

CURRICULUM VITAE

Donal G. Sinex, Ph.D.
Department of Psychology
Utah State University
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Education:

Purdue University, West Lafayette, Indiana, B.S. in Psychology, 1972.
Washington University, St. Louis, Missouri, Ph.D. in Psychology, 1978.

Professional Experience:

NIH Predoctoral Trainee, Washington University, Department of Psychology, St. Louis, Missouri, 1974-1977.
Research Assistant, Boys Town Institute for Communication Disorders in Children, Omaha, Nebraska, 1977-1978
Research Associate, Central Institute for the Deaf, St. Louis, Missouri, 1978
NIH Postdoctoral Fellow, University of Wisconsin, Department of Neurophysiology, Madison, Wisconsin, 1978-1981
Assistant Research Scientist, Central Institute for the Deaf, St. Louis, Missouri, 1981-1984
Assistant Professor of Psychology, Department of Speech and Hearing, Washington University, St. Louis, Missouri, 1981-1984
Collaborator, Los Alamos National Laboratory, Life Sciences Division, Los Alamos, New Mexico, 1984
Staff Member, Life Sciences Division, Los Alamos National Laboratory, 1985-1990
Group Leader, Biophysics/Neurobiology Group, 1985-1987
Group Leader, Physiology Group, 1987-1989
Adjunct Associate Professor, Department of Physiology, University of New Mexico School of Medicine, Albuquerque, New Mexico, 1987-1990
Neural Coding Laboratory Coordinator, Boys Town National Research Hospital, Omaha, Nebraska, 1990 - 1995
Associate Professor of Human Communication, Department of Otolaryngology and Human Communication, Creighton University School of Medicine, Omaha, Nebraska, 1990 - 1995
Associate Professor, Department of Speech and Hearing Science, Arizona State University, 1995 - 2001
Professor, Department of Speech and Hearing Science, Arizona State University, 2001 - 2004
Professor, Department of Psychology, Utah State University, 2004 -

Other current university affiliations:

Senior Research Scientist, National Center for Hearing Research and Management, Utah State University, 2004 -
Adjunct Professor, Department of Biology, Utah State University, 2005 -
Member, The Brain Institute at the University of Utah, 2006 -

Memberships in Professional Societies:

Acoustical Society of America, Association for Research in Otolaryngology, Society for Neuroscience, American Association for the Advancement of Science

Research Interests:

The perception and processing of complex sounds in the auditory system. Neurophysiological mechanisms in auditory scene analysis. Neurophysiological mechanisms in hereditary hearing loss.

Publications:

- Sinex, D.G., Burdette, L.J., and Pearlman, A.L. (1979). "A psychophysical investigation of spatial vision in the normal and the reeler mutant mouse," *Vision Res.*, 19, 853-857. *PMID: 516456*
- Geisler, C.D. and Sinex, D.G. (1980). "Responses of primary auditory fibers to combined noise and tonal stimuli," *Hear. Res.* 3, 317-334. *PMID: 7451379*
- Sinex, D.G. and Geisler, C.D. (1981). "Auditory-nerve fiber responses to frequency-modulated tones," *Hear. Res.* 4, 127-148. *PMID: 7240021*
- Geisler, C.D. and Sinex, D.G. (1982). "Responses of primary auditory fibers to brief tone bursts," *J. Acoust. Soc. Am.* 72, 781-794. *PMID: 7130537*
- Sinex, D.G. and Geisler, C.D. (1983). "Responses of auditory-nerve fibers to consonant-vowel syllables," *J. Acoust. Soc. Am.* 73, 602-615. *PMID: 6841800*
- Geisler, C.D. and Sinex, D.G. (1983). "Comparisons of click responses of primary auditory fibers with minimum-phase predictions," *J. Acoust. Soc. Am.* 73, 1671-1675. *PMID: 6863744*
- Sinex, D.G. and Havey, D.C. (1984). "Correlates of tone-on-tone masked thresholds in the chinchilla auditory nerve," *Hear. Res.*, 13, 285-292. *PMID: 6735935*
- Sinex, D.G. and Geisler, C.D. (1984). "Comparison of the responses of auditory nerve fibers to consonant-vowel syllables with predictions from linear models," *J. Acoust. Soc. Am.* 76, 116-121. *PMID: 6747103*
- Sinex, D.G. and Havey, D.C. (1986). "Neural mechanisms of tone-on-tone masking: patterns of discharge rate and discharge synchrony related to rates of spontaneous discharge in the chinchilla auditory nerve," *J. Neurophysiol.*, 56, 1763-1780. *PMID: 3806187*
- Sinex, D.G., Clark, W.W., and Bohne, B.A. (1987). "Effects of periodic rest on physiological measures of auditory sensitivity following exposure to noise," *J. Acoust. Soc. Am.*, 82, 1265-1273. *PMID: 3680783*
- Sinex, D.G. and McDonald, L.P. (1988). "Average discharge rate representation of voice-onset time in the chinchilla auditory nerve," *J. Acoust. Soc. Am.*, 83, 1817-1827. *PMID: 3403796*
- Sinex, D.G. and McDonald, L.P. (1989). "Synchronized discharge rate representation of voice-onset time in the chinchilla auditory nerve," *J. Acoust. Soc. Am.*, 85, 1995-2004. *PMID: 2732380*
- Mott, J.B., McDonald, L.P., and Sinex, D.G. (1990). "Neural correlates of psychophysical release from masking," *J. Acoust. Soc. Am.*, 88, 2682-2691. *PMID: 2283440*
- Sinex, D.G., McDonald, L.P., and Mott, J.B. (1991). "Neural correlates of nonmonotonic temporal acuity for voice onset time," *J. Acoust. Soc. Am.*, 90, 2441-2449. *PMID: 1774413*
- Sinex, D.G. (1993). "Auditory nerve fiber representation of cues to voicing in syllable-final stop consonants," *J. Acoust. Soc. Am.*, 94, 1351-1362. *PMID: 8408976*
- Sinex, D.G. and Narayan, S.S. (1994). "Auditory nerve fiber representation of temporal cues to voicing in word-medial stop consonants," *J. Acoust. Soc. Am.*, 95, 897-903. *PMID: 8132904*
- Chen, G.D., Nuding, S.C., Narayan, S.S., and Sinex, D.G. (1996). "Responses of single neurons in the chinchilla inferior colliculus to consonant-vowel syllables differing in voice-onset time", *Aud. Neurosci.*, 3, 179-198.
- Sinex, D.G. (1997). "Anatomical localization of electrophysiological recording sites by coordinate transformation," *J. Neurosci. Meth.*, 75, 35-39. *PMID: 9262141*
- Nuding, S.C., Chen, G.D., and Sinex, D.G. (1999). "Monaural response properties of single neurons in the chinchilla inferior colliculus", *Hear. Res.*, 131, 89-106. *PMID: 10355607*
- Chen, G.D. and Sinex, D.G. (1999). "Effects of interaural time differences on the responses of chinchilla inferior colliculus neurons to consonant-vowel syllables", *Hear. Res.*, 138, 29-44. *PMID: 10575112*
- Sinex, D.G. and Chen, G.D. (2000). "Neural responses to the onset of voicing are unrelated to other measures of temporal resolution", *J. Acoust. Soc. Am.*, 107, 486-495. *PMID: 10641656*
- Snyder, R.L., Sinex, D.G., McGee, J. and Walsh, E.J. (2000). "Acute spiral ganglion lesions change the tuning and tonotopic organization of cat inferior colliculus neurons", *Hear. Res.*, 147, 200-220. *PMID: 10962186*

- Cetas, J.S., Price, R.O., Velenovsky, D.S., Sinex, D.G., and McMullen, N.T. (2001). "Frequency Organization and Cellular Lamination in the Medial Geniculate Body of the Rabbit", *Hear. Res.*, 155, 113-123. *PMID: 11335081*
- Sinex, D.G., López, D.E., and Warr, W.B. (2001). "Electrophysiological responses of cochlear root neurons", *Hear. Res.*, 158, 28-38. *PMID: 11506934*
- Cetas, J.S., Price, R.O., Velenovsky, D.S., Crowe, J., Sinex, D.G., and McMullen, N.T. (2002). "Cell types and response properties of neurons in the ventral division of the medial geniculate body of the rabbit", *J. Comp. Neurol.*, 445, 78-96. *PMID: 11891655*
- Snyder, R.L. and Sinex, D.G. (2002). "Immediate changes in tuning of cat inferior colliculus neurons measured with fixed, indwelling electrodes", *J. Neurophysiol.*, 87, 434-452. *PMID: 11784761*
- Sinex, D.G., Sabes, J.H., and Li, H. (2002). "Responses of inferior colliculus neurons to harmonic and mistuned complex tones", *Hear. Res.*, 168, 150-162. *PMID: 12117517*
- Sinex, D.G., Li, H., Henderson, J. and Chen, G.D. (2002) "Responses of chinchilla inferior colliculus neurons to amplitude-modulated tones with different envelopes", *J. Assoc. Res. Otolaryngol.*, 3, 390-402. *PMID: 12486595*
- Velenovsky, D.S., Cetas, J.S., Price, R.O., Sinex, D.G., and McMullen, N.T. (2003). "Functional subregions in primary auditory cortex defined by thalamocortical arbors: An electrophysiological and anterograde labeling study", *J. Neurosci.*, 23, 308-316. *PMID: 12514229*
- Sinex, D.G., Guzik, H., Li, H., and Sabes, J.H. (2003). "Responses of auditory nerve fibers to harmonic and mistuned complex tones", *Hear. Res.*, 182, 130-139. *PMID: 12948608*, [http://dx.doi.org/10.1016/S0378-5955\(03\)00189-8](http://dx.doi.org/10.1016/S0378-5955(03)00189-8)
- Sinex, D.G., Li, H., and Velenovsky, D.S. (2005). "Prevalence of stereotypical responses to mistuned complex tones in the inferior colliculus", *J. Neurophysiology*, 94, 3523-3537. *PMID: 16079190*, <http://dx.doi.org/10.1152/jn.01194.2004>
- Li, H., Sabes, J.H., and Sinex, D.G. (2006). "Responses of Inferior Colliculus Neurons to SAM Tones Located in Inhibitory Response Areas", *Hear. Res.*, in press

Book Chapters:

- Sinex, D.G. (1993). "Simulation of neural responses that underlie speech discrimination," in *Neural Systems: Analysis and Modeling*, Frank H. Eeckman, ed., pp. 307-313 (Kluwer Academic Publishers, Norwell, MA).
- Portfors, C.V. and Sinex, D.G. (2005). "Coding of Communication Sounds in the Inferior Colliculus," in *The Inferior Colliculus*, J.A. Winer and C.E. Schreiner, eds., (Springer-Verlag, New York).
- Sinex, D.G. (2005). "Spectral processing and sound source determination", in *Auditory Spectral Processing*, M. Malmierca and D. Irvine, eds., (Elsevier, San Diego). *PMID: 16472640*

Selected Published Abstracts (since 2000):

- Cetas, J.S., Velenovsky, D., Price, R., Sinex, D.G., and McMullen, N.T. (2000). "Frequency organization and cellular laminae in the rabbit medial geniculate body", Abstracts of the Twenty-third Midwinter Meeting of the Association for Research in Otolaryngology.
- Sinex, D.G., Li, H., and Henderson, J. (2000). "Modulation transfer functions of chinchilla inferior colliculus neurons", Abstracts of the Society for Neuroscience Annual Meeting.
- Velenovsky, D.S., Cetas, J.S., Price, R.O., Sinex, D.G., and McMullen, N.T. (2001) "Correspondence between functional subregions and thalamocortical terminal fields in AI arising from the ventral division of the medial geniculate body." Abstracts of the Midwinter Meeting of the Association for Research in Otolaryngology.
- Snyder, R.L. and Sinex, D.G. (2001). "Immediate changes in tuning of cat inferior colliculus (IC) neurons following acute spiral ganglion lesions", International Symposium on the Central Auditory System, Salamanca, Spain
- Li, H., Henderson, J., and Sinex, D.G. (2002). "Responses of Inferior Colliculus Neurons to SAM Tones Located in Inhibitory Response Area", Abstracts of the Midwinter Meeting of the Association for Research in Otolaryngology.

- Snyder, R.L. and Sinex, D.G. (2002). "Immediate changes in the responses of cat inferior colliculus neurons to restricted spiral ganglion lesions", Abstracts of the Midwinter Meeting of the Association for Research in Otolaryngology.
- Sinex, D.G., Li, H., and Sabes, J.H. (2003). "Modeling spectral integration that underlies IC responses to complex tones", Abstracts of the Midwinter Meeting of the Association for Research in Otolaryngology.
- Li, H., Sabes, J.H., and Sinex, D.G. (2003). "Responses of inferior colliculus neurons to SAM stimuli with varied modulation depth", Abstracts of the Midwinter Meeting of the Association for Research in Otolaryngology.
- Snyder, R.L., Bonham, B.H., and Sinex, D.G. (2003). "Immediate changes in response properties of cat inferior colliculus neurons following sequential spiral ganglion lesions", Abstracts of the Midwinter Meeting of the Association for Research in Otolaryngology.
- Sinex, D.G. and Li, H. (2004). "Effect of component phase on responses of inferior colliculus neurons to harmonic and mistuned complex tones", Abstracts of the Midwinter Meeting of the Association for Research in Otolaryngology.
- Velenovsky, D.S., Holmes, M.G., Sinex, D.G., and McMullen, N.T. (2004). "Laminar organization of tectothalamic bands and synaptic nests in the rabbit auditory thalamus", Abstracts of the Midwinter Meeting of the Association for Research in Otolaryngology.
- Sinex, D.G. and Li, H. (2005). "Responses of inferior colliculus neurons to simultaneous complex tones with different fundamental frequencies", Abstracts of the Midwinter Meeting of the Association for Research in Otolaryngology.

Seminars and invited presentations at professional meetings (since 2000):

- "Representation of temporal information by inferior colliculus neurons", Boys Town National Research Hospital, Omaha, NE, September, 2000
- "Representation of temporal information by inferior colliculus neurons", Department of Psychology, Arizona State University, October, 2000
- "Recent advances in auditory physiology", Arizona State Schools for the Deaf and the Blind Statewide Conference, January, 2001
- "Responses of inferior colliculus neurons to mistuning in harmonic complex tones", Sinex, D.G., Henderson, J., and Li, H., International Symposium on the Central Auditory System, Salamanca, Spain, May, 2001
- "Representation of temporal information in the inferior colliculus", Department of Cell Biology and Pathology, University of Salamanca, Spain, June, 2002
- "Neural correlates of spectral segregation", 147th Meeting of the Acoustical Society of America, New York, May 2004
- "Auditory temporal processing and the segregation of simultaneous sounds", Department of Otolaryngology, University of California, San Francisco, January, 2005.
- "Listening to two things at once: Auditory processing of simultaneous sounds", Department of Biology, Utah State University, April, 2005.
- "Auditory processing and the segregation of simultaneous sounds", Kresge Hearing Research Institute, University of Michigan, April, 2005

Grants and Awards received:

- NIH Postdoctoral Fellowship, 1978-1981.
- NINCDS R01-NS23242, "Auditory Nerve Fiber Responses to Speech," 1985-1988, Total direct costs: Approximately \$270,000
- NIDCD R01-DC00341, "Auditory Nerve Fiber Responses to Speech," 1989-1994, Total direct costs approximately \$789,000
- 1994-1999, Total direct costs: \$707,133

NIDCD R01-DC00341, "Auditory Processing of Temporally-complex Sounds,"
2001-2003, Total direct costs: \$427,500.
2004-2009, Total direct costs: \$750,000.

Grants submitted:

To NSF, "Sound-Driven Activity Of Cochlear Root Neurons", \$720,735

Doctoral Dissertation:

"Cross-modality temporal resolution for auditory, vibrotactile, and visual stimuli." Washington University, Department of Psychology, 1978. (Chairman: Professor C.S. Watson)

Professional Activities and Service:

Member, Technical Committee on Psychological and Physiological Acoustics, Acoustical Society of America, 1988-1994; 2002-present

Member, Award of Merit Committee, Association for Research in Otolaryngology, 1994 - 1995

Member, University of California Task Force on Alternatives to Animals in Research, 1987-1988.

Member, Planning Committee, NIDCD Second Biennial Conference on Hearing Aid Research and Development, 1997

Member, Steering Committee, International Hearing Aid Conference, Lake Tahoe, NV, August, 2000

Member, Animal Use Interest Group, Association for Research in Otolaryngology, 2001

Visiting Professor, Department of Cell Biology and Pathology, University of Salamanca, Spain, May-June 2002

Member, Steering Committee, Conference on Implantable Auditory Prostheses, Asilomar, CA, July 2005

Ad hoc reviewer:

Grant proposals:

National Science Foundation, National Institute on Deafness and Other Communication Disorders, National Health and Medical Research Council (Australia)

Manuscripts:

Auditory Neuroscience, Hearing Research, Journal of the Acoustical Society of America, Journal of the Association for Research in Otolaryngology, Journal of Comparative Neurology, Journal of Phonetics, Journal of Neurophysiology, Journal of Speech and Hearing Research, Speech Communication, Handbook of Acoustics, Ear and Hearing

Teaching and student supervision:

Courses at Arizona State University

"Physical and Physiological Bases of Hearing", SHS311

"Audiological Instrumentation and Calibration", SHS515

"Otoacoustic Emissions as a Diagnostic Tool", SHS552

"Central Auditory Mechanisms in Hearing Impairment", SHS591

Courses at Utah State University

"Perception and Psychophysics", Psych3450

Doctoral Students Supervised

Department of Speech and Hearing Science, Arizona State University:

Hongzhe Li. Ph.D. awarded 2003.

Jennifer Henderson Sabes, 1998-2004.

Doctoral Dissertation Committees:

- C.C. Formby, Washington University, Department of Speech and Hearing,
Ph.D. awarded 1982.
- J.P. Gagne, Washington University, Department of Speech and Hearing,
Ph.D. awarded 1983.
- Janet Fitzakerly, Creighton University, Department of Biomedical Sciences,
Ph.D. awarded 1992.
- Kenneth Levy, Arizona State University, Department of Bioengineering,
Ph.D. awarded 1996.
- Michelle Hicks, Arizona State University, Department of Speech and Hearing Science,
Ph.D. awarded 1997
- Jodi Cook, Arizona State University, Department of Speech and Hearing Science,
Ph.D. awarded 1998
- Russell Witte, Arizona State University, Department of Bioengineering,
Ph.D. awarded 2002.
- Rene Gifford, Arizona State University, Department of Speech and Hearing Science,
Ph.D. awarded 2003
- Corina Jimenez-Gomez, Utah State University, Department of Psychology, Ph.D. expected 2007
- Ryan Ward, Utah State University, Department of Psychology, Ph.D. expected 2007
- Arian Baquero, Utah State University, Department of Biology, Ph.D. expected 2008
- Aaron Olsen, Utah State University, Department of Animal, Dairy, and Veterinary Science,
Ph.D. expected 2008

Master's Thesis Committees:

- Virelle Powell, Arizona State University, Department of Speech and Hearing Science,
M.S. awarded 1996
- Melanie Gregan, Arizona State University, Department of Speech and Hearing Science,
M.S. awarded 1997
- Mona Dworsack, Arizona State University, Department of Speech and Hearing Science,
M.S. awarded 1998
- Catherine Marsh, Arizona State University, Department of Speech and Hearing Science,
M.S. awarded 1999
- Anthony Spahr, Arizona State University, Department of Speech and Hearing Science,
M.S. awarded 2001
- Jennifer Repovsch, Arizona State University, Department of Speech and Hearing Science,
M.S. awarded 2001
- Erica Williams, Arizona State University, Department of Speech and Hearing Science,
M.S. awarded 2003
- Ericka Bailey, Utah State University, Department of Psychology, M.S. expected 2006

Postdoctoral fellows supervised:

- John B. Mott, Ph.D., Los Alamos National Laboratory, 1988-1990.
- S. Shyamla Narayan, Ph.D., Boys Town National Research Hospital, 1991-1994.
- Sarah C. Nuding, Ph.D., Boys Town National Research Hospital, 1992-1995.
- Guang-Di Chen, Ph.D., Boys Town National Research Hospital, 1993-1995; Arizona State
University, 1995-1998
- Jialong He, Ph.D., Arizona State University, 1998-1999
- Hongzhe Li, Ph.D., Arizona State University, 2003-2004
- David Velenovsky, Ph.D., Arizona State University, 2003

Institutional service:

Los Alamos National Laboratory:

Review committee for Institutionally Supported Research and Development Grants,
Life Sciences Division, 1988-1990.

Boys Town National Research Hospital:

Committee on Animal Care, 1990-1995; Chair, 1992-1995.

Institutional Animal Care and Use Committee (IACUC), Chair, 1994-1995.

Computer and Electronics Committee, 1990-1995.

Deaf and Minorities Training Subcommittee of Committee on Training,
1991-1995; Chair, 1993-1995.

Internal Review Committee, Chair, 1991-1992

Creighton University School of Medicine:

Committee on Animal Research, 1992-1995.

Arizona State University, Department of Speech and Hearing Science:

Interdisciplinary Ph.D. Committee, 1995

Promotion and Tenure Committee, 1996 – 1998; Chair, 2002-2004

Personnel and Budget Committee, 1996 – 1998; 2000-2002

Academic Program Review Committee, Chair, 1999 – 2000

AuD Degree Planning Committee, Chair, 2000-2002

AuD Admissions Committee, 2004

Search Committees:

Coordinator of American Sign Language, 1996-1997

Department Chair, 1997-1998

American Sign Language Instructors, 1997-1998

Clinical faculty in Speech-Language Pathology, 1998

Assistant Professor in Speech-Language Pathology, 2000-2001

Assistant Professor in Audiology, 2003-2004

Arizona State University, College of Liberal Arts and Sciences:

Senate, 1996 - 1998

Arizona State University, Graduate College:

Director, Interdisciplinary Ph.D. in Speech and Hearing Science, 1999 - 2002

Utah State University, Department of Psychology

Program Chair, Experimental and Applied Psychological Science Ph.D. Program, 2006-

Ad hoc Promotion and Tenure Committees (3), 2004-

Current on August 3, 2006