willie Co-A, Claudia Gagnon-NPA, Andre Marette-PA, Suzanne Morin-PA, Sonia Jean-PA, Andre Tchemof-CoA; *Associations Between the Changes in Gut Microbiota, Bone and Muscle Outcomes After Sleeve Gastrectomy,* ($50,000).

04/2022 **NSERC RTI:** Bettina Willie Co-A, Maryam Tabrizian-PA, Sara Mahshid Co-A, Guojun Chen Co-A, Maureen McKeague, Co-A *Quantification of physical and chemical characteristics of cells and bioparticles using flow cytometry* ($59,829)

04/2020-3/2022 **Canadian Space Agency (19HLSRM04):** Bettina Willie-PA, Svetlana

Komarova-NPA, Richard Weinkamer-Col, Understanding relative contributions of fluid flow and mechanical strain to bone adaptation to altered gravity (Total: $150,000, My portion: $75,000).

01/2020-12/2021 **Shriners Hospital for Children:** Bettina Willie Co-A, JP Farmer-PA, Elizabeth Zimmermann Co-A, Louis-Nicholas Veilleux-Co-A, Alessandra Carriero-Col), Selective dorsal rhizotomy for spastic cerebral palsy: Impact on musculoskeletal health and predicting patient outcomes ($200,000)

06/2017-12/2021 **Mereo BioPharma**
Bettina Willie PA, *HR-pQCT image analysis, finite element analysis and bone quality assessment for the study: A Phase 2b, Multicentre, Multinational, Placebo-controlled, Double-blind, Dose-finding Study in Adult Patients with Type I, III or IV Osteogenesis Imperfecta Treated with Setrusumab*, *(*$938,831)

01/2018-12/2021 **Shriners Hospital for Children (RFP: Translational Regenerative Medicine in the Treatment of Mission-Specific Pediatric Disease or Injury)**
Bettina Willie-Co-A, Reggie Hamdy-PA, Frank Rauch-Co-A, *Multidisciplinary Approaches for Bone Regeneration using Biomaterials & Cell Therapy,* (Total: $712,140, My portion: $112,700)

6/2021 **NSERC RTI:** Bettina Willie Co-A, Noemie Dorval Courchesne Co-A, Matthew Harrington-PA, ATR FTIR microscope and fluid cell for tracking hierarchical assembly of molecules to materials ($150,000)

06/2021 **PETRA III Synchrotron Source-DESY**: Bettina Willie-PA, Wolfgang Wagermaier-PA, Peter Fratzl-PA, Victoria Schemenz-PA, Correlation between bone mineral particle characteristics and the osteocyte cell network architecture in Marfan Syndrome (nanofocus beamline P03 at Petra III, 12 shifts, shift ~3,000 €) Note: beamtime was originally planned for Dec 2020 but was delayed until 06/2021 due to Covid 19

04/2018-03/2020 **Fédération des producteurs d'oeufs du Québec**: Bettina Willie-PA, Identifying developmental determinants of successful behavioral adaptation and musculoskeletal health of egg-laying hens*,* ($10,000)

09/2020 **Canadian light source synchrotron**: Bettina Willie-PA, Elizabeth Zimmermann-PA, Paul Zaslansky-PA, Human tibia and skull: same bone material, different mechanobiology? (BMIT-BM, 9 shifts, shift ~$3,000)

09/2020 **European Synchrotron Radiation Facility**: Bettina Willie-PA, Wolfgang Wagermaier-PA, Peter Fratzl-PA, Elizabeth Zimmermann-PA, Correlation between bone minerals and cell network at in the Marfan Syndrome (Beamline ID-13, 12 shifts, shift ~5,000 €)

01/2018-12/2019 **Mereo BioPharma**
Bettina Willie-PA, *Determining the influence of bone morphometry, porosity and tissue material properties on mechanical behavior of bone in Brtl/+ mice*, *(*$37,960)

01/2018-12/2019 **National Marfan Foundation (247184)**

Bettina Willie-NPA, Svetlana Komarova-PA, Dieter Rheinhardt-PA, *Osteocyte Mechanobiology in Marfan Syndrome,* (Total: $100,000 USD, My portion: $60,000 USD)

01/2017-12/2018 **Shriners Hospitals for Children-Developmental grant**
Bettina Willie-PA, *Synchronizing Circadian Clock-controlled Adaptive Bone (Re)modeling in Mice,* ($107,632)

11/2015-12/2020 **Shriners Hospitals for Children**
Bettina Willie-PA, Start-up funding, ($626,152)

02/2015-07/2018 **Bundesministeriums für Bildung und Forschung (Federal Ministry of Education and Research)**
Bettina Willie-PA, Georg Duda-PA, *Project 5: Loss of mechano-regulation and the potential of sclerostin to modulate mechano-sensation.* In consortium: Detection and individualized management of early onset osteoporosis (Total: 444,948 €, My portion: 444,948 €)

02/2017-01/2018 **CIHR Planning & Dissemination Grant, Institute Community Support**
Bettina Willie co-A, David Holdsworth-PA, *Canadian Research Leaders in Musculoskeletal Health: A self-assembled national consortium,* (Total: $29,995 CND, My portion: $0)

07/2016-10/2019 **Deutsche Forshungsgemeinschaft (German Research Foundation)** JU 426/45-1, Bettina Willie-Col, Franziska Jundt-PA, *Adaption processes of the bone to mechanical load in a mouse model for osteolytic bone changes in multiple myeloma*, (Total: 223,393 €, My portion: 40,509 €)

08/2014-08/2017 **Deutsche Forshungsgemeinschaft (German Research Foundation)** WI 3761/4-1, Bettina Willie-PA, Uwe Kornak-PA, *Adaptive and regenerative response of bone to mechanical strain in a mouse model of premature aging*, In Research Unit FOR2165: Regeneration in Aged Individuals: bone healing as a model system to characterize regeneration under compromised conditions, (Total: 409,900 €, My portion: 215,300 €)

02/2016-02/2017**Réseau de recherche en santé buccodentaire et osseuse**
Bettina Willie-PA, Recruitment Aid Program, ($20,000)

08/2015 **PETRA III Synchrotron Source-DESY** Bettina Willie-PA, Phase contrast-enhanced microCT mapping of osteocyte lacunae in SOST knock-out mice tibia, following in vivo mechanical. (P05, 12 shifts, shift ~3,000 €, Total: 36,000 €)

01/2012-01/2015 **Deutsche Forshungsgemeinschaft (German Research Foundation)** WI 3761/1-1**,** Bettina Willie-PA, *Adaptive response of bone to mechanical strain in a mouse model of premature aging* (214,300 €)

05/2010-05/2013 **Bundesministeriums für Bildung und Forschung (Federal Ministry of Education and Research)**: Bettina Willie-PA, Georg Duda-PA, Effect of mechanical strain on the osteocyte during bone adaptation and formation. In: Osteopath Research Consortium/TP6: The molecular pathology of osteoporosis**,** (Total: 274,000 €, My portion: 274,000 €).

05/2012-12/2013 **Elsbeth Bonhoff Foundation:** Bettina Willie PA, Does mechanical

stimulation improve the efficacy of sclerostin-neutralizing antibody to enhance bone healing? (Verbessert mechanische Stimulation die Knochenheilung unter Gabe eines Sklerostin-neutralisierenden Antikörpers?), (47,000 €).

11/2013 **PETRA III Synchrotron Source-DESY**: Bettina Willie-PA, Paul Zaslansky-PA, Phase contrast-enhanced μCTmapping of osteocyte lacunae in adult and elderly mice following in vivo mechanical loading (P05, 12 shifts, shift ~3,000 €, Total: 36,000 €)

06/2013 **BESSY II Synchrotron:** Bettina Willie-PA and Paul Zaslansky-PA, Submicron phase-contrast enhanced tomography to visualize osteocyte lacunae in mice of two ages with different loading histories. (12 shifts, shift ~3,000 €, Total: 36,000 €)

11/2011 **European Synchrotron Radiation Facility:** Bettina Willie-PA, Wolfgang Wagermaier-PA, Marta Aido-PA, Investigating age-related diminished skeletal mechanosensitivity by high resolution SAXS & WAXS analysis of osteocyte perilacunar tissue. (ID13,12 shifts, shift ~5,000 €, Total: 60,000 €)

Publications: *Original publications in peer-reviewed journals (underlined are personnel supervised by me, impact factor for year published is shown on left).*

1. Bilal M, Si W, Vitienes I, **Willie B**, and Zhao X, (2023) 3.9
Cohousing-mediated microbiota transfer promotes bone health and modulates gut integrity, microbiota, and immunity in young broiler chickens,
Applied and Environmental Microbiology section Environmental Microbiology, Under review, 2025.

2. Bertrand D, Kavaseri K, Umebayashi M, Tauer JT, Sezikeye AL, Rauch F, (2023) 2.1
Hamdy R, **Willie BM**,
Systemic Bisphosphonate-EP4 Agonist Treatment Enhances Healing of a Critical-Sized Bone Defect in a Mouse Model of Osteogenesis Imperfecta,
Journal of Tissue Engineering and Regenerative Medicine, Under review, 2025.

3. Schemenz V, Rummler M, van Tol A, Vitienes I, Thiele T, Hartmann MA, (2023) 3.5
Burghammer M, Fratzl P, Weinkamer R, **Willie BM,** Wagermaier W
Correlations between osteocyte lacuna-canalicular network and material characteristics in healthy and mechanically stimulated murine cortices,
Bone, Under review, 2025.

4. Hosseinitabatabaei S, McCluskey S, Denton C, Zimmermann E, Glorieux F, (2023) 5.1
Charbonneau F, Rauch F, **Willie BM**,
Bone microstructural and strength changes over one year in children with osteogenesis imperfecta are comparable to age- and sex-matched healthy controls,
Journal of Bone and Mineral Research, In revision, 2025.

5. Vitienes I, Julien C, Rentsch A, Main R, Widowski TM, Checa S, **Willie BM** (2023) 3.5
Benefits of increased loading history on bone mechanical behaviour are genetic strain dependent in female adolescent chickens,

Bone Reports, In revision, 2025.

6. Agnes CJ, Li L, Bertrand D, Murshed M, **Willie BM**, Tabrizian M, (2023) 3.4
Development of a Myoblastic C2C12 Cell and RAW 264.7 Monocyte Macrophage Co-Culture System within a 6-BromoIndirubin-3'-Oxime Incorporated Chitosan-Based Scaffold: An In Vitro Evaluation of Osteogenic Differentiation,
Heliyon, In press, 2025.

7. Moussa M#, deVet T#, Zaslansky P, **Willie BM***, Komarova S* (2023) 5.1
(#*shared authorship),
Botulinum toxin (a)-induced bone loss is associated with increased blood velocity and reduced vascular bone porosity,
Journal of Bone and Mineral Research, In press, 2025.

8. Chapman J, Umebayashi M, DeVet T, Kulasek M, Shen A, (2023) 2.1
Julien C, Rauch F, **Willie BM**,
Bone Healing Response to Systemic Bisphosphonate-Prostaglandin E2 Receptor 4 Agonist Treatment in Female Rats with a Critical-Size Femoral Segmental Defect,
Injury, 56(4):112269, 2025.

9. Zimmermann EA, Gagnon M, Audet D, Tap R, Julien C, (2023) 5.1
Hosseinitabatabaei S, **Willie BM,** Carriero A, Farmer JP, Veilleux LN
Ambulatory children with spastic dipegic cerebral palsy have smaller bone area and deficits in trabecular microarchitecture,
Journal of Bone and Mineral Research, 21;40(4):511-521, 2025.

10. Karoichan A, Li L, Agnes C, **Willie BM**, Tabrizian M, (2023) 18.5
Mesenchymal Stem Cells-Derived Extracellular Vesicles Mimetics as Osteoinductive mediators for Bone Healing,
Journal of Advanced Functional Materials, 2419562, 2025.

11. Agnes CJ, Li L, Bertrand D, Murshed M, Willie BM, Tabrizian M, (2023) 7.7
Assessment of bone regeneration potential for a 6-bromindirubin-3'-oximie (BIO) encapsulated chitosan based scaffold in a mouse critical sized bone defect model
International Journal of Biological Macromolecules, 304(Pt 2):140995, 2025.

12. Hosseinitabatabaei S, Vitienes I, Birkhold, Rummler M, Rauch F, **Willie BM**, (2023) 5.1
Non-invasive quantification of bone remodeling dynamics in adults with osteogenesis imperfecta using timelapse HR-pQCT,
Journal of Bone and Mineral Research 40(3):348-3612025, 2025.

13. Pu S, Fu R, Bertrand D, **Willie BM**, Yang H, (2023) 2.1
A 4D time-lapse morphometry method to quantify bone formation and resorption during distraction osteogenesis
Journal of Orthopedic Research, 43(3):586-594, 2025.

14. Wang M, Zhao S, Shi C, Guyot M-C, Zhao Z, Liao M, Zhao L, Tauer JT, (2023) 4.6
Willie BM, Li G, Cobetto N, Aubin C-E, Küster-Schöck ED, Drapeau P, Bagnat M, Zhang J, Zhang TJ, Wu N,* Kibar Z* (#, * shared authorship),

Planar cell polarity zebrafish models of congenital scoliosis reveal novel underlying defects in notochord morphogenesis
Development, 151(21): dev202829, 2024.

15. Rummler M, von Tol A, Schemenz V, Hartmann M, Blouin S, **Willie BM**, Weinkamer R (2023) 3.3
The lacunocanalicular network is denser in C57BL/6 compared to BALB/c mice
Calcified Tissue International, 115(5):744-758, 2024.

16. Bertrand D, Kavaseri K, Fu R, Villemure I, Rauch F, Hamdy R, Yang H, **Willie BM,** (2023) 3.8
The Accordion Technique did not improve healing compared to conventional Distraction Osteogenesis,
Scientific Reports 14(1):24466, 2024.

17. Chan WL, Bucher C, Goldes J, Ma AC, Steiner M, **Willie BM,** Mundlos S, Kornak U, (2023) 8.0
Targeting TGF-β induced senescence for treatment of osteoporosis in gerodermia osteodysplastica,
Aging Cell, e14322, 2024.

18. Rummler M, Ziouti F, Snyder L, Zimmermann E, Lynch M, Donnelly E, Wagermaier W, Jundt F, **Willie BM,** (2023) 7.9
Bone mechanical properties were altered in a mouse model of multiple myeloma bone disease,
Biomaterials Advances, 166:214047, 2024.

19. Zimmermann EA, Devet T, Cilla M, Albiol L, Kavaseri K, Andrea C, Julien C, Tiedemann K, Panahifar A, Alidokht S, Chromik R, Komarova SV, Reinhardt DP, Zaslansky P, **Willie BM** (2023)
Tissue material properties, whole-bone morphology and mechanical behavior in the *Fbn1*$^{C1041G/+}$ mouse model of Marfan Syndrome,
Matrix Biology Plus, 23:100155, 2024.

20. Rummler M, Schemenz V, McCluskey S, Davydok A, Rauch F, Glorieux F, Harrington MJ, Wagermaier W, **Willie BM***, Zimmermann EA* (*shared authorship) (2023) 5.1
Bone matrix properties in adults with osteogenesis imperfecta are not adversely affected by Setrusumab - a sclerotin neutralizing antibody
Journal of Bone and Mineral Research, 39(9):1229-1239, 2024.

21. Glorieux F, Langdahl B, Chapurlat R, Jan de Beur S, Sutton V, Poole K, Dahir K, Orwoll E, **Willie BM**, Mikolajewicz N, Zimmermann E, Hosseinitabatabaei S, Ominsky M, Saville C, Clancy J, MacKinnon A, Mistry A, Javaid M K, (2023) 5.1
Setrusumab for the Treatment of Osteogenesis Imperfecta: 12-Month Results from the Phase 2b ASTEROID Study
Journal of Bone and Mineral Research, 39(9):1215-1228, 2024.

22. Bezdjian A, Mikolajewicz N, Denton C, Bouchard A, Rummler M, (2023) 2.1

Gludovatz B, Shin M, Zimmerman E, Salameh S, Daniel SJ, **Willie BM**,
Resonance frequency analysis identifies implant- and host-related factors associated with bone-anchored hearing implant stability,
Otology & Neurotology, 45(6): 676-683, 2024.

23. Tauer JT, Thiele T, Julien C, Ofer L, Zaslansky P, Shahar R, **Willie BM,** (2023) 3.5
Differential osseous gene expression in swim-trained anosteocytic and osteocytic teleost fish,
Bone, 185:117125, 2024.

24. Chen J, Aido M, Roschger A, Van Tol A, Checa S, **Willie BM**, Weinkamer R, (2023) 2.9
Spatial variations in the osteocyte lacuno-canalicular network density and analysis of the connectomic parameters,
Plos One, 19(5):e0303515, 2024.

25. Breuer M, Rummler M, Zaouter C, Jamadagni P, Singh J, (2023) 5.1
Willie BM, Patten SA,
CHD7 regulates craniofacial cartilage development via controlling HTR2B expression,
Journal of Bone and Mineral Research, 39(4):498-512, 2024.

26. Young, SAE, Heller A-D, Garske DS, Rummler M, Qian V, Ellinghaus A, (2023) 11.7
Duda GN, **Willie BM**, Grueneboom A, Cipitria A,
From breast cancer cell homing to the onset of early bone metastasis: dynamic bone (re)modeling in early lesion formation
Science Advances, 10(8):eadj0975, 2024.

27. Indermaur M, Casari D, Kochetkova T, **Willie B**, Michler J, (2023) 3.3
Schwiedrzik J, Zysset P,
Does tissue fixation change the mechanical properties of dry ovine bone extracellular matrix?
Journal of the Mechanical Behavior of Biomedical Materials, 150, 106294, 2024.

28. Indermaur M, Casari D, Kochetkova T, **Willie B**, Michler J, Schwiedrzik J, Zysset P, 3.4
Tensile mechanical properties of cortical bone at the ECM level from individuals with osteogenesis imperfecta are not inferior to healthy control bone,
JBMR Plus, Vol. 7, No. 12, e10826, 2023.

29. Fu R, Liu Y, Song F, Fu J, Du T, Liu Y, **Willie BM**, Yang H, 2.1
Effects of dynamization timing and degree on bone healing of different fracture types,
Journal of Orthopedic Research, 41(11):2394-2404, 2023.

30. Rentsch A, Harlander A, Siegford J, Vitienes I, **Willie BM**, Widowski T, 2.1
Rearing laying hens: the effect of aviary design and genetic strain on pullet exercise and perching behavior,
Frontiers in Animal Science, 4:1176702, 2023.

31. Vitienes I, Mikolajewicz N, Hosseinitabatabaei S, Bouchard A, Julien C, 3.5
Graceffa G, Rentsch A, Widowski TM, Main R, **Willie BM**,
Breed and loading history influence *in vivo* skeletal strain patterns in female chickens,
Bone, 173:116785, 2023.

32. Agnes C, Takada A, Murshed M, **Willie B**, Tabrizian M, 7.7
6-Bromoindirubin-3'-Oxime Incorporated Chitosan Scaffold for Bone Regeneration: Investigation of Material Properties,
International Journal of Biological Macromolecules, 227:71-82, 2023.

33. Fu R, Feng Y, Bertrand D, Du T, Liu Y, Willie BM, Yang H, 6.1
Effect of The Accordion Technique on Bone Regeneration during Distraction Osteogenesis: A Computational Study,
Computer Methods and Programs in Biomedicine, Nov 10;227:107232, 2022.

34. Young, SAE, Rummler M, Taïeb HM, Garske DS, Ellinghaus A, Duda GN, 4.1
Willie BM, Cipitria A,
In vivo microCT-based time-lapse morphometry reveals anatomical site-specific differences in bone (re)modeling serving as baseline parameters to detect early pathological events,
Bone, 12:116432, 2022.

35. Hosseinitabatabaei S, Mikolajewicz N, Zimmermann EA, Rummler M, 6.2
Steyn B, Julien C, Rauch F, **Willie BM**,
3D image registration marginally improves the precision of HR-pQCT measurements compared to cross-sectional-area registration in adults with osteogenesis imperfecta,
Journal of Bone and Mineral Research, 37(5):908-924, 2022.

36. Goldsmith M, Crooks S, Condon S, **Willie BM**, Komarova S, 5.1
Bone strength and composition in spacefaring rodents: systematic review and meta-analysis,
npj Microgravity, 13;8(1):10, 2022.

37. Fu R, Bertrand D, Wang J, Kavaseri K, Feng Y, Du T, Liu Y, **Willie BM**, Yang H, 6.1
In vivo and in silico monitoring bone regeneration during distraction osteogenesis of the mouse femur,
Computer Methods and Programs in Biomedicine, 216:106679, 2022.

38. Simon M, Indermaur M, Schenk D, Hosseinitabatabaei M, **Willie BM**, 4.1
Zysset P,
Fabric-Elasticity Relationships of Tibial Trabecular Bone are Similar in Osteogenesis Imperfecta and Healthy Individuals,
Bone, 155:116282, 2022.

39. Fu R, Feng Y, Liu Y, **Willie BM**, Yang H, 2.8
The Combined Effects of Dynamization Time and Degree on Bone Healing,
Journal of Orthopaedic Research, 40(3):634-643, 2022.

40. Bouchard A, Dsouza C, Julien C, Rummler M, Gaumond M-H**,** 4.1
Cermakian N, **Willie BM**,
Bone adaptation to mechanical loading in mice is affected by circadian rhythms,
Bone, 24:116218, 2022.

41. Fu R, Feng Y, Bertrand D, Du T, Liu Y, **Willie BM**, Yang H, 6.208
Enhancing the efficiency of Distraction Osteogenesis through rate-varying distraction: a computational study,

International Journal of Molecular Sciences, 22(21):11734, 2021.

42. Turcotte A-F, O'Connor S, Morin SN, Gibbs JC, **Willie BM**, Jean S, Gagnon C, 3.752
Effects of Obesity on Risk of Fracture, Bone Mineral Density and Bone Quality in Adults: A Systematic Review and Meta-Analysis,
Plos One, 8;16(6):e0252487, 2021.

43. Borgiani E, Duda GN, **Willie BM**, Checa S, 3.620
Bone Morphogenetic Protein 2 induced cellular chemotaxis drives tissue patterning during critical sized bone defect healing: an in-silico study,
Biomechanics and Modeling in Mechanobiology, 20(4):1627-1644, 2021.

44. Indermaur M, Casari D, Kochetkova T, Peruzzi C, Zimmermann E, 6.390
Rauch F, **Willie BM**, Michler J, Schwiedrzik J, Zysset P,
Compressive strength of iliac bone ECM is not reduced in osteogenesis imperfecta but increases with mineralization,
Journal of Bone and Mineral Research, 36(7):1364-1375, 2021.

45. Ziouti F*, Rummler M*, Steyn B, Thiele T, Seliger A, Duda G, Bogen B, 6.208
Willie BM[#], Jundt F[#], (* [#],shared authorship)
Prevention of bone destruction by mechanical loading is not enhanced by the Bruton´s tyrosine kinase inhibitor CC-292 in myeloma bone disease,
International Journal of Molecular Sciences, 7;22(8):3840, 2021.

46. Mikolajewicz N*, Zimmerman EA*, Rummler M, Hosseinitabatabaei S, 4.626
Julien C, Glorieux F, Rauch F, **Willie BM**, (*shared authorship),
Multisite longitudinal calibration of HR-pQCT scanners and precision in osteogenesis imperfecta
Bone, 147:115880, 2021

47. Rummler M, Ziouti F, Bouchard A, Brandl A, Duda GN, Bogen B, 10.633
Beilhack A, Lynch M, Jundt F, **Willie BM**,
Mechanical stimulation rescues bone loss and exerts cell-extrinsic anti-tumor effects in the MOPC315.BM.Luc model of myeloma bone disease,
Acta Biomaterialia, 119:247-258, 2021.

48. van Tol A, Schemenz V, Wagermaier W, Roschger A, Razi H, Vitienes I, 11.205
Fratzl P, **Willie BM**, Weinkamer R,
Osteocyte lacunocanalicular network architecture directs bone mechanoresponse.
Proceedings of the National Academy of Sciences, 22;117(51):32251-32259, 2020.

49. Yang H*, Büttner A*, Albiol L, Julien C, Thiele T, Figge C, Kramer I, 4.379
Kneissel M, Duda GN, Checa S, **Willie BM** (*shared authorship),
Cortical bone adaptation to a moderate level of mechanical loading in male *Sost* deficient mice, *Scientific Reports,* 18;10(1):22299, 2020.

50. Schemenz V, Gjardy A, Chamasemani FF, Roschger A, Roschger P,. 2.867
Zaslansky P,Helfen L, Burghammer M, Fratzl P, Weinkamer R, Brunner R,

Willie BM, Wagermaier W,
Heterogeneity of the osteocyte network architecture and material structure across different tissue types in healing bone.
Journal of Structural Biology, 11;212(2):107616, 2020.

51. Asgharzadeh P, Röhrle O, **Willie BM**, Birkhold A, 8.947
Decoding Rejuvenating Effects of Mechanical Loading on Skeletal Maturation using in Vivo μCT Imaging and Deep Learning,
Acta Biomaterialia, 106:193-207, 2020.

52. Bezdjian A, Smith RA, Thomeer HGXM, **Willie BM**, Daniel SJ, None
Smoking as a risk factor for spontaneous bone anchored hearing implant extrusion: A case report and review of literature,
Otol Case Rep, 14:100140, 2020.

53. Fleischhacker V, Klatte-Schulz F, Minkwitz S, Schmock A, Rummler M, 5.923
Seliger A, **Willie BM**, Wildemann B,
In vivo and *in vitro* mechanical loading in mouse Achilles tendon and tenocytes-a pilot study,
International Journal of Molecular Sciences, Int J Mol Sci.;21(4):1313, 2020.

54. Varga P, **Willie BM**, Stephan C, Kozloff KM, Zysset PK, 4.398
Finite element analysis of bone strength in osteogenesis imperfecta
Bone, 133:115250, 2020.

55. Albiol L, Büttner A, Pflanz D, Birkhold AI, Kramer I, Kneissel M, Duda GN, 4.333
Checa S, **Willie BM**,
Effects of long-term sclerostin deficiency on trabecular bone mass and adaption to limb loading differs in male and female mice,
Calcified Tissue International, 106(4):415-430, 2020.

56. Mikolajewicz N, Bishop N, Burghardt A, Folkestad L, Hall A, Kozloff K, 6.741
Lacroix D, Lukey P, Malloy-Bland M, Morin SN, Offiah A, Shapiro J,
van Rietbergen B, Wager K, **Willie BM**, Komarova S, Glorieux FH,
HR-pQCT measures of bone microarchitecture predict fracture: systematic review and meta-analysis,
Journal of Bone and Mineral Research, 35(3):446-459, 2020.

57. Borgiani E, Figge C, Kruck B, **Willie BM**, Duda GN, Checa S, 5.854
Age-related changes in the mechanical regulation of bone healing are explained by altered cellular mechanoresponse,
Journal of Bone and Mineral Research, 34(10):1923-1937, 2019.

58. Bucher CH, Schlundt C, Wulsten D, Sass A, Wendler S, Ellinghaus A, 5.085
Thiele T, Seemann R, **Willie BM**, Volk HD, Duda GN, Schmidt-Bleek K,
Experience in the adaptive immunity impacts bone homeostasis, remodeling, and healing,
*Frontiers in Immunology,*10:797, 2019.

59. Ziouti F*, Ebert R*, Rummler M, Krug M, Müller-Deubert S, 3.869
Lüdemann M, Jakob F, **Willie BM**, Jundt F,

NOTCH signaling is activated through mechanical strain in human bone marrow-derived mesenchymal stromal cells, (*shared authorship), *Stem Cells International,* 5150634:1-13, 2019.

60. Mikolajewicz N, Zimmerman E, **Willie BM,** Svetlana V. Komarova S, Mechanically-evoked ATP release is regulated by facilitated membrane resealing in murine osteoblasts, *E-life*, Oct 16;7, 2018. 7.551

61. Kruck B, Zimmermann EA, Damerow S, Figge C, Julien C, Wulstein D, Thiele T, Martin M, Hamdy R, Reumann MK, Duda GN, Checa S, **Willie BM**, Sclerostin-neutralizing antibody treatment enhances bone formation but does not rescue delayed healing due to mechanical instability, *Journal of Bone and Mineral Research,* 33(9):1686-1697, 2018. 5.711

62. Albiol L, Cilla M, Pflanz D, Kramer I, Kneissel M, Duda GN, **Willie BM**, Checa S, Sost deficiency leads to bone geometry and mineral density-related reduced mechanical strains within the mouse tibia with skeletal maturation, *Journal of the Royal Society Interface*, 15(141), 2018. 3.224

63. Chan WL, Steiner M, Egerer J, Busse B, Mizumoto S, Pestka J, Zhang H, Hausser I, Khayal LA, Ott CE, Kolanczyk M., **Willie BM**, Schinke T, Paganini C, Rossi A, Sugahara K, Amling M, Knaus P, Chan D, Mundlos S, Kornak U, Impaired proteoglycan glycosylation, elevated TGF-β signaling, and abnormal osteoblast differentiation as the basis for bone fragility in a mouse model for gerodermia osteodysplastica *PLOS Genetics,* 14(3):e1007242, 2018. 5.224

64. Schwarz C, Ott C-E, Wulsten D, Brauer E, Schreivogel S, Petersen A, Hassanein1 K, Roewer L, Schmidt T, **Willie BM**, Duda GN, The interaction of BMP2-induced defect healing in rat and fixator stiffness modulates matrix alignment and contraction, *Journal of Bone and Mineral Research Plus,* Vol. 2, No. 3, pp 174–186, 2018. None

65. He F, Chioi AE, Loh HC, Lynch M, Seo BR, Song YH, Lee MJ, Hoerth R, Bortel EL, **Willie BM**, Duda GN, Estroff L, Masic A, Wagermaier W, Fratzl P, Fischbach C, Multiscale characterization of the mineral phase at skeletal sites of breast cancer metastasis, *Proceedings of the National Academy of Sciences* 114(40):10542-10547, 2017. 9.504

66. Yang H, Albiol L, Chan WL, Seliger A, Wulsten D, Thelen M, Thiele T, Spevak M, Boskey A, Kornak U, Checa S, **Willie BM**, Examining tissue composition, whole-bone morphology and mechanical behavior of *Gorab*^{Prx1} mice tibiae: a mouse model of premature aging, *Journal of Biomechanics*, 65, 145–153, 2017. 2.431

67. Hörth R, Kerschnitzki M, Aido M, Schmidt I, Duda GN, Fratzl P, 3.239

Willie BM, Wagermaier W,
Correlations between nanostructure and micromechanical properties of healing bone,
Journal of the Mechanical Behavior of Biomedical Materials, 31;77:258-266, 2017.

68. Pflanz D, Birkhold A, Albiol L, Thiele T, Julien C, Seliger A, Thomson E, 4.122
Kramer I, Kneissel M, Duda GN, Kornak U, Checa S, **Willie BM**,
Sost deficiency led to a greater cortical bone formation response to mechanical loading and altered gene expression
Scientific Reports, 7(1):9435, 2017.

69. Birkhold A, Razi H, Duda GN, Checa S, **Willie BM**, 3.293
Tomography-based quantification of regional differences in cortical bone surface remodeling and mechano-response,
Calcified Tissue International, 100(3):255-270, 2017.

70. Birkhold A, Razi H, Duda GN, Weinkamer R, Checa S, **Willie BM**, 4.259
The periosteal surface is less mechano-responsiveness than the endocortical,
Scientific Reports, 6:23480, 2016.

71. Borgiani E, Duda G, **Willie BM**, Checa S, None
Bone healing in mice: Does it follow generic mechano-regulation rules?
Scientific Journal Facta Universitatis, series Mechanical Engineering, 13:3, 2015.

72. Checa S, Hesse B, Roschger P, Aido M, Duda GN, Raum K, **Willie BM,** 6.008
Skeletal maturation substantially affects elastic tissue properties in the endosteal and periosteal regions of loaded mice tibiae,
*Acta Biomaterialia,*21:154-64, 2015.

73. Razi H, Birkhold A, Weinkamer R, Duda G, **Willie BM,** Checa S, 5.622
Aging Leads to a Dysregulation in Mechanically Driven Bone Formation and Resorption,
Journal of Bone and Mineral Research, 30(10):1864-73, 2015.

74. Bortel EL, Duda GN, Mundlos S, **Willie BM**, Fratzl P, Zaslansky P, 6.008
Long bone maturation is driven by pore closing: a quantitative tomography investigation of structural formation in C57Bl/6 mice
*Acta Biomaterialia,*22:92-102, 2015.

75. Birkhold A, Razi H, Duda GN, Weinkamer R, Checa S, **Willie BM**, 3.736
Monitoring in vivo (re)modeling: A computational approach using 4D microCT data to quantify bone surface movements
Bone,4(75):210-221, 2015.

76. Aido M, Kerschnitzsky M, Hoerth R, Checa S, Spevak L, Boskey A, Fratzl P, 3.350
Duda GN, Wagermaier W, **Willie BM**,
Effect of *in vivo* loading on bone composition varies with animal age,
*Experimental Gerontology,*63:48-58, 2015.

77. Neffe AT, Tronci G, Pierce BF, Ma N, Pittermann E, Gebauer T, Frank O, 18.96

Schossig M, **Willie BM**, Demel M, Ellinghaus A, Lienau J, Duda G, Landlein A,
One Step Creation of Multifunctional 3D Architectured Hydrogels Inducing
Bone Regeneration,
*Advanced Materials,*27(10):1738-44, 2015.

78. Hoerth R, Baum D, Knötel D, Surma A, **Willie BM**, DudaG, Hege H-C, 1.411
Fratzl P, Wagermaier W,
Registering 2D and 3D imaging data of bone during healing,
*Connective Tissue Research,*56(2):133-143, 2015.

79. Razi H, Birkhold A, Zaslansky P, Weinkamer R, Duda G, **Willie BM,** Checa S, 6.008
Skeletal maturity leads to a reduction in the strain magnitudes induced within the bone: a murine tibia study.
Acta Biomaterialia, 13:301-10, 2015.

80. *Degenkolbe E, *Schwarz C, Ott C-E, König J, Schmidt-Bleek K, Schmidt T, 3.736
Lienau J, Mundlos S, Duda, G, **Willie BM**, Seemann P, (*equal contributors)
Improved bone defect healing by a superagonistic GDF5 variant derived from a patient with multiple synostoses syndrome,
Bone, 73:111-119, 2015.

81. Birkhold A, Razi H, Duda GN, Weinkamer R, Checa S, **Willie BM**, 8.557
The influence of age on adaptive bone formation and bone resorption,
Biomaterials, 35(34): 9290-9301, 2014.

82. Birkhold A, Razi H, Duda GN, Weinkamer R, Checa S, **Willie BM**, 3.973
Mineralizing surface is the main target of mechanical stimulation independent of age: 3D Dynamic in Vivo Morphometry,
*Bone,*66:15-25, 2014.

83. Hoerth R, Seidt B, Shah M, Schwarz C, **Willie BM,** Duda GN, Fratzl P, 6.025
Wagermaier W,
Mechanical and structural properties of bone in noncritical and critical healing in rat,
*Acta Biomaterialia,*10(9):4009-19, 2014.

84. Aido M, Kerschnitzsky M, Hoerth R, Burghammer M, Montero C, Checa S, 1.607
Fratzl P, Duda GN, **Willie BM**, Wagermaier W,
Relationship between nanoscale mineral properties and calcein labelling in mineralizing bone surfaces,
Connective Tissue Research, 55 Suppl 1:15-7, 2014.

85. Schwarzer R, Nickel N, Godau J, **Willie BM**, Duda GN, Schwarzer R, 3.467
Cirovic B, Leutz A, Manz R, Bogen B, Dörken B, Jundt F
Notch pathway inhibition controls myeloma bone disease in the murine MOPC315.BM model,
Blood Cancer Journal, 13;4:e217, 2014.

86. Razi H, Birkhold A, Duda G, Zehn M, **Willie BM**, Checa S, None
A finite element model of in vivo mouse tibial compression loading: influence of

boundary conditions
Scientific Journal Facta Universitatis, series Mechanical Engineering,
Vol. 12, No 3, pp. 195 – 207, 2014.

87. **Willie BM,** Birkhold A, Razi H, Thiele T, Aido M, Kruck B, Schill A, Checa S, Main RP, Duda GN, 4.461
Diminished response to in vivo mechanical loading in trabecular and not cortical bone in adulthood of female C57Bl/6 mice coincides with a reduction in deformation to load,
Bone, 55(2):335-346, 2013.

88. Schwarz C, Wulsten D, Ellinghaus A, **Willie BM**, Duda GN, 4.254
Mechanical load modulates the stimulatory effect of BMP2 in a rat non-union model,
Tissue Eng Part A, 19(1-2):247-541, 2013.

89. Yang X, **Willie BM**, Cottrell JM, Wright T, van der Meulen MCH, Bostrom MPG, 2.972
Cancellous bone adaptation to loading in a rabbit model is not magnitude-dependent,
Journal of Orthopaedic Research, 31(6):930-4, 2013.

90. Bloebaum RD, Koller KE, **Willie BM**, Hofmann AA, 2.787
Twenty-five-year postmortem retrieval study of a cementless total knee system,
Clinical Orthopedics and Related Research, 470(7):1869-78, 2012.

91. Claes L, Blakytny R, Besse J, Bausewein C, Ignatius A, **Willie BM**, 1.792
Late dynamization by reduced fixation stiffness enhances fracture healing in a rat femoral osteotomy model,
Journal of Orthopedic Trauma, 25(3):169-74, 2011.

92. Wildemann B, Lange K, Strobel C, Fassbender M, **Willie BM**, Schmidmaier G, 2.269
Local BMP-2 application can rescue the delayed osteotomy healing in a rat model
Injury, 42(8):746-52, 2011.

93. **Willie BM**, Blakytny R, Gloeckelmann M, Ignatius A, Claes L, 2.533
Temporal variation in fixation stiffness affects healing by differential cartilage formation in a rat osteotomy model,
Clinical Orthopedics and Related Research, 469(11): 3094-101, 2011.

94. **Willie BM**, Yang X, Kelly N, Han J, Nair T, Wright TM, van der Meulen MCH, Bostrom MPG, 4.636
Cancellous bone osseointegration is enhanced by in vivo loading,
*Tissue Eng Part C Methods,*16(6):1399-406, 2010.

95. **Willie BM**, Yang X, Kelly N, Merkow J, Gagne S, Ware R, Wright T, Bostrom MG, 2.220
Osseointegration into novel titanium foam implants,
Journal of Biomedical Materials Research, 92B(2):479-88, 2010.

96. Claes L, Blakytny R, Gloeckelmann M, Schoene M, Ignatius A, **Willie BM**, 3.112
Early dynamization by reduced fixation stiffness does not improve fracture healing in a rat femoral osteotomy model.
Journal of Orthopedic Research, 27(1):22–27, 2009.

97. **Willie BM**, Adkins K, Zheng X, Simon U, Claes L, 3.112
Mechanical characterization of external fixators with varying stiffness in a rat femoral fracture model,
Journal of Orthopedic Research, 27(5):687-93, 2009.

98. **Willie BM**, Foot L, Prall M, Bloebaum RD, 2.030
Surface damage analysis of retrieved highly crosslinked polyethylene tibial components after short-term implantation,
Journal of Biomedical Materials Research, 85B(1):114–124, 2008.

99. **Willie BM**, Foot L, Prall M, Bloebaum RD, 2.030
Examining the influence of short-term implantation on oxidative degradation in retrieved highly crosslinked polyethylene tibial components,
Journal of Biomedical Materials Research, 85B(2):385-397, 2008.

100. **Willie BM**, Ashrafi S, Dearden C, Steffensen T, Bloebaum R, Hofmann A, 5.196
Oxidative degradation after two years real-time shelf aging in conventional and highly crosslinked polyethylene,
Biomaterials, 27(10): 2275-84, 2006.

101. Jones R, **Willie BM**, Hayes H, Bloebaum RD, 1.806
Implant analysis of sixteen retrieved bridge hip femoral stems,
Journal of Arthroplasty,20(1):84-93, 2005.

102. **Willie BM**, Watts CW, Szakacs JG, Bloebaum RD, 1.778
A comparative staining technique to detect mineral oil contaminants from orthopedic implants,
Journal of Biomedical Materials Research, 70B(1):130-138, 2004.

103. **Willie BM**, Bloebaum RD, Bireley WR, Bachus K, Hofmann AA, 2.497
Determining relevance of a weight-bearing ovine model for bone ingrowth assessment,
Journal of Biomedical Materials Research, 69A(3):567-576, 2004.

104. **Willie BM**, Ashrafi S, Alajbegovic S, Burnett T, Bloebaum R, 2.497
Quantifying the effect of resin type and sterilization method on the degradation of ultra-high molecular weight polyethylene after four years of real-time shelf aging,
Journal of Biomedical Materials Research, 69A(3):477-489, 2004.

105. Meldrum RD, **Willie BM**, Bloebaum RD, None
An assessment of the biological fixation of a retrieved Mayo femoral component,
Iowa Orthopaedic Journal, 23:103-107, 2003.

106. Brodke DS, **Willie BM**, Maaranen EA, Bloebaum RD, 1.110
Spinal cage retrieval and assessment of biologic response,
Journal of Spinal Disorders & Techniques, 15(3):206-212, 2002.

107. **Willie BM,** Gingell DT, Bloebaum RD, Hofmann AA, 2.497

Possible explanation for the white band artifact seen in clinically retrieved polyethylene tibial components,
Journal of Biomedical Materials Research, 52A(3):558-566, 2000.

108. **Willie BM**, Shea JE, Bloebaum RD, Hofmann A, 1.778
Elemental and morphological identification of third-body particulate and calcium stearate inclusions in polyethylene components,
Journal of Biomedical Materials Research, 53B(2):137-142, 2000.

Reviews, book chapters, and editorials (underlined are personnel supervised by me, impact factor for year published is shown on left).

1. **Willie BM,** Hosseinitabatabaei S, (2023) 5.1
Editorial: Systemic bone loss during fracture healing: new evidence from HR-pQCT analyses
Journal of Bone and Mineral Research, In press, 2025.

2. Agnes C, **Willie BM**, Boccaccini AR, Tabrizian M, (2023) None
Advances in Bone Tissue Engineering Using Biomaterial Based Scaffolds, Purine Crosslinking and Wnt Signaling,
Open Explorations of Biomat-X, In press, 2024.

3. Abbasgholizadeh Rahimi S, Shrivastava R, Brown-Johnson A, Caidor P, (2023) 5.8
Davies TC, Idrissi Janati A, Kengne Talla P, Madathil S, **Willie BM**, Emami E,
EDAI Framework for integrating equity, diversity, and inclusion throughout the lifecycle of artificial intelligence to improve health and oral health care: qualitative study
Journal of Medical Internet Research, 15;26:e63356, 2024.

4. El Khassawna T, Hankenson KD, **Willie BM**, Schmidt-Bleek K, (2023) 7.3
Editorial: Interdependencies and Interfaces in Bone Regeneration-The Immune System at its Core, *Frontiers in Immunology*, Mar 8;15:1385796, 2024.

5. Gabel L, Kent K, Hosseinitabatabaei S, Burghardt AJ, Leonard MB, (2023) 4.3
Rauch F, **Willie BM**
Guidelines on high-resolution peripheral quantitative computed tomography assessment of bone density, microarchitecture, and strength in pediatric populations, *Current Osteoporosis Reports,* 21(5):609-623, 2023.

6. **Willie BM,** Zimmermann E, Vitienes I, Main RP, Komarova SV, 4.398
Bone adaptation: safety factors and load predictability in shaping skeletal form,
Bone, 21;131:115114, 2020.

7. Main RP, Shefelbine SJ, Meakin LB, Silva MJ, van der Meulen MCH, **Willie BM**, 3.494
The murine axial compression tibial loading model to study bone mechanobiology: Implementing the model and reporting results.
*Journal of Orthopedic Research,*38(2):233-252, 2020.

8. Bezdjian A, Smith RA, **Willie BM**, Thomeer HGXM, Daniel SJ, 2.182

A Systematic Review on Factors Associated with Percutaneous Bone Anchored Hearing Implants Loss,
Otology Neurotology, 39(10): e897-e906, 2018.

9. Alabdulkarim Y, Ghalimah B, Al-Otaibi M, Al-Jallad HF, Mekhael M, **Willie BM**, Hamdy R, Recent Advances in Bone Regeneration: The role of adipose tissue-derived stromal vascular fraction and mesenchymal stem cells *Journal of Limb Lengthening and Reconstruction*, 3(1):4-18, 2017. None

10. Birkhold A, **Willie BM**, Chapter 30: Registered microcomputed tomography data as a four-dimensional imaging biomarker of bone formation and resorption, In *Biomarkers in Bone Dis*ease*,* Series*: Biomarkers in Disease: Methods, Discoveries and Applications*, Springer Publishing, Editor: Victor Preedy & Vinood Patel, pp.1-30, July 19 2016, doi:10.1007/978-94-007-7745-3_7-1. None

11. *Schmidt-Bleek K, ***Willie BM**, Schwabe P, Seemann P, Duda GN, (*equal contributors) BMPs in Bone Regeneration: Less is more effective, a paradigm-shift, *Cytokine and Growth Factor Reviews*, 27:141-8, 2016. 6.794

12. **Willie BM**, Pap T, Perka C, Schmidt CO, Eckstein F, Arampatzis A, Hege H-C, Madry H, Vortkamp A, Duda GN, 'Neues aus der Forschung', OVERLOAD of Joints and its role in Osteoarthritis: Towards an understanding and prevention of the progression of primary osteoarthritis, *Zeitschrift für Rheumatologie,* (German & English versions),74(7):618-621, 2015. 0.569

13. **Willie BM**, Duda G, Weinkamer R, Chapter 2: Bone Structural Adaptation and Wolff's law, In: *Materials Design Inspired by Nature: function through inner architecture*, Royal Society of Chemistry Publishing, Editors: Peter Fratzl, John Dunlop and Richard Weinkamer, June 30, 2013, ISBN-10: 1849735530. None

14. Garcia P, Histing T, Holstein JH, Klein M, Laschke MW, Matthys R, Ignatius A, Wildemann B, Lienau J, Peters A, **Willie B**, Duda G, Claes L, PohlemannT, Menger MD, Rodent animal models of delayed bone healing and non-union: a comprehensive review, *European Cells and Materials*, 26:1-12, 2013**.** 4.887

15. Histing T, Garcia P, Holstein JH, Klein M, Matthys R, Nuetzi R, Steck R, Laschke M, Wehner T, Bindl R, Recknagel S, Stuermer EK, Vollmar B, Wildemann B, Lienau J, **Willie BM**, Peters A, Ignatius A, Pohlemann T, Claes L, MengerMD, Small animal fracture models: standards and potentials, *Bone*, 49(4):591-949, 2011. 4.023

16. ***Willie BM**, *Petersen A, Schmidt-Bleek K, Cipitria A, Mehta M, Strube P, Lienau J, Wildemann B, Fratzl P, Duda G, (*equal contributors) Designing biomimetic scaffolds for bone regeneration: why aim for a copy of mature 4.457

tissue properties if nature uses a different approach?
Soft Matter, 6:4976 - 4987C, 2010.

17. Claes L and **Willie BM**, 5.009
The enhancement of bone regeneration by ultrasound,
Progress in Biophysics and Molecular Biology, 93(1-3):384-398, 2007.

18. Bloebaum RD, **Willie BM**, Mitchell BS, Hofmann A, 2.612
Relationship between bone ingrowth, mineral apposition rate, and osteoblast activity,
Journal of Biomedical Materials Research, 81A(2):505-514, 2007.

Abstracts/Meeting presentations (underlined are personnel supervised by me).

1. deVet T, Moussa M, Gonzalez H, Zaslansky P, Komarova S, **Willie BM**, Mechanical loading leads to short- and long-term adaptation in blood vessels and bone vessel porosity within the murine hindlimb, *American Society for Bone and Mineral Research*, Under review, Seattle, USA, September 5-8, 2025.
2. Van der Merwe L, Bruccoleri M, Shah M, Julien C, Cermakian N, Morin S, **Willie BM**, Osteocyte-conditional knockout of *Bmal1* results in decreased bone formation response to in-vivo tibial loading in mice, *American Society for Bone and Mineral Research*, Under review, Seattle, USA, September 5-8, 2025.
3. Kulasek M, Wirth VL, de Vet T, Julien C, Marini J, Rauch F, **Willie BM**, A bispecific antibody targeting dickkopf-1 and sclerostin enhances bone mass, microstructure and strength in the Brtl/+ mouse model of osteogenesis imperfecta, *American Society for Bone and Mineral Research*, Under review, Seattle, USA, September 5-8, 2025.
4. Van der Merwe L, Bruccoleri M, Shah M, Julien C, Cermakian N, Morin S, **Willie BM**, Osteocyte-conditional knockout of *Bmal1* results in decreased bone formation response to in-vivo tibial loading in mice, *ORS Musculoskeletal Biology Workshop,* Under review, Midway, Utah; 20-23 July 2025.
5. deVet T, Moussa M, Gonzalez H, Zaslansky P, Komarova S, **Willie BM**, Mechanical loading leads to short- and long-term adaptation in blood vessels and bone vessel porosity within the murine hindlimb, *ORS Musculoskeletal Biology Workshop,* Under review, Midway, Utah; 20-23 July 2025.
6. Al Jallad H, Vitienes I, Lamplugh I, **Willie B**, Moffatt P, Cephalometric analysis of a new dominant osteogenesis imperfecta *IFITM5* model, *Canadian Connective Tissue Conference*, Under review, Montreal, Canada, May 26-28, 2025.
7. Thierbach M, Zimmermann E, **Willie BM**, Wildemann B, Marfan Syndrome affects the Achilles tendon in mice – pilot study, *ORS Annual Meeting,* Poster Presentation, Phoenix, AZ, USA, February 2025.
8. **Willie BM**, Hosseinitabatabaei S, Mikolajewicz N, Julien C, Zimmermann E, Lessons learned from an HR-pQCT study in adults with osteogenesis imperfecta, *QMSKI Conference 2024*, Oral Presentation, Barossa Valley, Australia, November 2024.
9. Hosseinitabatabaei S, McCluskey S, Denton C, Zimmermann E, Glorieux F, Charbonneau F, Rauch F, **Willie BM**, Natural history of the peripheral bones in children with osteogenesis imperfecta and age- and sex-matched healthy controls using longitudinal HR-pQCT analysis, *QMSKI Conference 2024*, Oral Presentation, Barossa Valley, Australia, November 2024.
10. Bertrand D, Kavaseri K, Umebayashi M, Tauer JT, Rauch F, Hamdy R, **Willie BM**, Mes-1022, a Prostaglandin Agonist, Enhanced Critical-Sized Segmental Defect Healing in a Mouse Model of Osteogenesis Imperfecta, *American Society for Bone and Mineral Research*, Poster Presentation, Toronto, Canada, September 27-30, 2024.
11. deVet T, Moussa M, Komarova S, **Willie BM**, Mechanical Unloading induced Changes in Blood Flow and Bone Loss in Murine Hindlimb, *American Society for Bone and Mineral Research*, Poster Presentation, Toronto, Canada, September 27-30, 2024.

12. Hosseinitabatabaei S, McCluskey S, Denton C, Zimmermann E, Glorieux F, Charbonneau F, Rauch F, **Willie BM**, Natural history of the peripheral bones in children with osteogenesis imperfecta and age- and sex-matched healthy controls using longitudinal HR-pQCT analysis, *American Society for Bone and Mineral Research*, Poster Presentation, Toronto, Canada, September 27-30, 2024.
13. Zimmermann E, Gagnon M, Audet D, **Willie BM**, Carriero A, Veilleux LN, Farmer JP, Bone density and microarchitecture in ambulatory children with spastic diplegic cerebral palsy**,** *American Society for Bone and Mineral Research*, Submitted, Toronto, Canada, September 27-30, 2024.
14. Vitienes I, Julien C, Rentsch A, Widowski T, Main R, **Willie BM**, *In vivo* loading induces region-specific changes in tibiotarsal microstructure at the proximal metaphysis, *Poultry Science Association Annual Meeting*, Oral Presentation, Louisville, Kentucky, July 15-18, 2024.
15. Vitienes I, Rentsch A, Widowski T, Checa S, **Willie BM**, Bone geometry and mineral density influence mechanical strain magnitude at the tibiotarsus during *in vivo* loading, *Poultry Science Association Annual Meeting*, Oral Presentation, Louisville, Kentucky, July 15-18, 2024.
16. Hosseinitabatabaei S, McCluskey S, Denton C, Zimmermann E, Glorieux F, Charbonneau F, Rauch F, **Willie BM**, Natural history of the peripheral bones in children with osteogenesis imperfecta and age- and sex-matched healthy controls using longitudinal HR-pQCT analysis, *International Conference on Children's Bone Health*, Poster Presentation, Salzburg, Austria, June 22-25, 2024.
17. Bertrand D, Tauer JT, Marini JC, Rauch F, **Willie BM**, Adaptive Response to Loading is Impaired in a Mouse Model of Osteogenesis Imperfecta coincident with altered periosteal lacunar properties, *International Conference on Children's Bone Health*, Oral Presentation, Salzburg, Austria, June 22-25, 2024.
18. Young, SAE, Heller A-D, Garske DS, Rummler M, Qian V, Ellinghaus A, Duda GN, **Willie BM**, Grueneboom A, Cipitria A, From breast cancer cell homing to the onset of early bone metastasis: dynamic bone (re)modeling in early lesion formation, *EACR Annual conference,* Oral Presentation, June 10-13, 2024 Rotterdam, Netherland**.**
19. Vitienes I, Umebayashi M, Farooqi N, Julien C, Rentsch A, Widowski T, Main R, **Willie BM**, *In vivo* controlled loading impairs bone microstructure and endocortical bone formation in young female birds, *Faculty of Dental Medicine and Oral Health Sciences Annual Research Day,* Poster Presentation, Montreal, Canada, April 24, 2024.
20. Bertrand D, Tauer JT, Marini JC, Rauch F, **Willie BM**, Adaptive Response to Loading is Impaired in a Mouse Model of Osteogenesis Imperfecta, *Shriners Hospitals for Children State of Science Meeting,* Oral Presentation, Georgia Tech, Atlanta, GA; Feb 23-24, 2024.
21. Vitienes I, Julien C, Kavari S, Rentsch A, Widowski T, Main R, **Willie BM**, Genetics and loading history influence tibiotarsal mechanoresponse to controlled *in vivo* loading in young female chickens, *Shriners Hospitals for Children State of Science Meeting,* Poster Presentation, Georgia Tech, Atlanta, GA; Feb 23-24, 2024.
22. Tauer JT, Thiele T, Julien C, Ofer L, Zaslansky P, Shahar R, **Willie BM,** Differential osseous gene expression in swim-trained anosteocytic and osteocytic teleost fish, *Shriners*

Hospitals for Children State of Science Meeting, Poster Presentation, Georgia Tech, Atlanta, GA; Feb 23-24, 2024.

23. deVet T, Moussa M, Komarova S, **Willie BM**, Short and long term vascular changes are induced due to hindlimb mechancial loading in a murine model, *Shriners Hospitals for Children State of Science Meeting,* Poster Presentation, Georgia Tech, Atlanta, GA; Feb 23-24, 2024.
24. Bertrand D, Tauer JT, Marini JC, Rauch F, **Willie BM**, Adaptive Response to Loading is Impaired in a Mouse Model of Osteogenesis Imperfecta, *ORS Annual Meeting,* Poster Presentation, Long Beach, CA; 2-6 Feb 2024.
25. DeVet T, Zimmerman E, Zaslansky P, **Willie BM**, *The Fbn1*$^{C1039G/+}$ mouse model of Marfan Syndrome has altered bone microstructure and whole-bone morphology, but similar lacunar properties to littermate control mice, *ORS Annual Meeting,* Poster Presentation, Long Beach, CA; 2-6 Feb 2024.
26. Chapman J, Julien C, Kulasek M, DeVet T, Umebayashi M, Rauch F, **Willie BM**, Effects of Systemically Administred Mes-1022 in Rats with a Critical-Size Segmental Femoral Defect, *ORS Annual Meeting,* Poster Presentation, Long Beach, CA; 2-6 Feb 2024.
27. Vitienes I, Julien C, Kavari S, Rentsch A, Widowski T, Main R, **Willie BM**, Genetics and loading history influence tibiotarsal mechanoresponse to controlled *in vivo* loading in young female chickens, *ORS Annual Meeting,* Poster Presentation, Long Beach, CA; 2-6 Feb 2024.
28. Tauer JT, Thiele T, Julien C, Ofer L, Zaslansky P, Shahar R, **Willie BM,** Differential osseous gene expression in swim-trained anosteocytic and osteocytic teleost fish, *American Society for Bone and Mineral Research*, Poster Presentation, Vancouver, Canada, October 13-16, 2023.
29. Bertrand D, Tauer JT, Marini JC, Rauch F, **Willie BM**, Adaptive Response to Loading is Impaired in a Mouse Model of Osteogenesis Imperfecta, *American Society for Bone and Mineral Research*, Poster Presentation, Vancouver, Canada, October 13-16, 2023.
30. Yang A, Coll J-C, Varin T, Simard S, Morin SN, Mac-Way F, Tchernof A, **Willie B**, Lebel S, Marette A, Gagnon C, Associations Between the Changes in Gut Microbiota and Bone and Muscle Outcomes After Sleeve Gastrectomy, *American Society for Bone and Mineral Research*, Plenary Poster Presentation, Vancouver, Canada, October 13-16, 2023.
31. Walfish L, Berger C, Wall M, Turcotte A-F, Hosseinitabatabaei S, **Willie B,** Mac-Way F, Gagnon C, Morin SN, Association of Advanced Glycation End-products with Bone and Muscle Parameters in Obese Individuals With and Without Diabetes, *American Society for Bone and Mineral Research*, Poster Presentation, Vancouver, Canada, October 13-16, 2023.
32. Rummler M, Schemenz V, McCluskey S, Davydok A, Rauch F, Glorieux F, Harrington MJ, Wagermaier W, **Willie BM***, Zimmermann EA* (*shared authorship) Bone matrix properties in adults with osteogenesis imperfecta are not adversely affected by Setrusumab - a sclerotin neutralizing antibody, *American Society for Bone and Mineral Research*, Plenary Poster Presentation, Vancouver, Canada, October 13-16, 2023.
33. Vitienes I, Julien C, Kavari S, Rentsch A, Widowski T, Main R, **Willie BM**, Genetics and loading history influence tibiotarsal mechanoresponse to controlled *in vivo* loading in young female chickens, *ORS Musculoskeletal Biology Workshop,* Poster presentation, Midway, Utah; 22-27 July 2023.

34. Chapman J, Julien C, Kulasek M, DeVet T, Umebayashi M, Rauch F, **Willie BM**, Systemic Administration of Mes-1022 Enhances Bone Formation in a Critical-Size Segmental Femoral Defect Rat Model, *ORS Musculoskeletal Biology Workshop,* Poster presentation, Midway, Utah; 22-27 July 2023.
35. Hosseinitabatabaei S, Vitienes I, Rummler M, Birkhold A, Rauch F, **Willie BM**, Non-invasive quantification of bone remodeling dynamics in adults with osteogenesis imperfecta using time-lapse HR-pQCT, *ORS Musculoskeletal Biology Workshop,* Poster presentation, Midway, Utah; 22-27 July 2023.
36. Tauer JT, Thiele T, Julien C, Ofer L, Zaslansky P, Shahar R, **Willie BM,** Differential osseous gene expression in swim-trained anosteocytic and osteocytic teleost fish, *ORS Musculoskeletal Biology Workshop,* Oral Presentation, Midway, Utah; 22-27 July 2023.
37. Vitienes I, Julien C, Kavari S, Rentsch A, Widowski T, Main R, **Willie BM**, Genetic strain and rearing housing influence tibiotarsal mechanoresponse to controlled *in vivo* loading, *Poultry Science Association Annual Meeting*, Oral Presentation, Philadelphia, Pennsylvania, July 10-13, 2023.
38. Gagnon M, Carriero A, **Willie BM**, Veilleux LN, Farmer JP, Zimmermann E, Short term effect of selective dorsal rhizotomy on muscuskeletal health: Preliminary results, *Gait and Clinical Motion Analysis Society (GCMAS) annual conference*, Oral Presentation, High Point, NC, USA, June 26-28, 2023.
39. Hosseinitabatabaei S, McClusky S, Zimmermann EA, Glorieux F, Charbonneau F, Rauch F, **Willie BM**, Natural history of HR-pQCT-measured bone density and microarchitecture over 12 months in children with osteogenesis imperfecta compared to controls, *Bruce R Williams Pediatric Surgery Annual Research Day,* Oral Presentation, Montreal, Canada, June 8 2023.
40. Rummler M, van Tol A, Schemenz V, Hartmann M, Blouin S, **Willie B**, Weinkamer R, Mapping structural heterogeneities of the osteocyte lacunocanalicular network in whole cross sections of the mouse tibia , *European Calcified Tissue Society*, Poster presentation, April 15-18 2023, Liverpool, England.
41. deVet T, Moussa M, Komarova S, **Willie BM**, Mechanical loading induces short- and long-term changes in murine hindlimb vasculature**,** *Orthopaedic Research Society Annual Meeting*, Poster presentation, Dallas, USA, Feb 11-14, 2023.
42. Vitienes I, Mikolajewicz N, Hosseinitabatabaei S, Bouchard A, Julien C, Graceffa G, Ross E, Rentsch A, Widowski TM, Main R, **Willie BM**, Chicken Genetic Strain Influenced In Vivo Strain Patterns And Bone Curvature, *Orthopaedic Research Society Annual Meeting*, Poster presentation, Dallas, USA, Feb 11-14, 2023.
43. Agnes C, Murshed M, **Willie B**, Tabrizian M, Fabrication of 6-Bromoindirubin-3'-Oxime Incorporated Guanosine Diphosphate Crosslinked Chitosan Scaffolds to promote Osteogenic Differentiation in Myoblastic C2C12 Cells, *32nd Annual Conference of the European Society for Biomaterials,* Sept. 4-8, 2022, Poster presentation and rapid fire oral presentation.
44. Rummler M, Hosseinitabatabaei S, van Tol A, Schemenz V, Fratzl P, **Willie B**, Weinkamer R, Altered Osteocyte Lacunocanalicular Network Density leads to Differences in Mechanoresponse between Mouse Strains, *15th World Congress on Computational Mechanics (WCCM-XV), 8th Asian Pacific Congress on Computational Mechanics (APCOM-VIII)*, Oral presentation, 31 July – 5 August 2022, Yokohama, Japan,.

45. Asgharzadeh P, Birkhold A, Zimmermann E, Tabatabaei S, **Willie BM,** A data-driven Surrogate Modelling, a Patient-specific Approach for Predicting Treatment Effects for Patients with Osteogenesis Imperfecta, *15th World Congress on Computational Mechanics (WCCM-XV), 8th Asian Pacific Congress on Computational Mechanics (APCOM-VIII)*, Oral presentation, 31 July – 5 August 2022, Yokohama, Japan,.
46. van Tol A, Schemenz V, Wagermaier W, Roschger A, Razi H, Vitienes I, Fratzl P, **Willie BM,** Weinkamer R, The lacunocanalicular network in bone and its role in mechanosensation and biomineralization, *15th World Congress on Computational Mechanics (WCCM-XV), 8th Asian Pacific Congress on Computational Mechanics (APCOM-VIII)*, Oral presentation, 31 July–5 August 2022, Yokohama, Japan.
47. Hosseinitabatabaei S, Turcotte A-F, Gagnon C, Wall M, Gibbs JC, MacWay F, **Willie BM**, Morin SN, Bone strength outcomes are highly correlated between pQCT and QCT within each anatomical site, regardless of region of interest in adults with severe obesity, *American Society for Bone and Mineral Research*, Poster presentation, Austin, USA, September 9-12, 2022.
48. Javaid MK, Langdahl B, Chapurlat R, Jan De Beur S, Sutton VR, Poole K, Dahir K, Orwoll ES, **Willie BM**, Mikolajewicz N, Zimmermann E, Ominsky M, Saville C, Clancy J, Mackinnon A, Mistry A, Glorieux FH, Changes in BMD and Bone Turnover Markers Following Discontinuation of Setrusumab After 1 Year of Treatment in Adults with Osteogenesis Imperfecta, *American Society for Bone and Mineral Research*, Oral presentation, Austin, USA, September 9-12, 2022.
49. Malekzadeh M, Hosseinitabatabaei S, **Willie BM**, McWalter E, Johnston JD, Kontulainen S, The impact of exercise countermeasure on 2-weeks bedrest in older adults, *American Society for Bone and Mineral Research*, Poster presentation, Austin, USA, September 9-12, 2022.
50. Hosseinitabatabaei S, Vitienes I, Rummler M, Birkhold A, Rauch F, **Willie BM**, Noninvasive quantification of bone remodeling dynamics in adults with OI using time-lapse high resolution peripheral quantitative computed tomography, *American Society for Bone and Mineral Research*, Poster presentation, Austin, USA, September 9-12, 2022.
51. Bertrand D, Kavaseri K, Villemure I, Rauch F, Hamdy R, **Willie BM**, The Accordion Technique does not improve healing compared to conventional Distraction Osteogenesis, *ORS ISFR 17th International Biennial Meeting*, Oral presentation, Edinburgh, Scotland, September 5 – 7, 2022.
52. Kavaseri K, Bertrand D, Umebayashi M, Tauer JT, Rauch F, Hamdy R, **Willie BM**, Anabolic therapies for bone healing in a femoral critical-sized segmental defect in a mouse model of osteogenesis imperfecta, *ORS ISFR 17th International Biennial Meeting*, Poster presentation, Edinburgh, Scotland, September 5 – 7, 2022.
53. Bertrand D, Kavaseri K, Sezikeye A-L, Julien C, Hamdy R, Marini J, Rauch F, **Willie BM**, Mechanical regulation of bone healing is altered in mouse models of osteogenesis imperfecta, *ORS ISFR 17th International Biennial Meeting*, Poster presentation, Edinburgh, Scotland, September 5 – 7, 2022.
54. Kavaseri K, Bertrand D, Umebayashi M, Tauer JT, Rauch F, Hamdy R, **Willie BM**, Anabolic therapies for bone healing in a femoral critical-sized segmental defect in a mouse model of

osteogenesis imperfecta, *14th International Conference on Osteogenesis imperfecta 2022*, Oral presentation, Sheffield, England, Aug 30-Sept 2, 2022.

55. Bertrand D, Kavaseri K, Sezikeye A-L, Julien C, Hamdy R, Marini J, Rauch F, **Willie BM**, Mechanical regulation of bone healing is altered in mouse models of osteogenesis imperfecta, *14th International Conference on Osteogenesis imperfecta 2022*, Poster presentation, Sheffield, England, Aug 30-Sept 2, 2022.
56. Hosseinitabatabaei S, Vitienes I, Rummler M, Birkhold A, Rauch F, **Willie BM**, Non-invasive quantification of bone remodeling dynamics in adults with OI using time-lapse high-resolution peripheral quantitative computed tomography imaging, *14th International Conference on Osteogenesis imperfecta 2022*, Oral presentation, Sheffield, England, Aug 30-Sept 2, 2022.
57. Hosseinitabatabaei S, Zimmermann E, Steyn B, Rummler M, Rauch F, **Willie BM**, 3D image registration marginally improves short-term in-vivo precision of high resolution peripheral quantitative CT images from adults with osteogenesis imperfecta compared to cross-sectional-area registration, *14th International Conference on Osteogenesis imperfecta 2022*, Poster presentation, Sheffield, England, Aug 30-Sept 2, 2022.
58. Vitienes I, Hosseinitabatabaei S, Bouchard A, Julien C, Graceffa G, Ross E, Rentsch A, Widowski TM, Main R, **Willie BM,** *In vivo* tibiotarsal axial stiffness is unaffected by genetic strain and rearing housing, *Poultry Science Association 2022 Annual Meeting*, Oral presentation, San Antonio, USA, July 11-14, 2022.
59. Vitienes I, Mikolajewicz N, Hosseinitabatabaei S, Bouchard A, Julien C, Graceffa G, Ross E, Rentsch A, Widowski TM, Main R, **Willie BM,** Pullet genetic strain and rearing housing influence *in vivo* skeletal strains during physical activity, *Poultry Science Association 2022 Annual Meeting*, Oral presentation, San Antonio, USA, July 11-14, 2022.
60. Bertrand D, Kavaseri K, Sezikeye A-L, Julien C, Hamdy R, Marini J, Rauch F, Willie BM, Mechanical regulation of bone healing is altered in mouse models of osteogenesis imperfecta, *10th International Conference on Children's Bone Health,* Poster presentation, Dublin, Ireland, 2 - 5 July 2022.
61. Hosseinitabatabaei S, Vitienes I, Rummler M, Birkhold A, Rauch F, Willie BM, Parametric analysis of a method to non-invasively quantify bone remodeling using time-lapse high-resolution peripheral quantitative computed tomography imaging from individuals with OI, *10th International Conference on Children's Bone Health*, Poster presentation, Dublin, Ireland, 2 - 5 July 2022.

62. Hosseinitabatabaei S, Vitienes I, Rummler M, Birkhold A, Rauch F, **Willie BM**, Parametric analysis of a method to non-invasively quantify bone remodeling using time-lapse high-resolution peripheral quantitative computed tomography imaging from individuals with OI, *23rd International Workshop on Quantitative Musculoskeletal Imaging (QMSKI)* Oral presentation, Noordwijk, Netherlands, June 13-17 2022.
63. Young SAE, Heller A-D, Garske DS, Rummler M, Qian V, Taieb HM, Ellinghaus A, Duda GN, Grüneboom A, **Willie BM**, Cipitria A, 3D visualization of the early bone metastatic niche and in vivo monitoring of pathological changes in bone structure and dynamics, *EMBO | EMBL Symposium - Defining and defeating metastasis*, Heidelberg, June 2022, Poster presentation review.
64. Zysset P, Indermaur M, Casari D, Kochetkova T, Peruzzi C, Zimmermann E, Rauch F, **Willie B**, Michler J, Schwiedrzik J, Micromechanical Properties of Bone Biopsies in Osteogenesis Imperfecta, *9th World Congress of Biomechanics*, Oral presentation, Taipeh Taiwan July 10-14, 2022.
65. Fu R, Bertrand D, **Willie B**, Yang H, Effect of the accordion technique on bone regeneration during distraction osteogenesis of the mouse femur, *9th World Congress of Biomechanics*, Poster presentation, Taipeh Taiwan July 10-14, 2022.
66. Schemenz V, Rummler M, Hartmann MA, Blouin S, Fratzl P, **Willie BM**, Wagermaier W, Weinkamer R, Spatial correlations between the local architecture of the lacunocanalicular network and the surrounding mineralized matrix in mouse tibiae, *European Calcified Tissue Society*, Poster presentation, Helsinki, Finland May 2022.
67. Agnes C, Murshed M, **Willie B**, Tabrizian M, 6-Bromoindirubin-3'-Oxime Incorporation in the Guanosine Diphosphate Crosslinked Chitosan Scaffold as a Glycogen Synthase Kinase 3 Inhibitor: Investigation of Material Properties for Bone Tissue Regeneration, *Society for Biomaterials & Japanese Society for Biomaterials Joint Symposium,* Poster presentation*,* Jan 2022.
68. Turcotte A-F, O'Connor S, Morin SN, Gibbs JC, **Willie BM**, Jean S, Gagnon C, Effects of Obesity on Risk of Fracture, Bone Mineral Density and Bone Quality in Adults: A Systematic Review and Meta-Analysis, *American Society for Bone and Mineral Research*, Poster presentation, Virtual meeting, Oct 1-4, 2021.
69. Javaid MK, Saag K, Civitelli R, Cohen-Solal M, **Willie B**, Hosseinitabatabaei S, Zimmermann E, Clancy J, MacKinnon A, Black I, Mistry A, Baseline Patient Demographics and Disease Characteristics in Adultswith Osteogenesis Imperfecta (OI) in the Phase 2b ASTEROID Study, *American Society for Bone and Mineral Research*, Poster presentation, Virtual meeting, Oct 1-4, 2021.
70. Glorieux F, Javaid MK, Chapurlat R, Jan De Beur S, Sutton VR, Poole K, Orwoll ES, **Willie B,** Mikolajewicz N, Clancy J, MacKinnon A, Mistry A, Ominsky MS, Saville C, Setrusumab for the Treatment of Osteogenesis Imperfecta (OI): Results from the Phase 2b ASTEROID Study, *American Society for Bone and Mineral Research*, Oral presentation, Virtual meeting, Oct 1-4, 2021.
71. Vitienes I, Ross E, Graceffa G, Bouchard A, Steyn B, Widowski TM, **Willie BM**, Aviary rearing enhances bone microstructure in Lohmann LSL-Lite and bone mass in Lohmann

Brown Lite egg-laying hen pullets compared to conventional cage-rearing, *American Society for Bone and Mineral Research*, Poster presentation, Virtual meeting, Oct 1-4, 2021.

72. Kavaseri K, Bertrand D, Umebayashi M, Tauer JT, Rauch F, Hamdy R, **Willie BM**, Healing of a femoral critical-sized segmental defect, in a mouse model of osteogenesis imperfecta, using collagen scaffolds and adipose tissue-derived stem cells, *American Society for Bone and Mineral Research*, Poster presentation, Virtual meeting, Oct 1-4, 2021.
73. Bertrand D, Kavaseri K, Villemure I, Rauch F, Hamdy R, **Willie BM**, The Accordion Technique applied during the consolation phase does not improve healing compared to conventional Distraction Osteogenesis, *American Society for Bone and Mineral Research*, Poster presentation, Virtual meeting, Oct 1-4, 2021.
74. Hosseinitabatabaei S, Mikolajewicz N, Zimmermann EA, Rummler M, Steyn B, Julien C, Rauch F, **Willie BM**, 3D image registration marginally improves short-term in-vivo precision of high resolution peripheral quantitative CT images from adults with osteogenesis imperfecta compared to cross-sectional-area registration, *American Society for Bone and Mineral Research*, Poster presentation, Virtual meeting, Oct 1-4, 2021.
75. Indermaur M, Casari D, Kochetkova T, **Willie B**, Michler J, Schwiedrzik J, Zysset P, Tensile properties of dry bone matrix from trans-iliac biopsies are not inferior in osteogenesis imperfecta compared to healthy control, *American Society for Bone and Mineral Research*, Poster presentation, Virtual meeting, Oct 1-4, 2021.
76. Gagnon M, Zimmermann E, Carriero A, **Willie BM**, Veilleux LN, Farmer JP, Effect of selective dorsal rhizotomy on musculoskeletal health: A study protocol, *American Academy of Cerebral Palsy and Developmental Medicine conference*, Poster presentation, Quebec City, Oct. 6-9, 2021.
77. Indermaur M, Casari D, Kochetkova T, Peruzzi C, Zimmermann E, Rauch F, **Willie BM**, Michler J, Schwiedrzik J, Zysset P, Compressive strength of treated osteogenesis imperfecta bone matrix is higher than controls and depends on mineralization, *European Society of Biomechanics*, Podium presentation, (virtual meeting), July 11-14, 2021.
78. Ross E, Vitienes I, **Willie BM**, Widowski TM, The effect of early life environmental complexity on skeletal characteristics in two strains of laying hen pullets, *Poultry Science Association 2021 Annual Meeting*, Podium presentation, Virtual meeting, July 19-22, 2021.
79. Vitienes I, Ross E, Graceffa G, Bouchard A, Steyn B, **Willie BM**, Widowski TM, Aviary rearing enhances bone microstructure in Lohmann LSL-Lite and bone mass in Lohmann Brown Lite egg-laying hen pullets compared to conventional cage-rearing, *Poultry Science Association 2021 Annual Meeting*, Poster presentation, Virtual meeting, July 19-22, 2021.
80. Rentsch AK, Vitienes I, **Willie BM**, Ross E, Widowski TM, Complex rearing aviary design promotes different load bearing activities in laying hen pullets, Oral presentation, *Canadian Poultry Research Forum*, June 21-23, 2021.
81. Ross E, Vitienes I, **Willie BM**, Rentsch AK, Widowski TM, Rearing Environment Affects Pectoralis Major and Keel Bone Development in Laying Hen Pullets, *World's Poultry Congress 2021 in Paris*, France, August 8-12, 2021 (COVID-19 Postponed).
82. Rentsch AK, Vitienes I, **Willie BM**, Ross E, Widowski TM, Complex rearing aviary design promotes different load bearing activities in laying hen pullets, *World's Poultry Congress 2021 in Paris*, France, August 8-12, 2021 (COVID-19 Postponed).

83. Kavaseri K, Bertrand D, Umebayashi M, Tauer JT, Rauch F, Hamdy R, **Willie BM**, Healing of a femoral critical-sized segmental defect, in a mouse model of osteogenesis imperfecta, using collagen scaffolds and adipose tissue-derived stem cells, *Bruce Williams Pediatric Surgery Research Day*, Oral presentation, June 3, 2021.
84. Bertrand D, Kavaseri K, Villemure I, Rauch F, Hamdy R, **Willie BM**, The Accordion Technique applied during the consolation phase does not improve healing compared to conventional Distraction Osteogenesis, *Bruce Williams Pediatric Surgery Research Day*, Oral presentation, June 3, 2021.
85. Turcotte A-F, O'Connor S, Morin SN, Gibbs JC, **Willie BM**, Jean S, Gagnon C, Effects of Obesity on Risk of Fracture, Bone Mineral Density and Bone Quality in Adults: A Systematic Review and Meta-Analysis, *Canadian Obesity Summit,* Oral presentation, Virtual meeting, May 10-13, 2021.
86. Breuer M[*], Rummler M[*], Zaouter C, **Willie BM**[#,] PattenSA[#], Highly mineralized inclusions and Col2a1 depletion in vertebrae of a zebrafish model of CHARGE syndrome (* [#,],shared authorship), *IZFS 2021 Annual Meeting*, Submitted, Virtual meeting, 2021.
87. Kavaseri K, Bertrand D, Umebayashi M, Tauer JT, Rauch F, Hamdy R, **Willie BM**, Establishment of a critical-sized segmental defect and efficacy evaluation of adipose tissue-derived stem cells for bone healing in a mouse model of Osteogenesis imperfecta, *Réseau de recherche en santé buccodentaire et osseuse annual research meeting*, Virtual, Poster presentation, April 21-23, 2021.
88. Agnes C, Murshed M, **Willie BM**, Tabrizian M, Effect of Incorporation of the GSK3 Inhibitor, 6-Bromoindirubin-3'-Oxime, on the Material Properties of the Guanosine Diphosphate Crosslinked Chitosan Scaffold, *Réseau de recherche en santé buccodentaire et osseuse annual research meeting*, Virtual, Poster presentation, April 21-23, 2021.
89. Vitienes I, Ross E, Graceffa G, Bouchard A, Steyn B, Widowski TM, **Willie BM**, Aviary rearing enhances bone microarchitecture compared to rearing in conventional cages in LSL-Lite, but not Lohmann Brown-Lite egg-laying hen pullets, *Réseau de recherche en santé buccodentaire et osseuse annual research meeting*, Virtual, Poster presentation, April 21-23, 2021.
90. Bertrand D, Kavaseri K, Villemure I, Rauch F, Hamdy R, **Willie BM**, The Accordion Technique applied during the consolation phase does not improve healing compared to conventional Distraction Osteogenesis, *Réseau de recherche en santé buccodentaire et osseuse annual research meeting*, Virtual, Poster presentation, April 21-23, 2021.
91. Hosseinitabatabaei S, Mikolajewicz N, Zimmermann EA, Rummler M, Steyn B, Julien C, Rauch F, **Willie BM**, 3D and cross-sectional-area registration of high resolution peripheral quantitative CT images from adults with osteogenesis imperfecta provide similar short-term in-vivo precision, *Réseau de recherche en santé buccodentaire et osseuse annual research meeting*, Virtual, Poster presentation, April 21-23, 2021.
92. Gagnon M, Yap R, Carriero A, **Willie BM**, Veilleux LN, Farmer JP, Zimmermann E. Selective dorsal rhizotomy for cerebral palsy: Impact on musculoskeletal health, *Réseau de recherche en santé buccodentaire et osseuse annual research meeting*, Virtual, Poster presentation, April 21-23, 2021.

93. Turcotte A-F, O'Connor S, Morin SN, Gibbs JC, **Willie BM**, Jean S, Gagnon C, Effects of Obesity on Risk of Fracture, Bone Mineral Density and Bone Quality in Adults: A Systematic Review and Meta-Analysis, *Réseau de recherche en santé buccodentaire et osseuse annual research meeting*, Virtual, Poster presentation, April 21-23, 2021.
94. Kavaseri K, Bertrand D, Rauch F, Hamdy R, **Willie BM**, Establishing a Critical-Sized Segmental Defect in a Mouse Model of Osteogenesis Imperfecta, *ICCBH Bone fragility disorders in children,* Oral presentation, Virtual meeting, Nov. 18-20, 2020.
95. Steyn B, Julien C, Chen WL, Kornak U, **Willie BM**, Inactivation of the *Gorab* gene does not alter the mechanoresponse, *ICCBH Bone fragility disorders in children,* Poster presentation, Virtual meeting, Nov. 18-20, 2020.
96. Asgharzadeh P, Birkhold A, Zimmermann E, Rauch F, Röhrle O, **Willie BM**, A data-driven Analysis of Bone Structure in Osteogenesis Imperfecta Using HR-pQCT Images and Machine Learning, *ICCBH Bone fragility disorders in children,* Oral presentation, Virtual meeting, Nov. 18-20, 2020.
97. Hosseinitabatabaei S, Zimmermann EA, Mikolajewicz N, Rummler M, Steyn B, Julien C, Glorieux F, Rauch F, **Willie BM**, Matched angle image registration improves short-term precision of bone strength estimated from HR-pQCT scans of adults with osteogenesis imperfecta, *ICCBH Bone fragility disorders in children,* Oral presentation, Virtual meeting, Nov. 18-20, 2020.
98. Breuer M[*], Rummler M[*], Zaouter C, **Willie BM**[#], PattenSA[#], Chd7 dependent osteogenesis results in variable bone mineralization and abnormal vertebrae morphology in a zebrafish model for CHARGE syndrome (* [#],shared authorship), *11th European zebrafish meeting*, Poster presentation, Virtual meeting, October 26-27, 2020.
99. Kavaseri K, Bertrand D, Rauch F, Hamdy R, **Willie BM**, Establishing a Critical-Sized Segmental Defect in a Mouse Model of Osteogenesis Imperfecta**,** *American Society for Bone and Mineral Research*, Poster presentation, Virtual meeting, 2020.
100. Fu R, **Willie BM**, Yang H, The Interactive Effects of Dynamization Time and Degree on Bone Healing, *American Society for Bone and Mineral Research*, Poster presentation, Virtual meeting, 2020.
101. Fu R, Bertrand D, **Willie BM**, Yang H, The effect of the accordion technique on bone regeneration during distraction osteogenesis, *American Society for Bone and Mineral Research*, Poster presentation, Virtual meeting, 2020.
102. Asgharzadeh P, Birkhold A, Zimmermann E, Rauch F, Röhrle O, **Willie BM**, Deep Learning Analysis of Bone Structure in Osteogenesis Imperfecta Using HR-pQCT Images, *European Society of Biomechanics*, Coronavirus-postponed, 2020.
103. Indermaur M, Casari D, Kochetkova, Michler J, **Willie BM**, Schwiedrzik J, Zysset P, Tissue fixation doesn't affect compressive strength of ovine cortical bone ECM, *European Society of Biomechanics*, Coronavirus-cancelled, 2020.
104. Roschger A, van Tol A, Thelen M, Seliger A, Yang H, Chen WL, Thiele T, Roschger P, Duda G, Zaslansky P, Kornak U, **Willie BM**, Weinkamer R, The effect of a deteriorated architecture of the lacunocanalicular network on the organization and mineralization of the extracellular matrix, *European Society of Calcified Tissue*, Coronavirus-cancelled, 2020.

105. van Tol A, Schemenz V, Wagermaier W, Roschger A, Razi H, Vitienes I, Fratzl P, **Willie BM,** Weinkamer R, The influence of the lacunocanalicular network architecture on bone's mechanoresponsiveness, *Gordon conference*, Coronavirus-cancelled, 2020.
106. Bezdjian A, Smith RA, Thomeer HGXM, **Willie** BM, Daniel SJ, A Systematic Review on Factors Associated with Percutaneous Bone Anchored Hearing Implants Loss, *ESPO 2020*, Poster presentation, Marseille, France, Coronavirus-cancelled until Feb 13-16, 2021.
107. van Tol A, Schemenz V, Wagermaier W, Roschger A, Razi H, Vitienes I, Fratzl P, **Willie BM**, Weinkamer R, The role of the lacunocanalicular network and vascular porosity in the mechano-responsiveness of bone, *International Conference on the Chemistry and Biology of Mineralized Tissues*, Oral presentation, Montebello, Canada October 2019.
108. Schemenz V, van Tol A, Vitienes I, Roschger P, Fratzl P, Weinkamer R, **Willie BM**, Wagermaier W, Correlations between the lacunar-canalicular network and its surrounding matrix after mechanical stimulation in murine tibiae, *International Conference on the Chemistry and Biology of Mineralized Tissues*, Oral presentation, Montebello, Canada October 2019.
109. Julien C, Thiele T, Ofer L, Zaslansky P, Shahar R, **Willie BM**, Gene expression response to swim training in anosteocytic and osteocytic teleost fish, *International Conference on the Chemistry and Biology of Mineralized Tissues*, Poster presentation, Montebello, Canada October 2019.
110. Zimmermann EA, Tiedemann K, Julien C, Komarova SV, Reinhardt DP, **Willie BM**, Examining tissue composition, whole bone-morphology and mechanical behavior in Marfan Syndrome *International Conference on the Chemistry and Biology of Mineralized Tissues*, Poster presentation, Montebello, Canada October 2019.
111. Rummler M, Ziouti F, Zimmermann E, Jundt F, Donnelly E, Wagermaier W, **Willie BM**, Examining bone composition and nanoscale mineral properties in a mouse model of multiple myeloma, *International Conference on the Chemistry and Biology of Mineralized Tissues*, Oral presentation, Montebello, Canada October 2019.
112. Indermaur M, Casari D, Peruzzi C, Zimmermann E, Rauch F, **Willie BM**, Michler J, Schwiedrzik J, Zysset P, Micro-compression properties of OI bone are not inferior to healthy controls in fixed iliac crest biopsies, *American Society for Bone and Mineral Research*, Poster presentation, Orlando, FL, 2019.
113. van Tol A, Schemenz V, Wagermaier W, Roschger A, Razi H, Roschger P, Vitienes I, Fratzl P, **Willie BM**, Weinkamer R, Fluid flow through the lacunocanalicular network and mechanoresponsiveness in mouse tibia model, *American Society for Bone and Mineral Research*, Poster presentation, Orlando, FL, 2019.
114. **Willie BM**, Zimmermann EA, Glorieux FH, Hodgson I, Hall A, MacKinnon A, Javaid MK, Shapiro J, Setrusumab for the Treatment of Adults with Osteogenesis Imperfecta: 6-Month Data from the Open-Label Treatment Arm of the Phase 2b ASTEROID Study, *American Society for Bone and Mineral Research*, Oral presentation, Orlando, FL, 2019.
115. Bouchard A, Dsouza C, Julien C, **Willie BM**, Circadian rhythm effect on load-induced bone formation and gene expression in mice. *American Society for Bone and Mineral Research*, Poster presentation, Orlando, FL, 2019.

116. Julien C, Thiele T, Ofer L, Zaslansky P, Shahar R, **Willie BM**, Gene expression response to swim training in anosteocytic and osteocytic teleost fish, *American Society for Bone and Mineral Research*, Poster presentation, Orlando, FL, 2019.
117. Zimmermann EA, Bertrand D, Tiedemann K, Julien C, Kavaseri K, Komarova SV, Reinhardt DP, **Willie BM**, Promoting bone formation in Marfan Syndrome through in vivo mechanical loading and sclerostin neutralizing antibody treatment, *American Society for Bone and Mineral Research*, Poster presentation, Orlando, FL, 2019.
118. Mikolajewicz N, Zimmerman EA, Rummler M, Glorieux F, **Willie BM**, HR-pQCT cross-calibration across multiple centres and timepoints: a precision study, *American Society for Bone and Mineral Research*, Poster presentation, Orlando, FL, 2019.
119. Zimmerman EA, Mikolajewicz N, Rummler M, Julien C, Glorieux F, **Willie BM**, Intrasite short-term precision in first- and second-generation HR-pQCT scanners assessed using phantoms and repeated scans in adults with osteogenesis imperfecta, *American Society for Bone and Mineral Research*, Poster presentation, Orlando, FL, 2019.
120. Rummler M, Ziouti F, Lynch M, Jundt F, **Willie BM**, Time-lapse microCT-based in vivo imaging reveals increased bone formation in mice with multiple myeloma bone disease, *MechanoChemBio 2019,* Oral presentation, Montreal, Canada.
121. Bezdjian A, Smith RA, Thomeer HGXM, **Willie BM**, Daniel SJ, Smoking as a risk factor for spontaneous bone anchored hearing implant extrusion, 7th *International Congress on Bone Conduction Hearing and Related Technologies,* Poster presentation, Miami Beach, FL, Dec 2019.
122. Bezdjian A, Smith RA, Thomeer HGXM, **Willie BM**, Daniel SJ, When is the ideal time to couple the sound processor for pediatric bone anchored hearing implant recipients? the answer using intra-operative resonance frequency analysis. 7th *International Congress on Bone Conduction Hearing and Related Technologies,* Oral presentation, Miami Beach, FL, Dec 2019.
123. Asgharzadeh P, Birkhold A, **Willie BM**, Röhrle O, Analyzing the Effect of Load-induced (Re)modeling on Bone Tissue Age using a Deep Neural Network, *Congress of the European Society of Biomechanics*, Oral presentation, Vienna, Austria, 2019.
124. Bouchard A, **Willie BM**, Load-induced bone formation in mice is affected by time of loading, *Canadian Connective Tissue Conference*, Oral presentation, Montreal, Canada, May 2019.
125. Zimmermann EA, Tiedemann K, Julien C, Komarova SV, Reinhardt DP, **Willie BM**, Examining tissue composition, whole bone-morphology and mechanical behavior in Marfan Syndrome *Canadian Connective Tissue Conference*, Oral presentation, Montreal, Canada, May 2019.
126. Julien C, Dsouza C, **Willie BM**, Circadian clock regulation of molecular mechanisms underlying load-induced bone formation, *Canadian Connective Tissue Conference*, Poster presentation, Montreal, Canada, May 2019.
127. Rummler M, Ziouti F, Lynch M, Jundt F, **Willie BM**, Time-lapse microCT-based in vivo imaging reveals increased bone formation in mice with multiple myeloma bone disease *Canadian Connective Tissue Conference*, Poster presentation, Montreal, Canada, May 2019.

128. Bouchard A, **Willie BM**, Load-induced bone formation in mice is affected by time of loading, *Canadian Society for Chronobiology*, Oral presentation, Montreal, Canada, May 2019.
129. Julien C, Dsouza C, **Willie BM**, Circadian clock regulation of molecular mechanisms underlying load-induced bone formation, *Canadian Society for Chronobiology*, Oral presentation, Montreal, Canada, May 2019.
130. van Tol A, Schemenz V, Wagermaier W, Roschger A, Razi H, Vitienes I, Fratzl P, **Willie BM**, Weinkamer R, The role of the lacunocanalicular network and vascular porosity in the mechano-responsiveness of bone, *European Calcified Tissue Society*, Poster presentation, Budapest, Hungary, May 11-14, 2019.
131. Bezdjian A, Smith RA, Thomeer HGXM, Willie BM, Daniel SJ, A Systematic Review on Factors Associated with Percutaneous Bone Anchored Hearing Implants Loss, *American Society of Pediatric Otolaryngology*, Oral presentation, Austin, TX May 3-5, 2019.
132. Mikolajewicz N, Wager K, Malloy-Bland M, Bishop N, Burghardt A, Folkestad L, Hall A, Kozloff K, Lacroix D, Lukey P, Offiah A, Shapiro J, van Rietbergen B, Morin S, **Willie BM**, Komarova S, Glorieux FH, HR-pQCT measures of bone microarchitecture for fracture risk assessment: a systematic review and meta-analysis, *22nd International Workshop on Quantitative Musculoskeletal Imaging (QMSKI)*, February 24-March 1, 2019, Lake Louise, Canada, Oral presentation.
133. Mikolajewicz N, Wager K, Malloy-Bland M, Hall A, **Willie BM**, Morin S, Komarova S, Glorieux FH, HR-pQCT measures of bone microarchitecture for fracture risk assessment: patient covariate meta-analysis, *22nd International Workshop on Quantitative Musculoskeletal Imaging (QMSKI),* February 24-March 1, 2019, Lake Louise, Canada, Oral presentation.
134. Rummler M, Ziouti F, Lynch M, Jundt F, **Willie BM**, Time-lapse microCT-based in vivo imaging reveals increased bone formation in mice with multiple myeloma bone disease*, 22nd International Workshop on Quantitative Musculoskeletal Imaging (QMSKI)*, February 24-March 1, 2019, Lake Louise, Canada, Oral presentation.
135. Rummler M, Ziouti F, Seliger A, Lynch M, Jundt F, **Willie BM**, Mechanical Loading Maintains Bone Mass in vivo in Osteolytic Multiple Myeloma, *World Congress in Computational Mechanics*, July 22-27, 2018, New York City, USA, Oral presentation.
136. Birkhold A, Asgharzadeh P, Farack L, Checa S, Röhrle O, Zaslansky P, **Willie BM**, 3D Mapping of the Osteocyte Lacunae Network with the Adaptive Bone (Re)modeling Dynamics, *World Congress in Computational Mechanics*, July 22-27, 2018, New York City, USA, Oral presentation.
137. Mikolajewicz N, Zimmermann E, **Willie BM**, Svetlana Komarova, Mechanically-evoked ATP Release is Regulated by Facilitated Membrane Resealing in Murine Osteoblasts*, World Congress in Computational Mechanics*, July 22-27, 2018, New York City, USA, Oral presentation.
138. Borgiani E, **Willie BM**, Duda GD, Checa S, The role of mechanics on the effect of BMP-2 on bone healing: a multi-scale in silico investigation, *World Biomechanics Congress*, Dublin, Ireland, 2018, Poster presentation.

139. Chen J, Roschger A, Blouin S, Julien C, **Willie BM**, Roschger P, Wagermaier W, Fratzl P, Weinkamer R, Biomechanical Effects of Calvarial Suture on Alternating Osteocyte Lacuno-Canalicular Network Architecture in Mouse Skull, *World Biomechanics Congress*, Dublin, Ireland, 2018, Poster presentation.
140. Chen J, Roschger A, Blouin S, Julien C, **Willie BM**, Roschger P, Wagermaier W, Fratzl P, Weinkamer R, Microstructural Assessment of Calvarial Fusion in Mice of Different Ages and its Biomechanical Implications, *4th Euro Bio-inspired Materials*, Potsdam, Germany, 2018, Poster presentation.
141. Bezdjian A, Smith RA, **Willie BM**, Thomeer HG, Daniel SJ, A systematic review on factors associated with percutaneous bone anchored hearing implant loss, *American Society of Pediatric Otolaryngology*, National Harbor, MD, April 20th, 2018, Poster presentation.
142. Rummler M, Ziouti F, Seliger A, Lynch M, Jundt F, **Willie BM**, Mechanical loading rescues cortical bone loss in a mouse model of Multiple Myeloma, *Transactions of the 64th Annual Meeting of the Orthopedic Research Society*, Poster presentation, New Orleans, LA, 2018, Poster presentation.
143. Rummler M, Ziouti F, Spevak L, Zimmermann E, Fleck C, Donnelly E, Jundt F, **Willie BM**, Bone composition is altered in a mouse model of multiple myeloma, *Transactions of the 64th Annual Meeting of the Orthopedic Research Society*, Poster presentation, New Orleans, LA, 2018, Poster presentation.
144. Fleischhacker V, Minkwitz S, Klatte-Schulz F, Thiele T, Seliger A, **Willie B**, Wildemann B, The impact of *in vivo* mechanical loading on mice Achilles tendon, *Transactions of the 64th Annual Meeting of the Orthopedic Research Society*, Poster presentation, New Orleans, LA, 2018.
145. Fleischhacker V, Minkwitz S, Klatte-Schulz F, Thiele T, Seliger A, **Willie B**, Wildemann B, I*n vivo* mechanical loading of the tibia alters gene expression in mice Achilles tendon *Deutschen Kongress für Orthopädie und Unfallchirurgie*, Oral presentation, Berlin, Germany, 2018.
146. Ziouti F, Rummler M, Ebert R, Seliger A, Brandl A, Beilhack A, Bogen B, Lynch M, Jakob F, Willie B, Jundt F, Targeted remodeling of the tumor microenvironment via mechanical stimulation defines a novel anabolic strategy in myeloma bone disease, *59th American Society of Hematology Annual Meeting & Exposition,* Poster presentation, Atlanta,GA, 2017.
147. Rummler M, Ziouti F, Seliger A, Lynch M, Jundt F, **Willie BM**, Mechanical loading leads to bone formation in a mouse model of Multiple Myeloma, *International Workshop on Musculoskeletal and Neuronal Interactions*, Oral presentation, Montreal, 2017.
148. Thiele T, Julien C, Seliger A, Birkhold A, Pellicelli M, St-Arnaud R, Thelen M, Lefebvre F, Ominsky M, Duda G, Kornak U, Checa S, Willie BM**,** Sclerostin-Neutralizing Antibody Treatment Increases *Serpinf1*(*PEDF*) Expression in Mice Tibiae Independent of Mechanical Loading, *International Workshop on Musculoskeletal and Neuronal Interactions*, Oral presentation, Montreal, 2017.
149. Zimmermann EA, Tiedemann K, Julien C, Reinhardt DP, Komarova S, **Willie BM**, Osteopenia in Marfan syndrome: role of osteocytes, *International Workshop on Musculoskeletal and Neuronal Interactions*, Poster presentation, Montreal, 2017.

150. Yang H, Seliger A, Thelen M, Chan WL, Kornak U, **Willie BM**, Loss of GORAB leads to an Impaired Anabolic Cortical and Cancellous Bone Response to Mechanical Loading, *American Society for Bone and Mineral Research*, Poster presentation, Denver, CO, 2017.
151. Rummler M, Ziouti F, Seliger A, Lynch M, Jundt F, **Willie BM**, Mechanical loading leads to bone formation in a mouse model of Multiple Myeloma, *American Society for Bone and Mineral Research*, Denver, CO, 2017, Poster presentation.
152. Thiele T, Julien C, Seliger A, Birkhold A, Pellicelli M, St-Arnaud R, Thelen M, Lefebvre F, Ominsky M, Duda G, Kornak U, Checa S, **Willie BM**, Sclerostin-Neutralizing Antibody Treatment Increases *Serpinf1*(*PEDF*) Expression in Mice Tibiae Independent of Mechanical Loading, *American Society for Bone and Mineral Research*, Poster presentation, Denver, CO, 2017.
153. Zimmermann EA, Tiedemann K, Julien C, Reinhardt DP, Komarova S, **Willie BM**, Osteopenia in Marfan syndrome: role of osteocytes, *Canadian Connective Tissue Conference*, Poster Presentation, Montreal, Quebec, Canada, 2017.
154. Birkhold A, Farack L, Asgharzadeh P, Pomes T, Röhrle O, Checa S, Zaslansky P, **Willie BM**, Quantitative 3D mapping of adaptive bone (re)modeling compared with the osteocyte lacunae network, *Congress of the European Society of Biomechanics*, Sevilla, Spain, Oral presentation, 2017.
155. Borgiani E, Figge C, **Willie BM**, Duda GN, Checa S, Aging Leads to reduced mechanosensitivity during bone healing, *Congress of the European Society of Biomechanics*, Sevilla, Spain, Oral presentation, 2017.
156. Yang H, Seliger A, Thelen M, Chan H, Kornak U, **Willie BM**, Altered Bone Formation Response to Mechanical Loading In A Mouse Model Of The Progeroid Disorder Gerodermia Osteodysplastica, *Transactions of the 63rd Annual Meeting of the Orthopedic Research Society*, Oral presentation, San Diego, CA, 2017.
157. Yang H, Büttner A, Pflanz D, Albiol L, Birkhold A, Thiele T, Kramer I, Kneissel M, Duda GN, Kornak U, Checa S, **Willie BM**, Bone (re)modeling Response to Mechanical Loading in Sost Deficient Mice Is Age and Gender Dependent, *Transactions of the 63rd Annual Meeting of the Orthopedic Research Society*, Poster presentation, San Diego, CA, 2017.
158. Albiol L, Pflanz D, Cilla M, Kramer I, Kneissel M, Duda GN, Zaslansky P, **Willie BM**, Checa S, Deficiency Leads to a Reduction in the Mechanical Strains Induced Within the Mouse Tibia, *Transactions of the 63rd Annual Meeting of the Orthopedic Research Society*, Poster presentation, San Diego, CA, 2017.
159. Borgiani, E, Duda G, **Willie BM**, Checa S, New insights into the mechanobiological regulation of bone healing in mice, *Congress of the European Society of Biomechanics*, Oral Presentation, Lyon, France, 2016.
160. He F, Lynch M, Hoerth R, Seo BR, **Willie BM,** Wagermaier W, Duda GN, Fratzl P, Fischbach C, Advanced Breast Cancer Remotely Alters the Nanostructure of the Bone Metastatic Site, *BMES 2015 Annual Meeting,* Oral Presentation, Seattle, WA, USA, 2015.
161. Albiol L, Birkhold A, Pflanz D, Thiele T, Kramer I, Kneissel M, Duda GN, Checa S, **Willie BM,** Diminished mechanoresponsiveness with skeletal maturation occurs via a sclerostin-independent pathway, *American Society for Bone and Mineral Research,* Poster

Presentation, Seattle, WA, USA, 2015.

162. Birkhold A, Thomson E, Pflanz D, Thiele T, Kneissel M, Duda GN, Checa S, **Willie BM**, SOST deficiency alters resorption cavity shape in physiologically and additionally in vivo loaded mice tibiae determined using registered longitudinal µCT-images, *Congress of the European Society of Biomechanics*, Oral Presentation, Vysočany, Czech Republic, 2015.
163. Albiol L, Birkhold A, Pflanz D, Thiele T, Kneissel M, Duda GN, Checa S, **Willie BM**, Skeletal Maturation Leads to a Diminished Mechanoresponsiveness in SOST Deficient Mice, *Congress of the European Society of Biomechanics*, Poster Presentation, Vysočany, Czech Republic, 2015.
164. Birkhold A, Razi H, Weinkamer R, Duda GN, Checa S, **Willie BM**, In vivo bone surface monitoring reveals age-related changes in adaptive bone (re)modeling sequences, *Joint Meeting of the European Calcified Tissue Society and the International Bone and Mineral Society*, Oral Poster/New Investigator Award**,** Rotterdam, Netherlands Cortical bone adaptation.
165. Birkhold A, Duda GN, Pflanz D, Thiele T, Checa S, **Willie BM**, Unravelling the kinetics of bone (re)modeling and adaptation under sclerostin inhibition, *Transactions of the 60th Annual Meeting of the Orthopedic Research Society*, Poster presentation, New Orleans, LA, 2014.
166. Aido M, Spevak L, Checa S, Boskey A, Duda GN, Wagermaier W, **Willie BM**, Mineral and matrix properties are altered with animal and tissue age but not by in vivo loading, *Transactions of the 60th Annual Meeting of the Orthopedic Research Society*, Poster presentation, New Orleans, LA, 2014.
167. Birkhold A, Razi H, Weinkamer R, Duda GN, Checa S, **Willie BM**, Cortical bone adaptation with aging: 3D dynamic in vivo tracking of bone turnover, *Transactions of the 60th Annual Meeting of the Orthopedic Research Society*, Poster presentation, New Orleans, LA, 2014.
168. Schwarz C, Hassanein K, Schmidt T, **Willie BM**, Duda GN, Low dose BMP2 Is affected by fixation stiffness in a critical size defect in rat, *Transactions of the 60th Annual Meeting of the Orthopedic Research Society*, Poster presentation, New Orleans, LA, 2014.
169. Schwarz C, Hassanein K, Schmidt T, **Willie BM**, Duda GN, BMP-2 is competing with its own family members new therapy options for bone defects, *Conference of the International Society for Fracture Repair*, Oral presentation/Travel Award, NY, NY, 2014.
170. Birkhold A, Razi H, Weinkamer R, Duda GN, Checa S, **Willie BM**, Tomography-based in vivo quantification of bone turnover: Age associated 3D dynamics of cortical bone during adaptation, tomography-based in vivo quantification of bone turnover, *Joint WCCM-ECCM-ECFD Congress*, Oral presentation, Barcelona, Spain, 2014.
171. Hoerth R, Seidt B, Baum D, **Willie BM**, Hege C, Duda GN, Fratzl P, Wagermaier, Mechanical properties in healing rat bone, *Gordon conference: Thin film & small-scale mechanical behavior observations, insights and analyses: what's new in the world of micro mechanics*, Oral presentation, Waltham, MA, 2014.
172. Bortel EL, Duda GN, **Willie BM**, Mundlos S, Fratzl P, Zaslansky P, Bone patterning during postnatal long-bone maturation in mice: A 3D histological study *Material Science Engineering,* Posterpresentation, Darmstadt, Germany, 2014.

173. Birkhold A, Razi H, Duda GN, Checa S, **Willie BM**, Cortical bone at the metaphysic has greater adaptive response to loading than diaphysis: a 3D dynaic in vivo morphometry study, *Proceedings of the 11th International Symposium, Computer Methods in Biomechanics and Biomedical Engineering*, Oral presentation, Salt Lake City, Utah,2013.
174. Razi H, Birkhold A, Duda GN, **Willie BM**, Checa S, Adaptive response of diaphyseal bone to mechanical loading spatially relates to local strains with higher threshold in periosteum than endosteum, *Proceedings of the 11th International Symposium, Computer Methods in Biomechanics and Biomedical Engineering*, Oral presentation, Salt Lake City, Utah,2013.
175. Birkhold A, Razi H, Duda GN, Checa S, **Willie BM**, Die Kortikalis der Metaphyse zeigt eine grössere adaptive Antwort auf mechanische belastung als die der diaphyse: eine 3D dynamische *in vivo* morphometriestudie, *Deutschen Gesellschaft für Biomechanik (DGfB)*, Oral presentation, p.162, Ulm Germany, 2013.
176. Birkhold A, Razi H, Checa S, Duda GN, **Willie BM**, Aging impairs trabecular bone adaptation to loading: a 3D dynamic in vivo morphometry study,*19th Congress of the European Society of Biomechanics*, Oral presentation, Patras, Greece, 2013.
177. Razi H, Birkhold A, Duda GN, **Willie BM**, Checa S, Cortical bone in adult mice exhibits lower strain levels at remodelling sites compared to young mice, *19th Congress of the European Society of Biomechanics*, Oral presentation, Patras, Greece, 2013.
178. Birkhold A, Razi H, Duda GN, Checa S, **Willie BM**, Bestimmung der Altersabhängigkeit der Adaption des kortikalen Knochens an mechanische Belastung, *Deutschen Kongress für Orthopädie und Unfallchirurgie*, Oral presentation, Berlin, Germany,2013.
179. Pflanz D, Duda GN, Berthet E, Birkhold A, Thiele T, Li C, Ke HZ, **Willie BM**, Die verringerte Adaptation des Knochens auf mechanische Belastung in vivo unter Sklerostin-suppressiver Behandlung in alten Mäusen, *Deutschen Kongress für Orthopädie und Unfallchirurgie*, Oral presentation, Berlin, Germany, 2013.
180. Razi H, Birkhold A, Duda GN, **Willie BM**, Checa S, Endosteal bone is more mechanoresponsive than periosteal bone at the tibial diaphysis, *Deutschen Kongress für Orthopädie und Unfallchirurgie*, Oral presentation, Berlin, Germany, 2013.
181. Aido M, Kerschnitzsky M, Hoerth R, Duda GN, Wagermaier W, **Willie BM**, Mineral particle thickness and orientation are similar in bone formed during loading and normal growth,*12th Intern. Symposium on Biomineralization,* Oral presentation, Freiberg-Saxony, Germany, 2013.
182. Birkhold A, Razi H, Weinkamer R, Duda GN, Checa S, **Willie BM**, Cortical bone adaptation is greater at metaphysis than diaphysis: a 3D dynamic in vivo morphometry study, *American Society for Bone and Mineral Research,* Poster presentation, Baltimore, MD, USA, 2013.
183. Birkhold A, Razi H, Checa S, Duda GN, **Willie BM**, Trabecular bone adaptation declined asymmetrically with aging: a 3D dynamic *in vivo* morphometry study, *American Society for Bone and Mineral Research,* Poster presentation, Baltimore, MD, USA, 2013.
184. Kruck B, Damerow S, Wichlas F, Tsitsilonis S, Duda GN, **Willie BM**, Fixation stiffness modulates the efficacy of sclerostin-neutralizing antibody treatment during bone healing, *American Society for Bone and Mineral Research,* Poster presentation, Baltimore, MD, USA,

2013.

185. Hoerth R, Aido M, Baum D, Hege C, Seidt B, **Willie B**, Duda GN, Fratzl P, Wagermaier W, Development of bone material during fracture healing in small animal models, *Euromat*, Oral presentation, Sevilla, Spain, 2013.
186. Wagermaier W, Kerschnitzsky M, Hoerth R, Kollmannsberger P, Repp F, Baum D, Hege C, Aido M, **Willie B,** Duda GN, Weinkamer R, Fratzl P, Multi-method imaging and quantification of material properties during bone mineralization and healing, *Euromat*, Oral presentation, Sevilla, Spain, 2013.
187. Hoerth R, Aido M, Baum D, Hege C, Seidt B, Duda GN, Fratzl P, **Willie B**, Wagermaier W, Exploring bone material during fracture healing in three dimensions, *Synthetic Life: Molecules, Cells and Tissue*, Poster presentation, Weizmann Institute, Israel, 2013.
188. Seidt BM, Hoerth R, **Willie BM**, Duda GN, Fratzl P, Wagermaier W, Investigating material structure and mineralization during bone healing in rats, *Synthetic Life: Molecules, Cells and Tissue*, Poster presentation, Weizmann Institute, Israel, 2013.
189. Aido M, Kerschnitzsky M, Hoerth R, Fratzl P, Duda GN, Wagermaier W, **Willie BM**, Examining if nanoscale mineral properties in bone formed in response to loading is altered by aging*, 11th International Conference on the Chemistry and Biology of Mineralized Tissues*, Oral presentation/Travel award, Lake Geneva, WI, 2013.
190. Birkhold A, Checa S, Duda GN, **Willie BM**, Global and site-specific adaptation of cancellous bone to *in vivo* loading, 18th *Congress of the European Society of Biomechanics*, Oral presentation, Lisbon, Portugal, 2012.
191. Hoerth R, Seidt B, **Willie B**, Duda GN, Fratzl P, Wagermaier W, Time evolution of bone material properties during fracture healing, *Junior Euromat*, Poster presentation, Lausanne, Switzerland, 2012.
192. Hoerth R, Seidt B, **Willie B**, Roschger P, Duda, GN, Fratzl P, Wagermaier W, Analysis of bone material during osteotomy healing in rats, *Journal of Tissue Engineering and Regeneration Medicine*, Vol 6, SI:1, p.17-17, Sept. 2012.
193. Pflanz D, Berthet E, Birkhold A, Thiele T, Li C, Ke HZ, Duda GN, **Willie BM**, No additive effects of in vivo loading and sclerostin antibody treatment on bone anabolism in elderly mice, *American Society for Bone and Mineral Research,* Oral presentation/Young Investigator Award, Minneapolis, MN, USA, 2012.
194. Birkhold A, Razi H, Weinkamer R, Duda GN, Checa S, **Willie BM**, Mechanoregulation of cortical and trabecular bone adaptation measured by examining dynamic bone morphometry and the mechanical environment, *American Society for Bone and Mineral Research,* Oral presentation/Young Investigator Award, Minneapolis, MN, USA, 2012.
195. Birkhold A, Razi H, Weinkamer R, Duda GN, Checa S, **Willie BM**, Messung der Änderung der Architektur und des Materials des spongiösen Knochens unter mechanischer Belastung im lebenden Tier, *Deutschen Kongress für Orthopädie und Unfallchirurgie*, Oral presentation, Berlin, Germany, 2012.
196. Aido M, Birkhold A, Thiele T, Schill A, Main RP, Duda GN, **Willie BM**, The adaptive response of cancellous bone to in vivo loading is diminished in adulthood: a longitudinal study, *Transactions of the 3rd Joint Meeting of the European Calcified Tissue Society and the International Bone and Mineral Society*, Oral presentation/New Investigator Award, Athens,

Greece, 2011.

197. Birkhold A, Aido M, Thiele T, Schill A, Main RP, Duda GN, **Willie BM**, The adaptive response of cancellous bone to in vivo loading is diminished in adulthood: a longitudinal study, *Osteologie*, Poster presentation, Furth, Germany, 2011.
198. Ellinghaus A, Schwarz C, Demel M, Lienau J, Seemann P, **Willie BM**, Duda G, Noggin resistant protein N445T at a low dose maintained a high regenerative capacity, *Tissue Engineering and Regenerative Medicine International Society*, Oral presentation, Granada, Spain, 2011.
199. Thiele T, Birkhold A, Aido M, Schill A, Main RP, Duda GN, **Willie BM**, Die verringerte adaptive Reaktion von spongiösem Knochen auf in vivo Belastung im Erwachsenenalter, *Deutschen Kongress für Orthopädie und Unfallchirurgie*, Oral presentation, Berlin, Germany, 2011.
200. **Willie BM**, Birkhold A, Aido M, Thiele T, Schill A, Main RP, Duda GN, The adaptive response of cancellous bone to in vivo loading is diminished in adulthood: a longitudinal study, *American Society for Bone and Mineral Research,* Oral presentation, San Diego, CA, USA, 2011.
201. Lienau J, **Willie BM**, Schell H, Schneider C, Schwarz C, Ellinghaus A, Schmidt-Bleek K, Bail H, Mundlos S, König J, Seemann P, Duda G, Improving femoral defect healing in rats by modification of BMP inhibition, *Transactions of the 56th Annual Meeting of the Orthopedic Research Society*, Short talk presentation, New Orleans, LA, 2010.
202. **Willie BM**, Ko F, Han J, Thiele T, van der Meulen M, Bostrom M, Interleukin-6 alters the adaptive response of bone mineral properties to in vivo loading in the mouse tibia, *Transactions of the 56th Annual Meeting of the Orthopedic Research Society*, Poster presentation, New Orleans, LA, 2010.
203. Peters A, **Willie BM**, Blakytny R, Gloeckelmann M, Ignatius A, Claes L, Early loading increases cartilage formation, while loadingduring later stages of healing enhances remodeling in a ratfemoral osteotomy model, *Transactions of the 56th Annual Meeting of the Orthopedic Research Society*, Poster presentation, New Orleans, LA, 2010.
204. Lienau J,**Willie BM**, Schell H, Schwarz C, Ellinghaus A, Schmidt-Bleek K, Mundlos S, König J, Seemann P, Duda G,Verbesserung der Knochendefektheilung durch Modifizierung der BMP-Inhibierung, *Osteologie*, Oral presentation, Berlin, Germany 2010.
205. Ciani C, Stoner K, Cross M, Osagie L, **Willie BM**, van der Meulen MCH, Bostrom MPG, PTH and ALN reduce fractures and alter mechanical properties in the oim/oim mouse model of OI, *Conference of the International Society for Fracture Repair*, Oral presentation, London, 2010.
206. **Willie BM**, Schwarz C, Schell H, Duda GN, Seemann P, Lienau JG, Improving femoral defect healing in rats by modification of BMP inhibition, *Deutschen Kongress für Orthopädie und Unfallchirurgie*, Oral presentation, Berlin, Germany, 2010.
207. Ciani C, Stoner K, Cross M, Osagie L, **Willie BM**, van der Meulen MCH, Bostrom MPG, PTH and ALN reduce fractures and alter bone mechanical properties in the oim/oim mouse model of OI, *Transactions of the 32nd Annual Meeting of the American Society for Bone and Mineral Research*, Oral presentation, Toronto, Canada, 2010.
208. **Willie BM**, Yang X, Kelly N, Han J, Nair T, Wright T, van der Meulen MCH, Bostrom

MPG, Cancellous bone osseointegration is enhanced by loading, *Transactions of the 55th Annual Meeting of the Orthopedic Research Society*, Oral presentation, Las Vegas, NV, 2009.

209. **Willie BM**, Yang X, Kelly N, Merkow J, Ware R, Gagne S, Wright T, Bostrom MPG, Osseointegration into novel titanium foam implants, *Transactions of the 55th Annual Meeting of the Orthopedic Research Society*, Poster presentation, Las Vegas, NV, 2009.
210. Claes L, Blakytny R, Besse J, Bausewein C, Ignatius A, **Willie BM**, Late dynamization enhances fracture healing in a rat femoral osteotomy model, *Transactions of the 55th Annual Meeting of the Orthopedic Research Society*, Poster presentation, Las Vegas, NV, 2009.
211. Blakytny R, **Willie BM**, Besse J, Göckelmann M, Claes L, Ignatius A, Jermendy P, Early callus morphology in rigid and flexible fixation of a rat femoral osteotomy model, *Deutschen Gesellschaft für Biomechanik,* Poster presentation, Münster, Germany, 2009.
212. Claes L, Blakytny R, Göckelmann R,Ignatius A, **Willie BM,** Die Stabilität und der Zeitpunkt der Dynamisierung haben einen signifikanten Effekt auf die Knochenheilung, *Deutschen Gesellschaft für Biomechanik,* Oral presentation, Münster, Germany, 2009.
213. **Willie BM**, Han J, Nair T, Kelly N, van der Meulen MCH, Bostrom MPG, Cancellous bone osseointegration is enhanced by loading, *Deutschen Kongress für Orthopädie und Unfallchirurgie*, Short talk presentation, Berlin, Germany, 2009.
214. Claes L, Blakytny R, Gloeckelmann M, IgnatiusA, **Willie BM**, Eine späte Dynamisierung durch Flexibilisierung der Fixation hat einen positiven Effekt auf die Knochenheilung, *Deutschen Kongress für Orthopädie und Unfallchirurgie*, Oral presentation, Berlin, Germany, 2009.
215. Ko F, **Willie BM**, Bostrom M, van der Meulen M, Role of Interleukin-6 and the adaptive response of cancellous bone to in vivo mechanical loading in the mouse tibia, *Transactions of the 31st Annual Meeting of the American Society for Bone and Mineral Research*, Oral presentation, Denver, CO, 2009.
216. König J, Zimmer J, Brehm A, Walther M, Schmidt von-Kegler M, Reißner C, Plöger F, Schell H, **Willie B**, Ellinghaus A, Schmidt-Bleek K, Lienau J, Duda G, Mundlos S, Seemann, P, Improving Bone Regeneration by Modification of BMP-Inhibition, *1st International BMP Workshop: Modern Trends in BMP Signaling*, Oral presentation, Berlin, Germany, 2009.
217. König J, Zimmer J, Brehm A, Walther M, Schmidt von-Kegler M, Reißner C, Plöger A, Lienau J, Schell H, **Willie B**, Schmidt-Bleek K, Ellinghaus A, Duda G, Mundlos S, Seemann, P, Improving BMP activity for application in bone regeneration, *1st International BMP Workshop: Modern Trends in BMP Signaling*, Oral presentation, Berlin, Germany, 2009.
218. **Willie BM**, Blakytny R, Gloeckelmann M, Schoene M, Ignatius A, Claes L, Early dynamization does not improve fracture healing in a rat femoral osteotomy model, *Transactions of 53rdAnnual Meeting of the Orthopedic Research Society*, Poster presentation, San Francisco, CA, 2008.
219. **Willie BM**, Blakytny R, Gloeckelmann M, Schoene M, Ignatius A, Claes L, Early dynamization does not improve fracture healing in a rat femoral osteotomy model, *International symposium: Biomechnaics and Biology of Bone Healing*, Oral presentation, Berlin, Germany, 2008.
220. **Willie BM**, Yang X, Kelly N, Wright TM, van der Meulen MCH, Bostrom MPG,

Cancellous bone osseointegration is enhanced by loading, *Conference of the International Society for Fracture Repair*, Oral presentation, Lake Tahoe, NV, 2008.

221. **Willie BM**, Blakytny R, Gloeckelmann M, Schoene M, Ignatius A, Claes L, Early dynamization does not improve fracture healing in a rat femoral osteotomy model, *Conference of the International Society for Fracture Repair*, Oral presentation, Lake Tahoe, NV, 2008.
222. **Willie BM,** Blakytny R, Besse J, Bausewein C, Ignatius A, Claes L, Late dynamization on fracture healing in a rat femoral osteotomy model, *Conference of the International Society for Fracture Repair*, Oral presentation, Lake Tahoe, NV, 2008.
223. Claes L, Blakytny R, Besse J, Bausewein C, Ignatius A, **Willie BM**, Late dynamization enhances fracture healing in a rat femoral osteotomy model, *Deutschen Kongress für Orthopädie und Unfallchirurgie*, Oral presentation, Berlin, Germany, 2008.
224. Foot L, **Willie BM**, Prall M, Bloebaum R, Mechanical degradation and surface damage in retrieved highly crosslinked and conventional PE tibial components, *Transactions of the 51st Annual Meeting of Orthopedic Research Society*, Poster presentation, Pittsburgh, PA, 2006.
225. Zheng X, **Willie BM**, Claes L, Mechanical characterization of stabilization devices for rat femoral fractures, *The 10th Conference of the International Society for Fracture Repair*, Oral presentation, Adelaide, South Australia, 2006.
226. **Willie BM,** Dearden C, Ashrafi S, Steffensen T, Bloebaum RD, Hofmann AA, Comparative analysis of oxidative degradation in two years real-time shelf aged intentionally crosslinked polyethylene, *Transactions of the 50th Annual Meeting of the Orthopedic Research Society*, Poster presentation, Washington DC, 2005.
227. **Willie BM**, Foot LJ, Prall MW, Bloebaum RD, Hofmann AA, Elemental analysis of particulate in retrieved intentionally crosslinked and conventional polyethylene tibial inserts, *Transactions of the 50th Annual Meeting of the Orthopedic Research Society*, Poster presentation, Washington DC, 2005.
228. Foot LJ, **Willie BM,** Prall MW, Bloebaum RD, Hofmann AA, Quantifying the relationship between oxidative degradation & surface damage in retrieved crosslinked and conventional polyethylene tibial components, *Transactions of the 31st Annual Meeting of the Society for Biomaterials*, Poster presentation, Memphis, TN, 2005.
229. **Willie BM**, Foot LJ, Prall MW, Bloebaum RD, Hofmann AA, Surface damage of retrieved crosslinked and conventional polyethylene tibial components, *Transactions of the 31st Annual Meeting of the Society for Biomaterials*, Poster presentation, Memphis, TN, 2005.
230. Bloebaum RD, **Willie BM**, Furness T, Stevenson MD, Mitchell BS, Hofmann AA, Quantifying the relationship between mineralized bone area, osteoid area, bone remodeling, and bone ingrowth intoa porous coated implant in a sheep model, *Transactions of the 31st Annual Meeting of the Society for Biomaterials*, Oral presentation, Memphis, TN, 2005.
231. **Willie BM**, Ashrafi S, Steffensen T, Bloebaum RD, Comparative analysis of the oxidative resistance between shelf-aged crosslinked and conventional polyethylene acetabular liners, *Transactions of the 48th Annual Meeting of the Orthopedic Research Society*, Poster presentation, New Orleans, LA, 2003.

232. **Willie BM**, Foot L, Le D, Bloebaum RD, Hofmann AA, Comparative analysis of the oxidative resistance and crystallinity in a series of retrieved crosslinked Durasul liners and conventional Sulene liners, *Transactions of the 48th Annual Meeting of the Orthopedic Research Society*, Poster presentation, New Orleans, LA, 2003.
233. **Willie BM**, Bloebaum RD, Bireley W, Watts C, Szakacs J, Hofmann AA, Bone ingrowth and mineral apposition rates into thermo-cleaned porous coated plugs in a sheep model, *Transactions of the 48th Annual Meeting of the Orthopedic Research Society*, Poster presentation, New Orleans, LA, 2003.
234. Neff CN, Bloebaum RD, **Willie BM**, Hofmann AA, Analysis of the relationship between osteoblast morphology and bone ingrowth in weightbearing porous coated plugs in sheep, *Transactions of the 48th Annual Meeting of the Orthopedic Research Society*, Poster presentation, New Orleans, LA, 2003.
235. Mitchell BS, **Willie BM**, Bloebaum RD, Hofmann AA, A comparison of osteoblast activity indicators and mineral apposition rate in a sheep model, *Transactions of the 29th Annual meeting of the Society for Biomaterials*, Oral presentation, Reno, NV, 2003.
236. **Willie BM**, Bloebaum RD, Hofmann AA, Comparative analysis of bone ingrowth and remodeling in a porous coated plug sheep model and human model, *Transactions of the 29th Annual Meeting of the Society for Biomaterials*, Oral presentation, Reno, NV, 2003.
237. **Willie BM**, Watts CW, Szakacs JG, Bloebaum RD, A method of identifying mineral oil in tissue using a sheep and rabbit model, *Transactions of the 29th Annual Meeting of the Society for Biomaterials*, Poster presentation, Reno, NV, 2003.
238. **Willie BM,** Ashrafi S, Steffensen T, Bloebaum RD, The effect of radiation type and dose on the percent crystallinity in cosslinked acetabular liners, *Transactions of the 29th Annual Meeting of the Society for Biomaterials*, Poster presentation, Reno, NV, 2003.
239. **Willie BM**, Foot L, Le D, Bloebaum RD, Hofmann AA, Determining the effect of percent crystallinity on the surface features of retrieved crosslinked polyethylene acetabular liners, *Transactions of the 29th Annual Meeting of the Society for Biomaterials*, Poster presentation, Reno, NV, 2003.
240. Foot L, **Willie BM**, Bloebaum RD, Hofmann AA, Crystallinity measurements in retrieved crosslinked and conventional polyethylene tibial inserts, *Transactions of the 29th Annual Meeting of the Society for Biomaterials*, Poster presentation, Reno, NV, 2003.
241. Bloebaum RD, **Willie BM**, Bachus KN, Validation of mechanical loading of a porous coated implant in the medial condyle of the sheep, *Transactions of the 29th Annual Meeting of the Society for Biomaterials*, Oral presentation, Reno, NV, 2003.
242. **Willie BM**, Bloebaum RD, Bireley WR, Watts CW, Szakacs JG, Hofmann AA, Biocompatibility testing in thermo-cleaned porous coated implants in a sheep model, *Transactions of the 29th Annual Meeting of the Society for Biomaterials*, Poster presentation, Reno, NV, 2003.
243. Griffith S, Maxwell J, Gilbert T, **Willie BM**, Bloebaum R, Quantitative computed tomography (QCT) to assess mineralization in fusion cages compared to histomorphometry, *Transactions of the World Spine II*, Oral presentation, Chicago, IL, 2003.
244. Maxwell J, Theodore N, Gilbert T, **Willie BM**, Bloebaum RD, Ordway N, Yuan H, Griffith S, A recombinant bone growth factor and a mineralized collagen matrix

(Healos/MP52) in threaded interbody fusion cages, *North American Spine Society's 16th Annual Meeting,* Poster presentation Seattle, WA, 2001, *The Spine Journal*, 2:2 (Supplement 1), p.42, 2002.

245. Hayes H, **Willie BM**, Bloebaum RD, Jones R, Implant analysis of thirteen retrieved Bridge hip femoral stems, *Transactions of the 47th Annual Meeting of the Orthopedic Research Society*, Poster presentation, Dallas, TX, 2002.

246. Bloebaum RD, Bachus KN, **Willie BM**, Hofmann AA, Quantitative analysis of bone ingrowth into 14 postmortem porous coated total knee component, *Transactions of the 47th Annual Meeting of the Orthopedic Research Society*, Poster presentation, Dallas, TX, 2002.

247. **Willie BM**, Le D, Foot L, Bloebaum RD, Hofmann AA, Assessment of oxidation resistance using FTIR in a series of retrieved Durasul crosslinked acetabular liners, *Transactions of the 28th Annual Meeting of the Society for Biomaterials,* Poster presentation, Tampa, FL, 2002.

248. **Willie BM**, Larson J, Steffensen T, Ashrafi S, Bloebaum RD, A comparative analysis of the density of shelf aged standard and highly crosslinked UHMWPE acetabular liners, *Transactions of the 28th Annual Meeting of the Society for Biomaterials,* Poster presentation, Tampa, FL, 2002.

249. **Willie BM**, Le D, Foot L, Bloebaum RD, Hofmann AA, Determination of in vivo oxidative resistance by density measurement in a series of retrieved Durasul highly crosslinked acetabular liners, *Transactions of the 28th Annual Meeting of the Society for Biomaterials,* Poster presentation, Tampa, FL, 2002.

250. Meldrum R, **Willie BM**, Bireley BR, Bloebaum RD, Inability of SEM using secondary and backscattered electron imaging analysis to determine the porosity of crosslinked and standard UHMWPE, *Transactions of the 28th Annual Meeting of the Society for Biomaterials,* Poster presentation, Tampa, FL, 2002.

251. Bloebaum RD, Bachus KN, **Willie BM**, Hofmann AA, Bone ingrowth analysis using a universal measurement technique, *Transactions of the 28th Annual Meeting of the Society for Biomaterials*, Poster presentation, Tampa, FL, 2002.

252. **Willie BM**, Ashrafi S, Burnett T, Bloebaum RD, The effect of resin type and sterilization method on the oxidation of UHMWPE, *Transactions of the 28th Annual Meeting of the Society for Biomaterials,* Poster presentation, Tampa, FL, 2002.

253. **Willie BM**, Bachus K, Bloebaum RD, Hofmann AA, Temperature changes in polyethylene associated with machining, *Transactions of the 27th Annual Meeting of the Society for Biomaterials,* Poster presentation, Minneapolis, MN, 2001.

254. Curtis BD, Gingell DT, **Willie BM**, Bloebaum RD, Effects of sterilization method and resin type on polyethylene density, *Transactions of the 27th Annual Meeting of the Society for Biomaterials,* Poster presentation, Minneapolis, MN, 2001.

255. **Willie BM**, Gingell DT, Bloebaum RD, Hofmann AA, Calcium stearate's contribution to the formation of the white band, *Transactions of the 46th Annual Meeting of the Orthopedic Research Society*, Oral presentation, Orlando, FL, 2000.

256. Bloebaum RD, Bachus K, **Willie BM**, Hofmann AA, Quantitative review of human bone ingrowth in postmortem total knee implants, *Transactions of the 46th Annual Meeting of the Orthopedic Research Society*, Oral presentation, Orlando, FL, 2000.

257. **Willie BM**, Whitfield J, Bloebaum RD, Hofmann AA, Quantitative analysis of calcium stearate particles in retrieved patellar components, *Transactions of the 45th Annual Meeting of the Orthopedic Research Society*, Poster presentation, Anaheim, CA, 1999.
258. **Willie BM**, Shea JE, Bloebaum RD, Hofmann AA, Distinguishing between bone cement, bone, calcium stearate, and hydroxyapatite as third body particulate in polyethylene, *Transactions of the 25th Annual Meeting of the Society for Biomaterials*, Oral presentation, Providence, RI, 1999.
259. **Willie BM**, Bloebaum RD, Hofmann AA, Analysis of calcium stearate particles in the white band region of retrieved polyethylene components, *Transactions of the 25th Annual Meeting of the Society for Biomaterials*, Poster presentation, Providence, RI, 1999.
260. Brodke DS, **Willie BM**, Bloebaum RD, Clinical and implant retrieval assessment of corpectomy reconstructions, *Transactions of the 13th Annual Meeting of the North American Spine Society*, Poster presentation, San Francisco, CA, 1998.