## Table of Contents

- Program Chair 4
- Program Agenda 6
- Technology Update Abstracts 14
- Translational Research Abstracts 17
- Special Session Abstracts 18
- Carhart Memorial Lecture 19
- Life Achievement Award 20
- Young Investigator Presentation Abstract 20
- Posters – Titles and Authors 21

### General Information

The American Auditory Society is approved by the American Academy of Audiology to offer Academy CEUs for this activity. The program is worth a maximum of 1.9 CEUs. Academy approval of this continuing education activity does not imply endorsement of course content, specific products, or clinical procedures. Any views that are presented are those of the presenter/CE Provider and not necessarily of the American Academy of Audiology.

The International Hearing Society awards 19 credit hours of CEU’s.

This program is approved by the Arizona Department of Health Services for 19 credit hours.

### Disclosure Policy

It is the policy of the American Auditory Society to ensure balance, independence, objectivity and scientific rigor in all its educational activities. All faculty participating in this activity are expected to disclose to the audience any significant financial or non-financial interest or other relationship he/she has that could impair his/her judgment and/or influence or bias the content discussed in an educational presentation.
FRIDAY NIGHT EVENT

Join us Friday, March 7 at the Desert Botanical Garden for refreshments and fun! Buses will pick up under the bridge where the hotel bridges together in the east crosswalk (under the restaurant) at 5:45 pm and take us to the Garden. The Desert Botanical Garden offers the world’s finest collection of arid-land plants from deserts of the world in a unique outdoor setting. The Garden has more than 50,000 desert plants on display throughout five thematic trails that illustrate topics such as conservation, desert living, plants and people of the Sonoran Desert, and desert wildflowers. Guests will also be able to view pieces from the Chihuly in the Garden exhibit. The exhibition features multiple installations and artworks on view throughout the Garden’s trails by artist Dale Chihuly. Chihuly is credited with revolutionizing the Studio Glass movement and elevating the perception of the glass medium from craft to fine art. He is renowned for his ambitious architectural installations around the world, in historic cities, museums and gardens. Please join us for an unforgettable evening of refreshments and fun.

Tickets for the Friday night event can be purchased at the AAS Registration Desk.

AAS EXECUTIVE BOARD

Harvey Abrams, PhD
Carmen Brewer, PhD
Rafael Delgado, PhD
Sumitrajit Dhar, PhD
Jill Firszt, PhD
Patricia Jeng, PhD
Charles Limb, MD
Lawrence Lustig, MD
Beth Prieve, PhD
Kelly Tremblay, PhD
Patrick Zurek, PhD

Ex-Officio
Brenda Ryals, PhD

Immediate Past President
Yvonne Sininger, PhD

OFFICERS
President
Linda Hood, PhD

President-Elect
Konstantina Stankovic, MD, PhD

Treasurer
Anil Lalwani, MD
Welcome to the 2014 American Auditory Society Scientific and Technology Meeting! This meeting continues the tradition of bringing updates on the latest developments in science, technology and clinical practice in a collegial environment in sunny Arizona.

We are most grateful for continued support from NIDCD via a conference grant (R13), which has allowed us to bring outstanding Translational Research Speakers to the meeting while also supporting Student Travel Awards. This year 20 students were selected in the highly competitive Mentored Graduate Student and Resident Research Poster category. In addition, 14 AuD students who completed T35 Research Traineeships are receiving travel support. We congratulate all of our student award recipients! We look forward to a presentation from our NIDCD colleagues who will provide important information about research and funding on Friday afternoon.

Two new investigators were selected to receive travel support from the Society to attend the 2014 meeting. We congratulate these new investigators and look forward to learning about their research.

The 2014 distinguished Translational Research Speakers are Dr. Sharon Kujawa who will speak on cochlear neurodegeneration in noise and aging, Dr. Lawrence Lustig speaking on cochlear gene therapy, and Dr. Louise Hickson who will discuss hearing aid adoption and use. On Saturday afternoon, a group of scientists and clinicians will convene to present a Special Session on ear drug delivery systems. This session will include excellent presentations by Dr. Anil Lalwani, Dr. Michael McKenna, Dr. Alec Salt, and Dr. Robert Shepherd.

The Carhart Lecturer this year is Dr. Eric Young of Johns Hopkins University. Dr. Young is a world leader on the neurophysiology of the auditory system. His lecture, Changes in Central Auditory Processing Following Acoustic Trauma, at 5 pm on Thursday will be followed by a reception that will give all attendees an opportunity to meet and talk casually with all of the 2014 Speakers. The Awards Luncheon on Friday, hosted by our President Dr. Linda Hood, will include tribute to Dr. Donald Dirks, 2014 recipient of the AAS Life Achievement Award. In addition, Dr. Brenda Ryals, Editor of Ear and Hearing, will present the Editor’s Award for the best manuscript in our journal.

The Technology Updates will kick off the meeting on Thursday morning. The Poster Sessions will be organized by topic area, and the posters will remain on display for two full days, from Thursday through Saturday. The Young Investigator presentation on Friday morning will be given by Dr. Jason Tait Sanchez.
On Friday evening, the AAS Social – a longstanding tradition in the Society – will take place at the Desert Botanical Garden. We hope you will join us in exploring the Garden, centrally located in the heart of breathtaking Papago Park.

As we gather again at the Chaparral Suites Hotel and Resort in sunny Scottsdale, be sure to enjoy the complimentary breakfast, free internet access, hotel happy hour, and complimentary transportation to and from the Phoenix Sky Harbor Airport. As in past years, the Society will provide lunches on the patio on Thursday and Saturday, and in the Ballroom on Friday during the awards ceremony.

I am indebted to the members of the Program and Abstract Review Committee who have assured that this year’s program is of the highest quality. Their many hours of work are most appreciated!

Program Committee members are:
Carmen Brewer
Lauren Calandruccio
Anil Lalwani
Barbara Herrmann
Kelly Tremblay
Lynne Marshall

The 2014 program of invited speakers, exciting podium and poster presentations, and special events promises to be stimulating and refreshing in a beautiful environment. We appreciate the loyalty of our members and annual meeting attendees. We look forward to your comments, and hope that you enjoy our 2014 meeting to the fullest!

Konstantina M. Stankovic, MD, PhD
Program Chair
PROGRAM AGENDA

WEDNESDAY, MARCH 5, 2014

8:00 AM – 12:00 PM  Ear and Hearing Editorial Board Meeting
1:00 PM – 5:00 PM  AAS Executive Board Meeting
1:00 PM – 7:00 PM  Early Registration  WEST FOYER

THURSDAY, MARCH 6, 2014

7:00 AM – 5:00 PM  Registration  WEST FOYER
8:00 AM – 11:55 AM  Technology Updates

8:00 AM – 8:55 AM  Technology Updates, Session 1

8:00 AM – 8:25 AM  First Round
Session 1A  ReSound LiNX: The World’s Smartest Hearing Aid (Tech 1A)
Stephen A. Hallenbeck, AuD, GN ReSound  MOHAVE I
Session 1B  Introducing Fuel Cells in Hearing Aids (Tech 1B)
Aart van Halteren, PhD, Sonion Nederland BV  MOHAVE III
Session 1C  A New CROS Hearing Aid (Tech 1C)
Francis Kuk, PhD, Widex ORCA-USA  PALOMA I
Session 1D  New Products from Sensimetrics: Hearing Loss Simulation and Tinnitus Sound Therapy (Tech 1D)
Patrick Zurek, PhD, Sensimetrics Corporation  PALOMA III

8:30 AM – 8:55 AM  Repeat of Sessions 1A through 1D

9:00 AM – 9:55 AM  Technology Updates, Session 2

9:00 AM – 9:25 AM  First Round
Session 2A  HEARLab News (Tech 2A)
George J. Frye, President, Frye Electronics, Inc.  MOHAVE I
Session 2B  Jumping the Curve with Smartphone and Mobile Applications for Hearing Technology (Tech 2B)
Michelle L. Hicks, PhD, Starkey Hearing Technologies  MOHAVE III
Session 2C  Real ear measurements: diagnostics and calibration using Wideband Acoustic Immittance (Tech 2C)
Jont Allen, PhD, Mimosa Acoustics  PALOMA I
Session 2D  It’s only a Model: Revamping Receiver Models for Acoustic Simulations (Tech 2D)
Daniel Warren, PhD, Knowles Electronics  PALOMA III

9:30 AM – 9:55 AM  Repeat of Sessions 2A through 2D
THURSDAY, MARCH 6, 2014

10:00 AM – 10:55 AM  Technology Updates, Session 3

10:00 AM – 10:25 AM  First Round

Session 3A  An Automated Tablet Audiometer (Tech 3A)  
Robert H. Margolis, PhD, Audiology Incorporated  MOHAVE I

Session 3B  Making it Easier with EasyRECD and SmartFit Trainer (Tech 3B)  
Annette Mazevski, PhD, Oticon, Inc.  MOHAVE III

Session 3C  SmartEP - Total Control (Tech 3C)  
Rafael E. Delgado, PhD, Intelligent Hearing Systems  PALOMA I

Session 3D  The Next Iteration Adaptive Feedback Cancellation: Clinical Outcome Benefit and Improvements in Fitting Process Efficiency (Tech 3D)  
David Akbari, AuD, Intricon Corporation  PALOMA III

10:30 AM – 10:55 AM  Repeat of Sessions 3A through 3D

11:00 AM – 11:55 AM  Technology Updates, Session 4

11:00 AM – 11:25 AM  First Round

Session 4A  Tinnitus Sound Therapy: Selection and Programming (Tech 4A)  
Thomas A. Powers, PhD, Siemens Hearing Instruments, Inc.  MOHAVE I

Session 4B  Wideband Tympanometry (Tech 4B)  
Navid Shahnaz, PhD, Interacoustics  MOHAVE III

Session 4C  A Review of Directional Microphones Available from Phonak (Tech 4C)  
Aniket Saoji, PhD, Phonak  PALOMA I

Session 4D  A New Tool for Maintaining Appropriate BC ABR Force in Newborn Testing (Tech 4D)  
Leigh G. Schaid, PhD; Lisa Hunter, PhD, Cincinnati Children’s Hospital Medical Center; Gail Gudmundsen, AuD, Etymotic Research, Inc.  PALOMA III

11:30 AM – 11:55 AM  Repeat of Sessions 4A through 4D

12:00 PM – 1:00 PM  LUNCH OUTDOORS ON THE WEST PATIO

1:10 PM – 1:30 PM  Opening Comments  KIVA-HACIENDA
Linda Hood, PhD, AAS President  
Konstantina Stankovic, MD, PhD, President-Elect and Program Chair

1:30 PM – 2:30 PM  Translational Research I  KIVA-HACIENDA
Moderator: Linda Hood, PhD

Cochlear Neurodegeneration in Noise and Aging  
Sharon Kujawa, PhD  
Massachusetts Eye & Ear Infirmary, Boston, MA

2:45 PM – 4:45 PM  CONCURRENT PODIUM PRESENTATIONS  
(Abstracts at www.amauditorysoc.org)
THURSDAY, MARCH 6, 2014

Podium Session I: Speech Perception
Moderator: Lauren Calandruccio, PhD

2:40 PM – 3:00 PM  Evolutionary Triumph: Speech and Hearing Equilibrium – Tribute to Dr. Dirk's Work on Speech Intelligibility (Pod.I.A.)
Chas Pavlovic, PhD, Sound ID, Palo Alto, CA

3:00 PM – 3:20 PM  Neural Encoding of Speech in Healthy and Impaired Auditory Systems (Pod.I.B.)
Saradha Ananthakrishnan, PhD, Towson University, Towson, MD
Ananthanarayan Krishnan, PhD, Purdue University, West Lafayette, IN

3:20 PM – 3:40 PM  Competition Between Listening and Learning Strategies in Children with Hearing Loss (Pod.I.C.)
Andrea Pittman, PhD, Arizona State University, Tempe, AZ

3:40 PM – 4:00 PM  Effects of Working Memory and Language on Children’s Speech Perception (Pod.I.D.)
Meredith Spratford, AuD; Ryan McCreery, PhD, Boys Town National Research Hospital, Omaha, NE
Ellen Hatala, University of Iowa, Iowa City, IA

4:00 PM – 4:20 PM  Psychometric Functions Using a Small Number of Masked Sentences (Pod.I.E.)
Lauren Calandruccio, PhD; Emily Buss, PhD, The University of North Carolina at Chapel Hill, Chapel Hill, NC

4:20 PM – 4:40 PM  A Unified Approach for Measuring Audiovisual Speech Integration Skills (Pod.I.F.)
Nicholas Altieri, PhD, Idaho State University, Pocatello, ID

4:40 PM – 5:00 PM  Hearing Loss, Mental Effort and Fatigue: Not a Simple Relationship (Pod.I.G.)
Benjamin Hornsby, PhD; Zoe E. Doss, BS, Vanderbilt University, Nashville, TN

Podium Session II: Hearing Technology; Rehabilitation
Moderator: Patrick Zurek, PhD

2:45 PM – 3:05 PM  User Self-Adjustment of a Simulated Hearing Aid Using a Mobile Device (Pod.II.A.)
Dianne Van Tasell, PhD, University of Minnesota, Ear Machine LLC, Tucson, AZ
Andrew Sabin, PhD, Ear Machine LLC, Chicago, IL

3:05 PM – 3:25 PM  The Retina: A New Pathway for Hearing (Pod.II.B.)
Peter Poulsen, Temeku Technologies Inc, Herndon, VA

3:25 PM – 3:45 PM  Using GPS Location Data of Smartphones to Predict Listening Demand (Pod.II.C.)
Yu-Hsiang Wu, PhD; Shabih Hasan, MA; Octav Chipara, PhD; Elizabeth Stangl, AuD, University of Iowa, Iowa City, IA

3:45 PM – 4:05 PM  Stages of Change in Adults who Have Failed an Online Hearing Screening (Pod.II.D.)
Ariane Laplante-Lévesque1,2; K. Jonas Brännström1,3; Elisabeth Ingo1; Gerhard Andersson1,4; Thomas Lunner1,2
1 Department of Behavioural Sciences and Learning, Swedish Institute for Disability Research, Linköping University, Sweden; 2 Eriksholm Research Centre, Oticon A/S, Denmark; 3 Department of Logopedics, Phoniatrics and Audiology, Lund University, Sweden; 4 Department of Clinical Neuroscience, Karolinska Institute, Sweden

4:05 PM – 4:25 PM  Benefit of Integrative Therapy for Treatment of Severe Tinnitus (Pod.II.E.)
Rebecca Price, AuD; Ruth Wolever, PhD; Debara Tucci, MD, Duke University Medical Center, Durham, NC

4:25 PM – 4:45 PM  Interactive Multimedia Videos Promote Success in First-Time Hearing Aid Users (Pod.II.F.)
Melanie Ferguson, PhD; Marian Brandreth, MS, Nihr Nottingham Hearing Biomedical Research Unit, Nottingham, UK
William Brassington, MS, Nottingham University Hospitals NHS Trust
Paul Leighton, PhD; Heather Wharrad, PhD, Nottingham University, Nottingham, UK
THURSDAY, MARCH 6, 2014

Podium Session III: Middle Ear; Psychological Acoustics
Moderator: Mary Florentine, PhD

2:45 PM – 3:05 PM  Estimating Ear Canal Volume and Eardrum Compliance From Wideband Reflectance (Pod.III.A.)
Sarah Robinson, MS; Jont Allen, PhD, University Of Illinois, Urbana-Champaign, Urbana, IL
Suzanne Thompson, PhD, St. John’s University, Queens, NY

3:05 PM – 3:25 PM  Optimizing 2f1-f2 DPOAE Serial Measurement for Extended High Frequencies (Pod.III.B.)
Gayla Poling, PhD; Jungwha Lee, PhD, Northwestern University, Evanston, IL
Jonathan Siegel, PhD; Sumitrajit Dhar, PhD, Northwestern University and The Knowles Hearing Center

Harry Levitt, PhD; Elon Ullman, Advanced Hearing Concepts, Bodega Bay, CA
Helen Simon, PhD; Al Lotze, MS, Smith-Kettlewell Eye Research Institute, San Francisco, CA

3:45 PM – 4:05 PM  Detection of Conductive Hearing Loss in Newborns Using Wideband Absorbance (Pod.III.D.)
Lisa L. Hunter, PhD; Alaaeldin Elsayed, MD; Leigh Schaid, AuD, Cincinnati Children’s Hospital Medical Center, Cincinnati, OH
Douglas H. Keefe, PhD; Denis Fitzpatrick, PhD, Boys Town National Research Hospital, Omaha, NE
M. Patrick Feeney, PhD, National Center for Rehabilitative Auditory Research, Portland, OR

4:05 PM – 4:25 PM  Auditory Temporal Processing in Children: Rate Sensitivity at Different Ages (Pod.III.E.)
David Moore, PhD, Communication Sciences Research Center, Cincinnati, OH
Michelle Young; Oliver Zobay, PhD; David Maidment, PhD; Johanna Barry, PhD, MRC Institute of Hearing Research, Nottingham, UK

4:25 PM – 4:45 PM  On Estimating Detection and Discrimination Thresholds (Pod.III.F.)
Huanping Dai, PhD, Dept of Speech, Language, and Hearing Sciences, Tucson, AZ
Emily Buss, University of North Carolina, Chapel Hill, NC
Beverly Wright, Northwestern University, Evanston, IL

5:00 PM – 6:15 PM  Carhart Memorial Lecture
Moderator: Konstantina Stankovic, MD, PhD
Changes in Central Auditory Processing Following Acoustic Trauma
Eric D. Young, PhD
Professor of Biomedical Engineering
Johns Hopkins University, Baltimore, MD

6:30 PM – 7:30 PM  Opening Reception
FRIDAY, MARCH 7, 2014

7:00 AM – 5:30 PM  Registration

8:00 AM – 8:30 AM  Young Investigator Research Presentation
Moderator: Sumitrajit Dhar, PhD
Speed is Critical for Auditory Processing, Not for Starting an Academic Career
Jason Tait Sanchez, PhD
Northwestern University, Evanston, IL
FRIDAY, MARCH 7, 2014

8:30 AM – 10:30 AM  Poster Session  WEST PATIO, NORTH AND SOUTH FOYERS
Mentored Graduate Student and Resident Research Posters, T35 Student Research Trainee Posters, New Investigator Posters & General Posters
Abstracts available at www.amauditorysoc.org. Refer to page 21 for poster numbers and categories

10:30 AM – 11:30 AM  Translational Research II  HACIENDA-PALOMA
Moderator: Anil K. Lalwani, MD
Cochlear Gene Therapy
Lawrence Lustig, MD
University of California San Francisco, San Francisco, CA

12:00 PM – 1:15 PM  Awards Luncheon  MOHAVE-KIVA
Membership Update: Linda Hood, PhD, AAS President
Life Achievement Award: Donald Dirks, PhD

1:30 PM – 3:00 PM  NIDCD Research Presentation  HACIENDA-PALOMA
Moderator: Beth Prieve, PhD
NIDCD Funding Opportunities for Students and Young Investigators
Amy M. Donahue, PhD
Deputy Director, Division of Scientific Programs, Coordinator, Hearing and Balance NIDCD/NIH
Daniel A. Sklare, PhD
Research Training Officer and Program Director Division of Scientific Programs NIDCD/NIH

1:30 PM – 4:00 PM  Poster Session, continued  WEST PATIO, NORTH AND SOUTH FOYERS
Mentored Graduate Student and Resident Research Posters, T35 Student Research Trainee Posters, New Investigator Posters & General Posters
Abstracts available at www.amauditorysoc.org. Refer to page 21 for poster numbers and categories

6:00 PM – 11:00 PM  AAS Social at the Desert Botanical Garden
Buses will pick up at 5:45 pm under the bridge (where the hotel bridges together in the east crosswalk, under the restaurant). If you miss the first round of buses, there will be another. Don’t miss a great evening!

SATURDAY, MARCH 8, 2014

7:30 AM – 4:30 PM  Registration  WEST FOYER

8:00 AM – 9:00 AM  Translational Research III  KIVA-HACIENDA
Moderator: Harvey Abrams, PhD
Hearing Aid Adoption and Use
Louise Hickson, PhD
University of Queensland, Australia
# PODIUM SESSION IV: COCHLEAR IMPLANTS MOHAVE I-III

Moderator: Larry Lundy, MD

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:15 AM – 9:35 AM</td>
<td>Musical Training: Effect on Perception and Electrophysiologic Measures of Discrimination (Pod.IV.A.)</td>
<td>Carolyn Brown, PhD; Kate Gfeller, PhD; Paul Abbas, PhD; Eun Kyung Jeon, AuD; Virginia Driscoll, MS; Bruna Mussoi, MS; Viral Tejani, AuD, University of Iowa, Iowa City, IA</td>
</tr>
<tr>
<td>9:35 AM – 9:55 AM</td>
<td>Localization and ITD Thresholds for Implant Recipients with Hearing Preservation (Pod.IV.B.)</td>
<td>Rene Gifford, PhD; Wes Grantham, PhD; Sterling Sheffield, AuD; Timothy Davis, AuD; Robert Dwyer, Vanderbilt University, Nashville, TN; Michael Dorman, PhD, Arizona State University, Tempe, AZ</td>
</tr>
<tr>
<td>9:55 AM – 10:15 AM</td>
<td>Perceived Benefit Across Different Cochlear Implant Profiles (Pod.IV.C.)</td>
<td>Ann Perreau, PhD, Augustana College, Rock Island, IL; Hua Ou, PhD, Illinois State University, Normal, IL; Richard Tyler, PhD, University of Iowa, Iowa City, IA; Camille Dunn, PhD, University of Iowa Hospitals and Clinics, Iowa City, IA</td>
</tr>
<tr>
<td>10:15 AM – 10:35 AM</td>
<td>Dual-Carrier Strategy: Preliminary Cochlear Implant Data (Pod.IV.D.)</td>
<td>Frederic Apoux, PhD; Sarah Yoho; Eric Healy, PhD, The Ohio State University, Columbus, OH; Christopher Brown, PhD, University of Pittsburgh, Pittsburgh, PA</td>
</tr>
<tr>
<td>10:35 AM – 10:55 AM</td>
<td>REFRESHMENT BREAK</td>
<td></td>
</tr>
<tr>
<td>10:55 AM – 11:15 AM</td>
<td>Microphone Combination to Improve Cochlear Implant Performance in Windy Environments (Pod.IV.E.)</td>
<td>King Chung, PhD, Northern Illinois University, DeKalb, IL; Melissa Teske, AuD, Otolaryngology Associates</td>
</tr>
<tr>
<td>11:15 AM – 11:35 AM</td>
<td>Bilateral or Unilateral Cochlear Implants: Propensity Score-Matched Analysis (Pod.IV.F.)</td>
<td>Hua Ou, PhD, Illinois State University &amp; University of Iowa, Normal, IL; Michael Jones, PhD; Richard Tyler, PhD, University of Iowa, Iowa City, IA</td>
</tr>
<tr>
<td>11:35 AM – 11:55 AM</td>
<td>Vision Alters the Benefit of Bimodal and Bilateral CIs (Pod.IV.G.)</td>
<td>Shuai Wang; Sarah J. Cook; Michael F. Dorman, PhD, Arizona State University, Tempe, AZ</td>
</tr>
<tr>
<td>11:55 AM – 12:15 PM</td>
<td>Optogenetic Control of Central Auditory Pathways: The Next-Generation of ABI (Pod.IV.H.)</td>
<td>Keith Darrow, PhD; Maryanna Owoc, BS, Worcester State University, Worcester, MA; Elliott Kozin, MD; Daniel Polley, PhD; M. Christian Brown, PhD; Daniel Lee, MD, Harvard Medical School, Mass. Eye and Ear Infirmary, Boston, MA; Ariel Height, MS, PhD Candidate, Harvard Medical School, Division of Medical Sciences, Boston, MA; Edward Boyden, PhD, Massachusetts Institute of Technology, Cambridge, MA; Stéphanie Lacour, PhD, Ecole polytechnique fédérale de Lausanne</td>
</tr>
</tbody>
</table>
PODIUM SESSION V: AUDITORY DISORDERS  KIVA-HACIENDA  
Moderator: Carmen Brewer, PhD

9:15 AM – 9:35 AM  Designing Non-Ototoxic Aminoglycoside Antibiotics (Pod.V.A.)
Anthony Ricci, PhD; Markus Huth, MD; Michael Hsieh, MD; YiJu Hsieh, MD; Kyuhee Han, PhD; Robert Greenhouse, PhD; Alan Cheng, MD; Kayvon Soutadeh, BS; Sarah Verhoeven, MD; Andrew Vu, BS, Stanford University, Stanford, CA

9:35 AM – 9:55 AM  Comorbidity or Simultaneity? Sensorineural HL, CAPD, TBI, PTSD, Tinnitus (Pod.V.B.)
Leslie Jr Dalton, PhD; Gary R. Byrd, PhD, West Texas A&M Univ, Canyon, TX
Julia M. Stephen, PhD, The Mind Research Network, Albuquerque, NM

Robert Dobie, MD, University Of Texas HSC, San Antonio, TX

10:15 AM – 10:35 AM  Dual Sensory Loss: A Hearing Screening and Educational Model (Pod.V.D.)
Catherine McMahon, PhD, Macquarie University, North Ryde, NSW
Julie Schneider, PhD; Moira Dunsmore; Stephen Leeder, PhD, Menzies Centre For Health Policy, University of Sydney, Sydney, New South Wales
Bamini Gopinath, PhD; Jie Jin Wang, PhD; Paul Mitchell, PhD, Centre for Vision Research, Westmead, New South Wales

10:35 AM – 10:55 AM  REFRESHMENT BREAK

10:55 AM – 11:15 AM  Behavioral and Physiologic Responses in Children with Unilateral Hearing Loss (Pod.V.E.)
Megan Carter; Jill Firszt, PhD, Washington University School of Medicine, St Louis, MO

11:15 AM – 11:35 AM  Could Cognitive Screening Improve Audiologic Rehabilitation for Older Adults? (Pod.V.F.)
Akram Keymanesh, MS; Marilyn Reed, MS; Heather Finkelstein, MS; Debbie Ostroff, MS, Audiology, Baycrest Hospital, Toronto, ON
Kate Dupuis, PhD; M. Kathleen Pichora-Fuller, PhD, Psychology, University of Toronto, Mississauga, ON

11:35 AM – 11:55 AM  Interaction of Multiple ASSR Stimuli that Vary in Modulation Depth (Pod.V.G.)
Robert Burkard, PhD, University at Buffalo, Buffalo, NY

11:55 AM – 12:15 PM  Electrocochleography Obtained at High Stimulus Rates in Patients with Acoustic Tumor (Pod.V.H.)
Krzysztof Morawski, MD, PhD; Kazimierz Niemczyk, MD, PhD; Aleksandra Wezyk, MD; Katarzyna Pierchała, MD, PhD, Department of Otolaryngology, Medical University of Warsaw, Warsaw
Jorge Bohorquez, PhD; Rafael Delgado, PhD, Department of Biomedical Engineering, College of Engineering, University of Miami, Coral Gable, FL

PODIUM SESSION VI: EPIDEMIOLOGY; AUDITORY NEUROSCIENCE  PALOMA I-III  
Moderator: Kelly Tremblay, PhD

9:15 AM – 9:35 AM  Hearing Aid Use and Communication Difficulties Among Older US Adults (Pod.VI.A.)
Kathleen Bainbridge, PhD; Howard Hoffmann, MD, National Institute on Deafness and other Communication Disorders, Bethesda, MD

9:35 AM – 9:55 AM  Generational Differences in the Risk of Hearing Impairment (Pod.VI.B.)
Karen J. Cruickshanks, PhD; David M. Nondahl, MS; Dayna S. Dalton, MS; Mary E. Fischer, PhD; Barbara E.K. Klein, MD; Ronald Klein, MD; Ted S. Tweed, MA, University of Wisconsin, Madison, WI

9:55 AM – 10:15 AM  Fish and Fatty Acid Consumption and Hearing Loss in Women (Pod.VI.C.)
Sharon Curhan, MD; Molin Wang, PhD; Eric Rimm, PhD; Gary Curhan, MD, Channing Division of Network Medicine, Brigham And Women’s Hospital, Boston, MA
Roland Eavey, MD, Vanderbilt Bill Wilkerson Center for Otolaryngology and Communication Sciences, Vanderbilt University School of Medicine, Nashville, TN
### PROGRAM AGENDA

#### SATURDAY, MARCH 8, 2014

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15 AM – 10:35 AM</td>
<td>Intellectual Disabilities and Hearing Loss (Pod.VI.D.)&lt;br&gt;Gilbert Herer, PhD, Chapman University, Orange, CA</td>
</tr>
<tr>
<td>10:35 AM – 10:55 AM</td>
<td>REFRESHMENT BREAK</td>
</tr>
<tr>
<td>10:55 AM – 11:15 AM</td>
<td>Hearing Ability in Older Adults: U.S. NHANES versus Iceland AGES-RS (Pod.VI.E.)&lt;br&gt;Howard J. Hoffman, MA; Chuan-ming Li, PhD, Epidemiology &amp; Statistics Program, NIDCD/NIH, Bethesda, MD&lt;br&gt;Christa L. Themann, MA, Hearing Loss Prevention Team, Division of Applied Research Technology, NIOSH/CDC, Cincinnati, OH&lt;br&gt;Hannes Petersen, MD, Department of Otorhinolaryngology, Reykjavik&lt;br&gt;Tamara B. Harris, MD, Geriatric Interdisciplinary Studies Section, Laboratory of Population Sciences, IRP, NIA/NIH, Bethesda, MD&lt;br&gt;Lenore J. Launer, PhD, Neuroepidemiology Section, Laboratory of Population Sciences, IRP, NIA/NIH, Bethesda, MD&lt;br&gt;Vilmundur Gudnason, MD, Icelandic Heart Association, Heart Preventive Clinic and Research Institute, and University of Iceland, Kopavogur</td>
</tr>
<tr>
<td>11:15 AM – 11:35 AM</td>
<td>Epidemiology of Dizziness, Balance and Falling Problems in U.S. Children (Pod.VI.F.)&lt;br&gt;Chuan-Ming Li, PhD; Howard Hoffmann, MA, Epidemiology And Statistics Program, Division of Scientific Programs, NIDCD, NIH, Bethesda, MD&lt;br&gt;Helen Cohen, Department of Otolaryngology-Head and Neck Surgery, Baylor College of Medicine&lt;br&gt;Rose Marie Rine, PhD, Specialty Therapy Source, LLC and School of Physical Therapy, Marshall University&lt;br&gt;Bryan Ward, MD, Vestibular NeuroEngineering Laboratory and Otolaryngology-Head and Neck Surgery Department, Johns Hopkins University and Hospital</td>
</tr>
<tr>
<td>11:35 AM – 11:55 AM</td>
<td>ECLiPS: Assessment of Listening Difficulties Relative to Different Developmental Disorders (Pod.VI.G.)&lt;br&gt;Johanna Barry, PhD; Sophie Richardson, MRC Institute of Hearing Research, Nottingham, UK&lt;br&gt;David Moore, PhD, Cincinnati Children’s Hospital, Cincinnati, OH</td>
</tr>
<tr>
<td>11:55 AM – 12:15 PM</td>
<td>Linking Hearing and Cognition to Participation in Leisure Activities (Pod.VI.H.)&lt;br&gt;M. Kathleen Pichora-Fuller, PhD; Kate Dupuis, PhD, Psychology, University of Toronto, Mississauga, ON&lt;br&gt;Henrik Danielsson, PhD, Linkoping University, Linkoping</td>
</tr>
<tr>
<td>12:15 PM – 1:30 PM</td>
<td>LUNCH OUTDOORS ON THE WEST PATIO</td>
</tr>
<tr>
<td>1:30 PM – 4:00 PM</td>
<td>Special Session: Ear Drug Delivery Systems <strong>KIVA-HACIENDA</strong>&lt;br&gt;Moderator: Konstantina Stankovic, MD, PhD</td>
</tr>
<tr>
<td>4:00 PM – 4:15 PM</td>
<td>Summary and Adjournment <strong>KIVA-HACIENDA</strong></td>
</tr>
</tbody>
</table>
ReSound LiNX: The World’s Smartest Hearing Aid
Stephen Hallenbeck, Gn Resound
The ReSound LiNX represents the leading edge in hearing instrument technology. The LiNX uses the latest Smart Range chip featuring our 3rd generation of 2.4 GHz wireless technology. The signal processing in LiNX builds upon ReSound’s Surround Sound algorithm package and introduces several new features to improve the adoption rate of hearing instruments and increase audibility. Most importantly, the LiNX incorporates a ground breaking development in 2.4 GHz wireless connectivity to hearing aids through the use of a Bluetooth Low Energy (BLE) radio. This new technology enables direct streaming of not only phone conversations to the hearing instruments, but all other audio sources from the iOS devices including music, movies, audio books, games and countless mobile applications including direct control of the hearing instrument. This course will discuss the details of how this type of system works, including proof of benefit data, candidacy, advantages of fitting this technology and possibilities for future developments.

Introducing Fuel Cells in Hearing Aids
Aart van Halteren, MS, Sonion Nederland B.v.
Battery replacement continues to be a challenge to many hearing aid users, as well as to the environment. At the same time, new possibilities within connectivity are driving an increased need for available energy. What if we could solve these problems by introducing a system that - in a veryuser friendly way - recharges hearing aids in less than 30 seconds while accumulating no waste? Innovation in the form of a fuel cell, specially designed for Hearing Aid use, could be the answer to this problem!

A New CROS Hearing Aid
Francis Kuk, PhD, Widex
People who have a unilateral hearing loss or an asymmetric hearing loss with an unaidable ear often face limited amplification options. A Contralateral Routing of Signals (CROS) or BiCROS hearing aid has been proposed to overcome the head shadow effect for sounds presented on the “dead” or unaidable ear. Despite this seemingly simple concept, intricate variations exist among manufacturers such that the real-world benefits of the CROS devices can differ dramatically. Recently, Widex introduced a wireless CROS device that offers advanced signal processing features. This presentation will provide a description of the device and its features, along with the results of the study that documented its efficacy.

New Products from Sensimetrics: Hearing Loss Simulation and Tinnitus Sound Therapy
Patrick Zurek, PhD, Sensimetrics Corporation
Sensimetrics announces two new products to enhance audiologist effectiveness. HeLPS, the Hearing Loss and Prosthesis Simulator, accurately simulates the auditory communication difficulties associated with hearing loss along with the benefits provided by hearing aids and cochlear implants. With a complete source library of audio-visual speech samples, HeLPS provides compelling demonstrations of effects of hearing loss and background noise on speech reception, and the benefits provided by lipreading, hearing aids, and cochlear implants. HeLPS is a valuable tool for explaining the nature of auditory communication barriers in several contexts: during hearing aid fitting; when counseling families of hearing-impaired and deaf patients; in hearing conservation and public education programs; and in training audiologists and educators of the deaf. Whist is a computer tool designed for generating custom sounds for tinnitus sound therapy. Whist can be introduced in the hearing professional’s office and then continued by patients at home where, at their own convenience and speed, they can find the sounds that provide the best tinnitus relief. Whist has a simple, easy-to-use interface in which each control adjusts an essential and easily-understood characteristic of the sound. By following simple instructions, patients will be able to match the pitch and loudness of their tinnitus, which is the first step in customizing sounds for masking, suppression, and residual inhibition of tinnitus.

HEARlab News
George Frye, MS, Frye Electronics, Inc.
In early April of 2013 the Food and Drug Administration gave permission to Frye Electronics, Inc., to market the HEARlab in the United States. The HEARlab, developed in Australia by the National Acoustics Laboratories, uses cortical auditory evoked potentials (CAEPs) to objectively demonstrate aided and unaided audibility of speech phonemes in infants and people who cannot or are unable to respond to an audiometric test. The HEARlab CAEP system has been used internationally for four years. This year NAL migrated the program to the Microsoft Windows 7 operating system. By popular request they have also added the phoneme /s/, allowing the objective testing of the high frequency efficacy of hearing aids with and without frequency compression. A short presentation of some of the work by Australian researchers using the /s/ phoneme will be given.

Jumping the Curve with Smartphone and Mobile Applications for Hearing Technology
Michelle L. Hicks, PhD, Starkey Hearing Technologies
With the surge in smartphone and tablet popularity, many individuals now have almost immediate access to a variety of tools and information that can assist in their daily lives. Engaging and interactive mobile applications have the potential to reach large numbers of consumers, including hearing-impaired individuals, as well as hearing healthcare providers. Our patients, including older adults, and their caregivers, are becoming more technologically savvy. They are increasingly looking to their mobile devices for information regarding their personal health, and for tools that may improve their quality of life, including their hearing healthcare. These tools may help to identify hearing loss, provide referrals to hearing healthcare practitioners, make adjustments to their hearing aids, and provide aural rehabilitation. Moreover, mobile applications may be used by the practitioner to have immediate access to product specifications and support,
participate in tele-audiology, and communicate with their patients. This session will describe the smartphone and mobile applications that have been developed by Starkey Hearing Technologies to meet these needs in new and innovative ways.

**Real ear measurements: diagnostics and calibration using Wideband Acoustic Impittance**

**Jont Allen, PhD, Mimosa Acoustics**

The middle ear (ME) is the window into the cochlea. Middle-ear pathologies, especially with cochlear-impaired ears, are common, and objective diagnostic methods over relevant speech frequencies (0.3-7.3 kHz) are limited. Wideband Acoustic Impittance (WAI) of the ME is of special importance because it can provide diagnostic information across a wider frequency range than tympanometry. Authors: Jont B. Allen, Pat S. Jeng, Judi A. Lapsley Miller Affiliation: Mimosa Acoustics WAI can accurately estimate tympanic membrane (TM) compliance. The ear canal compliance may be estimated based on the delay to the first significant (i.e., TM) reflection. We will explain why such an estimate is more reliable. WAI provides valuable ME diagnostic information for differential evaluation of TM perforations, otosclerosis, disarticulations, dehiscence, hypermobile TMs, ME reflex, and other TM and ME conditions through non-invasive and objective measurements. WAI allows for greatly improved real ear calibrations [forward pressure level (FPL) calibration], by removing the effect of ear-canal standing waves. These standing waves can range from 3-8 kHz, and cause errors up to 20 dB. Only a free-field calibration (FFC) can compete with FPL, but it is not a viable clinical option. Thus WAI has many advantages, strongly impacting on our ability to diagnose ME pathology and to obtain more accurate audiometric measurements, hence more accurate long-term monitoring of auditory status.

**It’s only a Model: Revamping Receiver Models for Acoustic Simulations**

**Daniel Warren, PhD, Knowles Electronics**

Modeling generally means using math or computer simulation to predict a product’s performance in application. Hearing aid designers use modeling to select receivers by simulating the hearing aid response into a variety of acoustic tubes and measurement couplers, ensuring that the chosen receiver will hit the targeted acoustic gain and bandwidth. Knowles Electronics provides the building blocks for these models in the form of equivalent circuits, which are schematics of electronic components that capture the behavior of the receivers and can be simulated by commercially available software, primarily Cadence PSpice. The time has come to reexamine how these receiver models are created and distributed. Knowles makes literally thousands of different varieties of receivers, and the pace of receiver development is outstripping our ability to produce new circuit models. The existing models are accurate to about 6 kHz, which is the same accuracy limitation as current measurement couplers. The introduction of a new 0.4cc high frequency coupler gives us the opportunity (and expectation) to extend the accuracy of the models to above 12 kHz. Finally, the cost of commercial Spice software is out of reach for many university research budgets, so it is desirable to find a non-proprietary format for the circuit models that can be run on open-source or freely available simulation software. The new receiver model creation system is under development at Knowles to address these issues. The system uses a high-frequency measurement coupler to collect high-fidelity, wideband data from a receiver and calculates component values in the circuit model directly from the measured data. The circuit is exported as a netlist, which is a readable text file that can be transported among different Spice simulators. In particular, the resulting file can be used with LTSpice, a free Spice simulator available from Linear Technologies for Windows and Mac OS X.

**An Automated Tablet Audiometer**

**Robert H. Margolis, PhD, Audiology Incorporated**

As more powerful tablet computers are emerging they are becoming the preferred control device for a wide range of biomedical applications. Tablet audiometers have been developed that control hardware devices that provide manual control of the range of stimuli needed for hearing testing. The tablet audiometer that will be demonstrated in this presentation has the following features: 1) no external hardware device except a sound card that can be internal or external; 2) executes an automated pure-tone air-conduction hearing test (AMTAS) that has been validated in a number of studies with normal-hearing and hearing-impaired subjects; 3) a child version that has been validated with children age 4 years and older; 4) automated reporting that classifies and interprets the audiogram in patient-friendly language; 5) expandable to air and bone conduction.

**Making it Easier with EasyRECD and SmartFit Trainer**

**Annette Mazevski, PhD, Oticon, Inc**

Ensuring appropriate amplification in children can be tedious and, sometimes, stressful. Parents and children alike can be overwhelmed by the fitting process, so it is important to ensure confidence in the hearing aid not only while in the audiologist’s office, but also when the parents and child are at home. In this talk we will discuss two features, EasyRECD and SmartFit Trainer, that are in our newest pediatric product, Sensei, and, how they can assist the audiologist and the parents to ensure a proper fit of amplification.

**SmartEP - Total Control**

**Rafael E. Delgado, PhD, Intelligent Hearing Systems**

SmartEP offers advanced research tools for the acquisition of auditory evoked potentials that provide enormous flexibility for stimulating, recording, and processing data on a compact portable clinical platform. These tools include the Advanced Auditory Research Module, which allows defining complex stimulation paradigms with up to two overlapping stimuli per ear, and the Continuous Acquisition Module, which allows the
**TECHNOLOGY UPDATE ABSTRACTS**

acquisition of continuous EEG data with stimulation for online or offline averaging. A new module, the IHS-USB Development Kit, has now expanded these capabilities by providing researchers with a development Dynamic-link Library (DLL) that gives total control of the system's hardware from almost any user-developed application. Researchers can develop applications in any programming language that allows calls to external DLLs, including Matlab. Data can be collected using any user-programmed protocol, stored in any user-defined format, and analyzed in one step. Data acquisition parameters, such as stimulus, intensity, rate, duration, sampling rate, transducer, and filter settings can be controlled directly. Routines return data arrays using uV values, eliminating the need to use any hardware-dependent data conversion factors. Sample source code is provided facilitating fast development of user applications. Example applications using Matlab and other languages will be presented.

**The Next Iteration Adaptive Feedback Cancellation: Clinical Outcome Benefit and Improvements in Fitting Process Efficiency**

*David Akbari, AuD, Intricon Corporation*

Intricon's next adaptive feedback canceller iteration allows clinicians to minimize the occurrence of oscillatory feedback while maintaining high frequency audibility. This enhances outcome-based performance benefit in addition to improving fitting process efficiency in dispensing hearing aids. Although high frequency audibility is a critical dimension to speech understanding, clinicians are often limited by the occurrence of oscillatory feedback which negatively affects speech understanding and subjective judgments of sound quality. This talk will discuss theoretical and clinical implications relating to the occurrence of feedback in hearing aids. Continuing advances in Intricon's adaptive feedback canceller technology as it relates to clinical outcomes using a single-blinded case control study will be discussed.

**Tinnitus Sound Therapy: Selection and Programming**

*Thomas A. Powers, PhD, Siemens Hearing Instruments, Inc.*

A longstanding challenge in the treatment of the tinnitus patients is the selection and programming of the sound therapy for individual patients. Several types of sound signals are currently available. The signals include a variety of shaped noises, music, modulated tones and many more. These signals can be provided to the patient directly from the hearing instrument or via a remote streamer. This session will discuss the selection of the therapy sound and how various presentation modes are possible within the Siemens tinnitus program.

**Wideband Tympanometry**

*Navid Shahnaz, PhD, Interacoustics*

Wideband Acoustic Immitance Outcome in Different Middle Ear Pathologies. As Wideband Tympanometry gains popularity, it is essential to understand the impact of different middle ear pathologies on Absorbance patterns. The purpose of this talk is to examine Absorbance patterns in children and adults with various middle ear pathologies. Absorbance results in cases of otitis media with effusion, negative middle ear pressure, otosclerosis, ossicular discontinuity, rheumatoid arthritis, and ear drum perforation will be compared to age appropriate normative data. Where applicable Absorbance patterns obtained at ambient pressure as well as pressurized mode (Wideband Tympanometry) will be reviewed.

**A Review of Directional Microphones Available from Phonak**

*Aniket Saoji, PhD, Phonak*

In hearing instruments, directional microphones have been used to improve signal-to-noise ratio and improve understanding in challenging listening conditions. Phonak offers a range of directional microphone configurations such as Real Ear Sound, UltraZoom, StereoZoom, ZoomControl, etc. Here we report technical analysis for these directional microphone configurations by measuring frequency responses, noise floors, and polar plots and review the evidence that supports the use of and the limitations associated with the different directional microphones configurations. In the Phonak hearing instrument, a classification system continuously analyses the incoming acoustic signal and automatically switches between the different microphone modes to maximize overall outcome for hearing impaired users. Here we describe the implementation of the classification system that is used to change the directional microphone configuration in different listening conditions and verify the efficacy of such a system in real world listening conditions.

**A New Tool for Maintaining Appropriate BC ABR Force in Newborn Testing**

*Leigh G. Schaid, PhD, Lisa Hunter, PhD, Cincinnati Children’s Hospital Medical Center*

A challenge when performing bone conduction (BC) auditory brainstem response (ABR) testing in infants is ensuring that adequate calibrated force is applied. A prototype device that measures the force applied on the oscillator (Etymotic Research (Elk Grove, IL)) was investigated to determine its effect on BC ABR. Seven infants were tested; ABR wave V latencies were obtained for 500-4000 Hz at 30 dB nHL and then to threshold. Results were obtained without and with the force meter respectively, for each infant. An audiologist experienced in holding the oscillator for BC ABR testing in infants applied the oscillator and device. No significant differences in threshold, latency, correlation between split waveforms, or number of sweeps needed were found for this initial subject group. These findings suggest that experienced audiologists are likely using the recommended amount of force (~5.4 Newtons) when using the hand held technique with the oscillator. Results will also be compared with those of novice testers. A force meter like the one used in this study may prove useful for not only reinforcing proper force application when testing bone conduction ABR for experienced audiologists, but also when training less experienced audiologists and students.
Cochlear Neurodegeneration in Noise and Aging

Sharon G. Kujawa, PhD
Associate Professor of Otology and Laryngology, Harvard Medical School
Director of the Department of Audiology, Eaton-Peabody Laboratories, Massachusetts Eye and Ear Infirmary, Boston, MA

Hearing function declines progressively with age, a process that can be accelerated by sound (noise) overexposure. The loss of threshold sensitivity is primarily peripheral in origin, and often sensory (i.e. related to hair cell receptor damage or loss) in nature. However, in both aging and noise-exposed ears, we now know that cochlear neurons often degenerate well before thresholds change or hair cells are lost. We have documented a cochlear synaptic loss (inner hair cell afferent fiber) that progresses gradually throughout the lifespan and is paralleled by delayed, but proportional cochlear ganglion cell loss. These declines are accelerated dramatically after noise; a lifetime’s worth of synapse loss can occur within hours of exposure, including those producing only temporary changes in thresholds and no hair cell loss. Since this synapse is the primary conduit for information flow from cochlea to brain, losses would be expected to have significant perceptual consequences even if normal thresholds are preserved. In humans, there is a steady age-related decline in spiral ganglion cell counts, even with a full complement of hair cells. Thus, primary neuronal degeneration may be widespread in humans and may play a major role in the age-related decline in hearing function.

Funding: Research supported by R01 DC 008577

Cochlear Gene Therapy: Is It Time?

Lawrence R. Lustig, MD
Professor, Department of Otolaryngology
University of California San Francisco, San Francisco, CA

Hearing loss is one of the most common human sensory deficits, with congenital hearing loss occurring in approximately 1.5 in 1000 children. Of these, about half are attributed to a genetic basis. While our understanding of the causes of genetic hearing loss has advanced tremendously over the past 30 years, treatments have advanced little over this same time period, and currently consist of hearing amplification for mild to severe losses, and cochlear implantation for severe to profound losses. Though cochlear implantation has profoundly influenced our treatment of children with congenital deafness, there are still significant limitations in function with an implant, and these results cannot compare to native hearing. Thus there remains intense interest in restoring normal organ of Corti function through techniques such as hair cell regeneration and gene therapy. This talk will provide a broad overview of recent advances in cochlear gene therapy for a variety of applications, including spiral ganglion and hair cell regeneration, as well as for congenital forms of hearing loss. Lastly, I will also describe our work on a mouse model of hereditary deafness, which occurs as a result of a null mutation in the gene coding for the vesicular glutamate transporter 3 (VGLUT3), and efforts to restore hearing in this model using virally-mediated gene therapy.

Factors Influencing Hearing Aid Uptake and Outcomes: The Challenge of Knowledge Translation

Louise Hickson
HEARing Cooperative Research Centre & School of Health and Rehabilitation Sciences
The University of Queensland, Australia

As the prevalence of age-related hearing impairment increases, there is an imperative to better address the hearing health care needs of older adults. Advances in hearing aid technology have led to more satisfied hearing aid users; however, there remains a large proportion of older adults with hearing impairment who are reluctant to trial hearing aids, and a proportion who report poor outcomes with hearing aids. This presentation will describe results from a program of research identifying barriers and facilitators to help-seeking for adults with hearing impairment and to achieving successful hearing aid outcomes in that population. A foundation quantitative study of 307 older adults with hearing impairment will be outlined initially. This study identified three major facilitators of help-seeking and successful hearing aid use: 1) positive attitudinal beliefs about hearing aids, 2) support of significant others, and 3) self-efficacy for hearing aids. Subsequent quantitative and qualitative work has explored how the findings might be translated into clinical practice, in particular, how the effective involvement of families might be achieved and how self-efficacy for hearing aid use can be improved. The program of research will be presented in the context of the challenges in having rehabilitation research translated into clinical practice.
Perforated ear. Each sample is analyzed independently, allowing multiple small samples to be collected as fluid emerges from the space. We developed a perilymph sampling technique in which using direct injections from pipettes sealed into the perilymphatic space. This method combined with reliable fluid sampling and analysis procedures. Drugs can be delivered in a highly quantitative manner under direct control.

Intratympanic drug injections are increasingly used in the clinic to treat disorders of the inner ear. However, we have only limited understanding of how drugs enter the ear, what concentrations they reach, where they spread to, and how long they remain there. Studies of inner ear pharmacokinetics require reliable drug delivery methods combined with reliable fluid sampling and analysis procedures. Drugs can be delivered in a highly quantitative manner using direct injections from pipettes sealed into the perilymphatic space. We developed a perilymph sampling technique in which multiple small samples were collected as fluid emerged from the perforated ear. Each sample is analyzed independently, allowing drug gradients along the perilymphatic spaces to be quantified. Pharmacokinetic experiments are interpreted with computer models based on the physical processes responsible for solute movements in the fluid and tissue spaces of the ear. One of the most important factors affecting drug distribution has been found to be the rate that the drug is lost to blood. Experiments show that dexamethsone is lost rapidly from scala tympani perilymph, limiting its distribution to the basal half of the human cochlea. Pharmacokinetic studies such as these are essential to optimize local drug delivery therapies in humans.

This work supported by NIH/NIDCD R01 DC001368

The most efficient route for drug delivery into the cochlea is direct delivery into the perilymph via the scala tympani. This route will result in drug distribution to most structures within the cochlea including the organ of Corti, the spiral ganglion neurons, the spiral ligament, and the spiral limbus; only the scala media and stria vascularis would not be accessible. Although this route brings with it increased risks of damage to inner ear structures, more than three decades of surgical experience with cochlear implantation has brought increased confidence in developing safe drug routes involving direct application into the inner ear. Over the last decade we have examined a number of drug delivery techniques in animal models of cochlear implants. While osmotic pumps can provide efficient drug delivery for relatively short periods of time, the use of a canula to deliver the drug to the cochlea and the ongoing need to replace the empty pump results in unacceptable risk of infection. I will describe alternative delivery methods we have developed using viral vectors, cell-based therapies and slow-release nanotechnology-inspired applications that hold considerable promise as clinically viable delivery techniques. Importantly, a number of these technologies have the potential to deliver a wide variety of therapeutic drugs in a highly controlled manner. While development of drug delivery techniques is progressing at a faster rate than the exploration of safe and effective drugs, there are a number of candidate drugs under investigation covering a variety of aetiologies. Our work has focussed on the delivery of exogenous neurotrophins to promote the rescue of spiral ganglion neurons following hair cell loss.

This work was supported by the NIDCD (HHS-N-263-2007-00053-C), the Garnett Passe and Rodney Williams Memorial Foundation, the Victorian Government’s OIS funding program and the National Health and Medical Research Council of Australia.
Progress in the Development of Methodologies for Direct Inner Ear Drug Delivery in Humans.

Michael J. McKenna\textsuperscript{1,2}, Woo Seok Kang\textsuperscript{1}, David H. Jung\textsuperscript{1,2}, Erin E.L. Pararas\textsuperscript{3}, Jason Fiering\textsuperscript{3}, Mark J. Mescher\textsuperscript{3}, Ernest S. Kim\textsuperscript{3}, Abigail Spencer\textsuperscript{3}, Vishon Tandon\textsuperscript{3}, Shuting Sun\textsuperscript{4}, Boris A. Kashemirov\textsuperscript{4}, Kim L.T. Nguyen\textsuperscript{4}, S. Adam Hacking\textsuperscript{5}, Charles E. McKenna\textsuperscript{4}, Sharon G. Kujawa\textsuperscript{1}, Jeffrey T. Borenstein\textsuperscript{3}, and William F. Sewell\textsuperscript{1}

\textsuperscript{1}Eaton-Peabody Laboratory, Massachusetts Eye and Ear Infirmary, Boston, MA
\textsuperscript{2}Department of Otology and Laryngology, Massachusetts Eye and Ear Infirmary, Boston, MA
\textsuperscript{3}Draper Laboratory, Cambridge, MA
\textsuperscript{4}Department of Chemistry, University of Southern California, Los Angeles, CA
\textsuperscript{5}Massachusetts General Hospital, Boston, MA

Inner ear drug delivery has been in clinical practice for over two decades. Current methodologies utilize a transtympanic approach with the injection of drugs into the middle ear and subsequent diffusion into the inner ear, presumably via the round window membrane. Despite modifications and improvements in these techniques, it is not possible to precisely control the amount of drug delivered to the inner ear or to maintain constant drug levels within the inner ear. Although ideally suited for corticosteroids, which have no known upper limit of toxicity, this lack of precision poses a significant impediment for the use of most drugs.

In an effort to achieve more precise and controlled methods for inner ear drug delivery, we have focused on the development of two separate systems for intracochlear drug delivery. The first is a MEMS-based system which utilizes reciprocating flow of perilymph into which drug is introduced and then dispersed to the cochlea. This complex system offers the advantage of precise and telemetric control of both drug concentration and flow parameters as may be ultimately required for cellular regeneration including hair cells and neurons. Guinea pig experiments have demonstrated effective delivery of drug from base to apex with preservation of auditory function including ABR and DPOAEs. The second system is a drug-eluting stapes prosthesis introduced via stapedotomy, a frequently performed surgical technique with well-established safety and efficacy. What it lacks in control is balanced by its simplicity and durability. We have tested the concept of a stapes prosthesis utilizing a novel fluorescein-labeled bisphosphonate compound, and we have demonstrated that this compound can be delivered throughout the cochlea with preservation of auditory function.

Supported by NIDCD R01DC009837 (M. McKenna, Kujawa, C. McKenna) and R01 DC006848 (Borenstein, Kujawa, Sewell, M. McKenna)

Changes in Central Auditory Processing Following Acoustic Trauma

Eric D. Young, Ph.D.
Professor of Biomedical Engineering
Johns Hopkins University, Baltimore, MD

Neural circuits in the brain are known to reorganize following acoustic trauma, but the consequences for auditory processing are not well understood. Generally, both excitatory and inhibitory circuits may degenerate and be partially reconstructed. Neurophysiological animal studies have documented changes in central neural representations beyond those observed in the auditory nerve. Often the changes are specific to particular subtypes of central neurons. For example, the spontaneous discharge rates of neurons increase following acoustic trauma in some response types but not in others, suggesting a variable role of different central neurons in tinnitus. In ventral cochlear nucleus the strengths of synapses, as measured by postsynaptic response rates, increases in one class of neurons (choppers) but not in another (primarylikes). The chopper neurons thus show changes consistent with loudness recruitment and hyperacusis, but not the primarylikes. In the dorsal cochlear nucleus, where inhibitory responses to sound are prominent, inhibition is weakened in some neuron types after acoustic trauma; however other neurons acquire strong, but abnormal inhibitory inputs. In either case, the responses of the neurons to complex stimuli become more nonlinear, further degrading the quality of the representation of sound. These examples and others may be helpful in understanding hearing impairment in elderly listeners or in cases of auditory neuropathy, where the hearing loss seems to exceed that expected from cochlear deficits. (Done in collaboration with Brad May, Tessa Ropp, Yang Li, Shanqing Cai, and Diana Ma; supported by NIDCD grants DC00115 and DC00109).
My initial exposure to the auditory system was acquired from academic courses leading to an undergraduate degree in Speech Therapy from St. Louis University in 1955. I was employed as a speech pathologist for two years and completed studies for a Master’s degree in Speech and Hearing Science from the University of Kansas. In 1958 I began work as an audiologist at the University of Kansas Medical School.

The pressing unresolved issues at that time concerned the highly variable results from expressing normal hearing by bone conduction using subjective “biological calibration” procedures, the measured improvements in speech recognition provided by binaural hearing aids which had been enhanced by the availability of ear level instruments, and the differential diagnosis of site of lesions in the auditory system. Fortunately during my pre-doctoral studies, I was privileged to participate in timely research on these issues in the laboratory of Dr. James Jerger and Dr. Raymond Carhart at Northwestern University. These problem areas greatly influenced my research efforts throughout my professional career.

Following completion of my doctoral studies at Northwestern in 1963, I participated in the development of the initial audiology clinic and associated laboratory at the UCLA School of Medicine. The initial research in our laboratory was funded by grants from the National Institute on Neurological Diseases and Blindness and was devoted to studies that lead to the standardization of normal hearing by bone conduction referenced to an artificial headbone and reproducible descriptions of the physical characteristics of bone vibrators used for diagnostic testing and for hearing aids.

Additional research was conducted in our laboratory using speech recognition methods to describe the effectiveness of binaural hearing aids under several environmental conditions. Interest in the effects of hearing loss on speech recognition continued through much of my professional career. Notable were studies examining the use of the Articulation Index to predict speech recognition among persons with hearing impairment. For example our investigations indicated that semantic context altered the frequency importance functions, used to calculate the Index, in addition to changes in the dynamic range over which intelligibility rises.

Eventually such data from various laboratories lead to the development of methods for the calculation of the Speech Intelligibility Index which revised the older Articulation Index methods. In work supported by the National Institute on Deafness and Other Communication Disorders, our laboratory together with colleagues from the UCLA School of Engineering studied the use of probe tube methods for measuring real ear output from hearing aids. This research resulted in useful guidelines for probe tube insertion depth in the ear canal in order to avoid standing wave problems. After retirement from UCLA in 1996, I continued research funded by the Veterans Administration Rehabilitation Service and examined the effects of lexical and semantic context on speech recognition among persons with hearing impairment focused on the Neighborhood Activation Model of spoken word recognition.

Because of the multidisciplinary nature of the laboratories in our department of UCLA and continual funding during my entire professional career from the National Institutes of Health, the laboratory was able to provide training and research positions for pre-and post-doctoral students in Audiology, Otology, Psychology, Public Health and Engineering. Numerous trainees and staff members have become independent researchers developing their own labs or have become faculty members at other universities. Among service to the research community, I served on the NIH Communication Science Review Committee for 4 years and thereafter as an ad-hoc reviewer for several granting agencies. In addition I served as a member and chair of several working groups for the American National Standards Institute. As a consequence of the research in our laboratory and service to the research community, I was awarded a Research Career Development Award in 1967 from NIH, the Jacob Javits Award for Excellence in Neuroscience from NIH in 1986, the James F Jerger Research Award from the American Academy of Audiology in 1996 and was invited to deliver the Carhart Memorial Lecture in 1994 for the American Auditory Society.

The understanding of behaviorally relevant communication signals is partly dependent on the speed and precision of auditory temporal processing. Although much is known about the mechanisms that regulate speed and precision in the mature auditory system, the development of these properties are less understood. In the first half of this talk, I will highlight on-going research from my lab that addresses the development of time-coding mechanisms in the auditory brainstem.

In the second half, I will shift focus and discuss key components needed for starting an academic career – emphasizing precision, not speed as the fundamental variable. Drawing on personal lessons learned – from clinician to assistant professor – I will show the need for careful and precise planning while not rushing progress among the pressures of the fast-paced world we live in.
POSTERS – TITLES AND AUTHORS

All poster abstracts are available on the AAS Website: www.amauditorysoc.org

Topic areas, poster numbers, and abstract codes:

<table>
<thead>
<tr>
<th>Topic Area</th>
<th>Poster Numbers</th>
<th>Abstract Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrophysiologic Responses / Auditory Neuroscience</td>
<td>Poster #1-6, 62-65, 67</td>
<td>(ELECT01-11)</td>
</tr>
<tr>
<td></td>
<td>Poster #7-34</td>
<td>(AMP01-28)</td>
</tr>
<tr>
<td></td>
<td>Poster #35-41, 74-76</td>
<td>(PSY01-10)</td>
</tr>
<tr>
<td></td>
<td>Poster #42-61, 71-73</td>
<td>(SP01-23)</td>
</tr>
<tr>
<td></td>
<td>Poster #68-70</td>
<td>(VEST01-03)</td>
</tr>
<tr>
<td></td>
<td>Poster #77-82, 90-94</td>
<td>(PHYS01-11)</td>
</tr>
<tr>
<td></td>
<td>Poster #83-84, 103-104</td>
<td>(NIHL01-04)</td>
</tr>
<tr>
<td></td>
<td>Poster #85, 87-89</td>
<td>(EPI01-04)</td>
</tr>
<tr>
<td></td>
<td>Poster #95-97, 106</td>
<td>(DX01-04)</td>
</tr>
<tr>
<td></td>
<td>Poster #98-101, 105</td>
<td>(AP01-05)</td>
</tr>
<tr>
<td></td>
<td>Poster #86, 102</td>
<td>(ANAT01-02)</td>
</tr>
<tr>
<td></td>
<td>Poster #107-110, 123-124</td>
<td>(DIS01-06)</td>
</tr>
<tr>
<td></td>
<td>Poster #111-117, 119-122</td>
<td>(CI01-23) 125-136</td>
</tr>
</tbody>
</table>

Poster #64 – ELECT09
Neuronal Coupling of Cell Surface Receptor with DNA Repair Enzyme
O’Neil Guthrie, PhD, Loma Linda VA Medical Center, Rancho Cucamonga, CA
Danial Kwon, MD; Helen Xu, MD, Department of Otolaryngology and Head & Neck Surgery, School of Medicine, Loma Linda University Medical Center, Loma Linda, CA

Poster #65 ELECT10 Mentored Student Research Poster Award
Voltage-Dependent Potassium Conductances Shape Action Potential Properties Around Hearing Onset
Hui Hong; Louisa Xu; Jason Tait Sanchez, PhD, Northwestern University, Evanston, IL

Poster #67 – ELECT11 Mentored Student Research Poster Award
The Efferent System’s Role in the Neural Encoding of Speech-in-Noise
Spencer Smith; Barbara Cone, PhD, The University of Arizona, Tucson, AZ

AMPLIFICATION/HEARING TECHNOLOGY / REHABILITATION

Poster #7 – AMP01
Benefit of Telephone Solutions for Children and Adults
Matthias Latzel, PhD, Phonak Ag, Staefa, Denmark

Poster #8 – AMP02
Hearing Aid Setting Personalization Using Smartphones
Gabriel Aldaz, MS, Stanford University, Stanford, CA

Poster #9 – AMP03
Mobile Device Hearing App Usage: The “Who” and the “How”
Andrew Sabin, PhD, Ear Machine LLC, Chicago, IL
Dianne Van Tasell, PhD, University of Minnesota, Ear Machine, Tucson, AZ

Poster #10 – AMP04
User Self-Adjustment of Amplification Settings in Laboratory Versus Real-World Noise
Peggy Nelson, PhD; Dianne Vantassel, PhD; Gregan Melanie, PhD; Joseph Hinz; Eugene Brandewie, PhD; Adam Svec, MA, University Of Minnesota, Minneapolis, MN
Andrew Sabin, PhD, Ear Machine, LLC

Poster #11 – AMP05
Quantifying Processing Interactions in Hearing Aids
James Kates; Kathryn Arehart, PhD; Melinda Anderson, PhD; Cory Portnuff, PhD, University of Colorado, Boulder, CO
Pamela Souza, PhD, Northwestern University, Evanston, IL

American Auditory Society Scientific & Technology Meeting | 21
**Poster #12 – AMP06**

**Validity of RECD in Fitting Vented and Open-Canal Hearing Aids**  
Ryan Irey, MA; Jason Galster, PhD, Starkey Hearing Technologies, Eden Prairie, MN  
Ryan McCreery, PhD, Boys Town National Research Hospital, Omaha, NE

**Poster #13 – AMP07**

**Acoustic Variability of Occluded Earbuds in Receiver-in-the-Canal Hearing Aid Fittings**  
Courtney Coburn, AuD; Joyce Rosenthal, MA; Kenneth Jensen, PhD, Starkey Hearing Technologies, Eden Prairie, MN

**Poster #14 – AMP08**

**T35 Research Trainee Poster**

**Effects of Linguistic Environment on Detection of /s/ and /z/**  
Hannah Hudson, University Of North Carolina, Chapel Hill, NC  
Meredith Spratford, AuD; Marc Brennan, PhD; Ellen Hatala; Ryan McCreery, PhD, Boys Town National Research Hospital, Omaha, NE

**Poster #15 – AMP09**

**Change in Fricative Production after Fitting Frequency Compression Hearing Aids**  
Kanae Nishi, PhD; Judy Kopun, MA; Ryan McCreery, PhD; Patricia Stelmachowicz, PhD, Boys Town National Research Hospital, Omaha, NE

**Poster #16 – AMP10**

**Asymmetric Directional Microphone Fittings for Listeners with Severe Hearing Loss**  
Erin Picou, PhD; Todd Ricketts, PhD, Vanderbilt University Medical Center, Nashville, TN

**Poster #17 – AMP11**

**Spatial Monitoring of Complex Speech by Hearing Aid Users**  
Julie Cohen, AuD; Danielle Zion, AuD; Hector Galloza, MS; Douglas Brungart, PhD; Walter Reed National Military Medical Center, Bethesda, MD  
Sridhar Kalluri, PhD, Starkey Hearing Research Center, Berkeley, CA

**Poster #18 – AMP12**

**Mentored Student Research Poster Award**

**Effects of Nonlinear Frequency Compression on Cortical Potentials and Perception**  
Benjamin Kirby, AuD; Paul Abbas, PhD; Carolyn Brown, PhD, University of Iowa, Iowa City, IA

**Poster #19 – AMP13**

**Aided Evoked Potentials: Effects of Stimulus Onset and Signal-to-Noise Ratio**  
Ingyu Chun, PhD; Kelly Tremblay, PhD; Christi Miller, PhD, University of Washington, Seattle, WA  
Curtis Billings, PhD, Portland VA Medical Center, Portland, OR

**Poster #20 – AMP14**

**Masking Release for Children with Hearing Loss using Amplified**  
Marc Brennan, PhD; Ryan McCreery, PhD; Dawn Lewis; Judy Kopun, MA; Patricia Stelmachowicz, PhD, Boys Town National Research Hospital, Omaha, NE

**Poster #21 – AMP15**

**Health Behavior Change in Adults with Hearing Impairment**  
Melissa Frederick, AuD; Gabrielle Saunders, PhD; Shienpei Silverman, MS, National Center for Rehabilitative Auditory Research (NCRAR), Portland, OR  
Ariane Laplante-Lévesque, PhD, Eriks Holm Research Centre

**Poster #22 – AMP16**

**Speech Recognition in Noise with Four Remote Microphone Technologies**  
Krishna Rodemerk, AuD; Jason Galster, PhD, Starkey Hearing Technologies, Eden Prairie, MN

**Poster #23 – AMP17**

**Social Support Predicts Hearing Aid Satisfaction**  
Gurjit Singh, PhD, Phonak AG, Toronto, Canada  
Sin-tung Lau, Toronto Rehabilitation Institute

**Poster #24 – AMP18**

**Acceptable Noise Levels and Words-in-Noise as Predictors of Hearing-Aid Success**  
Sherri Smith, PhD, VA Medical Center, Mountain Home, TN  
Richard Wilson, PhD, VA Medical Center, Phoenix, AZ  
Anna Nabelek, University of Tennessee, Knoxville, TN

**Poster #25 – AMP19**

**T35 Research Trainee Poster**

**Adaptation of the International Outcome Inventory for Hearing Aids (IOI-HA)**  
Jessi Middaugh, The Ohio State University, Columbus, OH  
Gabrielle Saunders, PhD; Melissa Frederick, AuD; Shienpei Silverman, MA, National Center For Rehabilitative Auditory Research, Portland, OR

**Poster #26 – AMP20**

**Amplification Benefits in Adults: Systematic Review Update Including Digital Devices**  
Carole E. Johnson, PhD; Anna Marie Jilla, MA, University of Oklahoma Health Sciences Center, Oklahoma City, OK  
Jeffrey Danhauer, PhD, University of California Santa Barbara, Goleta, CA

**Poster #27 – AMP21**

**Effects of Hearing Impairment on Primary Communication Partners**  
Rebecca Kami; Frank Lin, MD, Johns Hopkins University, Baltimore, MD

**Poster #28 – AMP22**

**Advanced Digital Hearing Aids for Mild Losses: Benefit and Satisfaction**  
Carole E. Johnson, PhD; Anna Marie Jilla, MA, University of Oklahoma Health Sciences Center, Oklahoma City, OK  
Jeffrey Danhauer, PhD, University of California Santa Barbara, Goleta, CA  
Bettie Bortn, AuD, Doctors Hearing Clinic, Montgomery, AL  
Sarah Kate Fisher, Auburn University, Auburn, AL

**Poster #29 – AMP23**

**Self-Stigma Associated to Hearing Loss and Ageism in Older Adults**  
Jean-Pierre Gagne, PhD; Tony Leroux; Luc Dargia, University De Montreal, Montreal, Canada  
Martine Lagace, University of Ottawa, Ottawa, Canada

**Poster #30 – AMP24**

**Exploring Strategies for Telling Others About Hearing Loss**  
Jessica West, Doctors Hearing Clinic, Montgomery, AL  
Jeffrey Danhauer, PhD, University of Oklahoma Health Sciences Center, Oklahoma City, OK  
Carole E. Johnson, PhD; Anna Marie Jilla, MA, University of Oklahoma Health Sciences Center, Oklahoma City, OK  
Konstantina Stankovic, MD, PhD, Massachusetts Eye and Ear Infirmary, Boston, MA

**Poster #31 – AMP25**

**Auditory and Working Memory Training: Assessing the Real World Benefits**  
Melanie Ferguson, PhD; Helen Henshaw, PhD, Nhr Nottingham Hearing Biomedical Research Unit, Nottingham, UK

**Poster #32 – AMP26**

**Mentored Student Research Poster Award**

**Audiomotor Training Enhances Neural and Perceptual Salience of Noise-Corrupted Signals**  
Jonathon Whitton, AuD, Massachusetts Institute of Technology, Boston, MA  
Kenneth Hancock, PhD; Daniel Polley, PhD, Harvard Medical School
POSTERS – TITLES AND AUTHORS

Poster #33 – AMP27
Do Combination Instruments Reduce the Effects of Tinnitus?
Harvey Abrams, PhD; Starkey Hearing Technologies, Eden Prairie, MN
Melissa Frederick, AuD; Susan Gniat; James Henry, PhD, National Center for Rehabilitative Auditory Research, Portland, OR

Poster #34 – AMP28 T35 Research Trainee Poster
A New Perspective on Tinnitus Pitch Matching
Garnett McMillan, PhD; James Henry, PhD; Emily Thielman, MS; Kristyn Wypych, BS, VA Medical Center (NCRAR), Portland, OR

Psychoacoustics / Hearing Science

Poster #35 – PSY01 T35 Research Trainee Poster
Auditory Motion Perception of Sound Source Acceleration and Deceleration
Carol Pang, AuD; Wesley Grantham, PhD, Daniel Ashmead, PhD, Vanderbilt University, Nashville, TN

Poster #36 – PSY02 Mentored Student Research Poster Award
Temporal Aspects of Binaural Interference
Jacqueline Bibeau, University of Washington, Seattle, WA
G. Christopher Stecker, PhD, Vanderbilt University, Nashville, TN

Poster #37 – PSY03
Release from Retention Interference for Acoustic Duration
Meagan Smith; Margaret Tomko; Dennis Ries, PhD, Ohio University, Athens, OH
Danielle Gadd, AuD, Miracle Ear, Peoria, IL

Poster #38 – PSY04 Mentored Student Research Poster Award
Categorical Loudness Scaling and Equal Loudness Contours in Individuals with Hearing Loss
Jessa Gombert; Lauren Liebig Trehearn; Daniel Rasetshwane, PhD; Stephen Neely; Judy Kopun, MA; Michael Gorga, PhD, Boys Town National Research Hospital, Omaha, NE

Poster #39 – PSY05 Mentored Student Research Poster Award
Categorical Loudness Scaling and Equal Loudness Contours in Individuals with Normal Hearing
Lauren Liebig Trehearn; Jessa Gombert; Daniel Rasethwane, PhD; Stephen Neely; Judy Kopun, MA; Michael Gorga, PhD, Boys Town National Research Hospital, Omaha, NE

Poster #40 – PSY06 Mentored Student Research Poster Award
Specific Coupling Can Affect Perceived Loudness in Insert Earphones
Kristen D’Onofrio, MA; Todd Ricketts, PhD, Vanderbilt University, Nashville, TN
Stephen Ambrose, Asius Technologies

Poster #41 – PSY07 Mentored Student Research Poster Award
Development and Verification of a Two-Interval, Forced-Choice Infant Behavioral Testing Procedure
Jenna Browning; Emily Buss; Lori Leibold, The University of North Carolina at Chapel Hill, Chapel Hill, NC

Poster #42 – PSY08 Effects of Age, Hearing Impairment and Efferent Feedback on Overshoot
Skyler G. Jennings, PhD, Department of Communication Sciences and Disorders, The University of Utah, Salt Lake City, UT
Jayne B. Ahlstrom, MS; Judy R. Dubno, PhD, Department of Otolaryngology-Head And Neck Surgery, Medical University of South Carolina, Charleston, SC

Poster #43 – PSY09 Impacts of Aging on the Central Auditory System
Sean Kampel, AuD; Frederick Gallun, PhD; Michelle Molis, PhD; Serena Dann, AuD; Nirmal Kumar Srinivasan; Sam Gordon, BSEE; Kasey Jakien, BA; Dawn Konrad-Martin, PhD, National Center for Rehabilitative Auditory Research (NCRAR), Portland, OR

Poster #44 – PSY10 Spatial Release from Masking in Reverberant Environments for Elderly Listeners
Nirmal Kumar Srinivasan, PhD; Frederic Gallun, PhD; Sean Kampel, AuD; Samuel Gordon; Kasey Jakien, National Center for Rehabilitative Auditory Research (NCRAR), Portland, OR

Speech Perception

Poster #45 – SP01 Mentored Student Research Poster Award
Effect of Motion on Speech Recognition
Timothy Davis, AuD; D. Wesley Grantham, PhD, Vanderbilt University, Nashville, TN

Poster #46 – SP02 Sound Localization and Speech-in-Noise Abilities in Hearing Impaired Listeners
Danielle Zion, AuD; Julie Cohen, AuD; Douglas Brungart, PhD, Walter Reed National Military Medical Center, Bethesda, MD

Poster #47 – SP03 Importance of High Frequencies on Speech Recognition With and Without Visual Cues
Amanda Silberer, PhD, University of Iowa/Western Illinois University, Iowa City, IA
Ruth Bentler, PhD; Yu-Hsiang Wu, PhD, University of Iowa

Poster #48 – SP04 Mentored Student Research Poster Award
Word Recognition in Competing Backgrounds: Effects of Development and Hearing
Nicole Corbin, AuD, The University of North Carolina at Chapel Hill, Chapel Hill, NC
Emily Buss, PhD; Angela Bonino, PhD, The University of North Carolina at Chapel Hill, Department of Otolaryngology/ Head and Neck Surgery, Chapel Hill, NC
Lori Leibold, PhD, Division of Speech and Hearing Sciences, The University of North Carolina at Chapel Hill, Chapel Hill, NC

Poster #49 – SP05 T35 Research Trainee Poster
Effects of Looking Behavior on Understanding in a Simulated Classroom
Shannon Wannagot, University of Connecticut, Storrs, CT
Dawna Lewis, PhD, Boys Town National Research Hospital, Omaha, NE

Poster #50 – SP06 T35 Research Trainee Poster
Consonant Recognition in Noise for Bilingual Children with Normal Hearing
Megan Espinosa, University of Maryland, College Park, Severn, MD
Kanae Nishi, PhD, Boys Town National Research Hospital, Omaha, NE

Poster #51 – SP07 Dynamic Range of Speech Materials in Korean, English, and Mandarin
In-Ki Jin, MS; James Kates, MS; Kathryn Arehart, PhD, University of Colorado at Boulder, Boulder, CO

Poster #52 – SP08 Rise-Fall Shape Characteristic and Locations of Interruptions in Interrupted Words
Richard Wilson, PhD, VA Medical Center, Phoenix, AZ
POSTERS – TITLES AND AUTHORS

POSTER #50 – SP09
Word Placement and Sentence Context Impact Vowel Recognition in Noise
Janine Wotton, PhD; Andrea Blom, Gustavus Adolphus College, St Peter, MN

POSTER #51 – SP10
Effects of Linguistic Background and Noise on Vowel Duration Perception
Haridasan Patra, PhD; Petula Vaz, PhD; Natalie Greenholt, Bloomsburg University, Bloomsburg, PA

POSTER #52 – SP11 Mentored Student Research Poster Award
Cognition and Speech Perception in Older Normal Hearing Listeners
Stacey Samuels-Cole, MA; Sandra Gordon-Salant, PhD, University of Maryland College Park, College Park, MD

POSTER #53 – SP12 New Insight Regarding Psychometric Functions of Dual-task Paradigms
Yu-Hsiang Wu, PhD; Ashley Bahr; Elizabeth Stangl, University of Iowa, Iowa City, IA

POSTER #54 – SP13 Mentored Student Research Poster Award
Interaction of Working Memory, Compressor Speed and Background Noise Characteristics
Barbara Ohlenforst, MS; Pamela Souza, PhD, Northwestern University, Evanston, IL

POSTER #55 – SP14 Auditory Working Memory under Varying Perceptual and Cognitive Loads
Sarah Olson; James Sheehan; Nicole Marrone, PhD; Mary Alt, PhD; Gayle DeDe, PhD, The University of Arizona, Tucson, AZ

POSTER #56 – SP15 How Does Level of Perceptual Processing Affect Audiovisual Integration?
Kaylah Lalonde, Indiana University, Bloomington, IN

POSTER #57 – SP16 T35 Research Trainee Poster
Reverberation and Listening Effort for Listeners with Normal Hearing
Erin Picou, PhD; Todd Ricketts, PhD, Vanderbilt University, Nashville, TN

POSTER #58 – SP17 The Effect of Multi-talker Babble on Dual Task Performance
Jaclyn Hellmann; Nicole Marrone, PhD; Daniel Bos, University of Arizona, Tucson, AZ

POSTER #59 – SP18 Effects of Aging and Spectral-Shaping on Brainstem Differentiation of Consonants
Dania Rishiq, PhD, Starkey Hearing Technologies, Eden Prairie, MN

ASHLEY HARKRIDER, PHD; MARK HEDRICK, PHD, University of Tennessee Health Science Center, Knoxville, TN

POSTER #60 – SP19 Visual and Auditory Phonetic Context Effects in Persons with Hearing Loss
Sheila Pratt, PhD, University of Pittsburgh and VA Pittsburgh Healthcare System, Pittsburgh, PA

MIN ZHANG, MS, University Of Pittsburgh, Pittsburgh, PA

LINDSEY JORGENSEN, PHD, University of South Dakota, Vermillion, SD

POSTER #61 – SP20 Mentored Student Research Poster Award Development of a Pediatric Vowel Discrimination Task
Sadie Schwarz; Lauren Calandruccio, PhD, The University of North Carolina, Chapel Hill, NC

EMILY BASS, PhD, The University of North Carolina, Chapel Hill, Department of Otolaryngology/Head and Neck Surgery, Chapel Hill, NC

POSTER #71 – SP21 Effects of Aging and Hearing on a Time-Compressed Speech Test
Michelle Molis, PhD; Serena Dann, AuD; Frederick Gallun, PhD; Sean Kampel, AuD; Dawn Konrad-Martin, PhD, NCRAR, PVAMC, Portland, OR

ODED GHITZA, PHD, Boston University, Boston, MA

POSTER #72 – SP22 Aging and the Effect of Response Time Limitation on Speech Understanding
Karen Heffer, PhD; Angela Costanz; Sarah Laakso, University of Massachusetts, Amherst, MA

POSTER #73 – SP23 Effects of Talker Accent and Age on Recognition of Multisyllabic Words
Sandra Gordon-Salant, PhD; Grace Yeni-komshian, PhD; Peter Fitzgibbons, PhD, University of Maryland, College Park, MD

Julie Cohen, AuD, Walter Reed National Military Medical Center, Bethesda, MD

VESTIBULAR

POSTER #68 – VEST01 Correlations Between Unilateral Centrifugation Testing And Ocular Vestibular Evoked Myogenic Potential Testing
Chris Zalewski, PhD; Carmen Brewer, PhD, NIH – NIDCD, Bethesda, MD

R. Steven Ackley, PhD; M. Diane Clark, PhD, Gallaudet University, Washington, N.E., DC

Devon Mcaslin, PhD, Vanderbilt University - Bill Wilkerson Center, Nashville, TN

Wendy Hanks, PhD, Pacific University, Hillsboro, OR

POSTER #69 – VEST02 Characterizing Nonorganic Balance Performance in Patients with Anxiety and/or Depression
Brittany Dowling; Ashley Zaleski, MS; Madalyn Rash; Matthew Wester, AuD; Laurie Davis, AuD; Jamie Bogle, PhD; Michael Cevette, PhD, Mayo Clinic, Scottsdale, Arizona, Scottsdale, AZ

POSTER #70 – VEST03 Analysis of the Relationship Between Gait and Postural Motor Control
Kenneth Bouchard, PhD; Ashley Hallberg, AuD; Virginia Ramachandran, PhD, AuD, Henry Ford Health System, West Bloomfield, MI

Emily Nairn-jewell, AuD, University of Michigan Health System, Ann Arbor, MI

PHYSIOLOGY: MIDDLE EAR AND COCHLEA

POSTER #77 – PHYS01 Compensation for Probe Insertion Depth in Wideband Acoustic Ear-Canal Measurements
James Lewis, PhD; Sara Fultz; Daniel Rasethswane, PhD; Judy Kopun, MA; Michael Goga, PhD; Stephen Neely, Boys Town National Research Hospital, Omaha, NE

POSTER #78 – PHYS02 Modeling Average Versus Individual Human Middle Ear Data
Lucia Schnetzer; Robert Withnell, Indiana University, Department of Speech and Hearing Sciences, Bloomington, IN

POSTER #79 – PHYS03 Improved Bandwidth Acoustic Probe for OAE Measurements with FPL Calibration
Noori Kim, MS; Jont B. Allen, PhD, UIUC, Champaign, IL

POSTER #80 – PHYS04 Reflectance Measurement Validation Using Acoustic Horns
Daniel Rasethswane, PhD; Stephen Neely, Boys Town National Research Hospital, Omaha, NE
POSTERS – TITLES AND AUTHORS

Poster #81 – PHYS05
Long Term Variability of Distortion-Product Otoacoustic Emissions (DPOAEs) in Children
Kristin Knight, MS; Edward Neuwelt, MD; Christiane Winter, MS, Oregon Health And Science University, Portland, OR
Ganett McMillan, PhD; Dawn Martin, PhD; Marilyn Dille, PhD, National Center for Rehabilitative Auditory Research, Portland, OR
Elsa Nelson, AuD, Portland State University, Department of Speech and Hearing Science, Portland, OR

Poster #82 – PHYS06
Relationship Between the Medial Olivocochlear Reflex, Attention, and Hearing in Noise
Rachel W. Stanziola; Ian B. Mertes, AuD; Shawn S. Goodman, PhD,
The University of Iowa, Iowa City, IA
James D. Lewis, PhD, Boys Town National Research Hospital, Omaha, NE

Poster #90 – PHYS07
Effects of Oxaliplatin across Treatment on Various Auditory/Cochlear Measures
Melissa Ho, San Diego State University/University of California San Diego, San Diego, CA
Erin Gourley Reid, MD, University Of California, San Diego, Division Of Hematology-oncology, La Jolla, OR
Jonathan Siegel, PhD, Northwestern University, Evanston, IL
Laura Dreisbach, PhD, San Diego State University, CA

Poster #92 – PHYS09
Wideband Acoustic Middle Ear Reflectance in Rheumatoid Arthritis
Bruna Cibin, MS; Seisse Sanches, PhD; Renata Carvalho, PhD; Ieda Maria Magalhaes Laurindo, University of Sao Paulo, Sao Paulo, Brazil
Navid Shahnaz, AuD, University of British Columbia, Vancouver, Canada

Poster #93 – PHYS10
Improvements in Cochlear Reflectance Test Performance
Sara Fultz; Daniel Rasethswane; PhD; Stephen Neely; Judy Kopun, MA; Michael Gorga, PhD, Boys Town National Research Hospital, Omaha, NE

Poster #94 – PHYS11
T35 Research Trainee Poster
Effects of Air-Leak on Ear-Canal Acoustic Absorbance
Katherine Groon, Gallaudet University, Washington, DC
Daniel Rasethswane, PhD; Judy Kopun, MA; Michael Gorga, PhD; Stephen Neely, Boys Town National Research Hospital, Omaha, NE

Poster #84 – NIHL02
T35 Research Trainee Poster
Central Auditory Processing Deficits Associated with Blast Exposure: Electrophysiological Data
Leslie Grush, University of Colorado - Boulder, Boulder, CO
Melissa Papesch, AuD; Robert Falmer, PhD; Marjorie Leek, PhD; Michele Hutter, MS; Frederick Gallun, PhD, National Center for Rehabilitative Auditory Research - Portland VA Medical Center, Portland, OR

Poster #103 – NIHL03
Creation of a Tool for Education in Hearing Health Worker
Andrea Lopes; Andreia Araejo; Amanda Bozza; Evelyn Domenico; Nelfa Ferreira; Marina Panelli; Graziella Munhoz, University of Sao Paulo, Brazil

Poster #104 – NIHL04
Development of a Hypermedia Tool for Promoting Hearing Health Dentists
Andrea Lopes, PhD; Graziella Munhoz; Evelyn Domenico; Amanda Bozza; Nelfa Ferreira; Marina Panelli; Lia Uieda, University of Sao Paulo, Brazil

EPIDEMIOLOGY

Poster #85 – EPI01
Association of Hearing Impairment and Frailty in Older Adults
Rebecca Kamil; Frank Lin, MD, Johns Hopkins University, Baltimore, MD
Lingxiong Li, University of Oklahoma College of Medicine

Poster #87 – T35 Research Trainee Poster
Auditory and Cognitive Effects of Diabetes: Influence of Disease Severity
Nicholas Reed, Towson University, Towson, MD
Marilyn Dille, PhD; Kelly Reavis, MS; Jane Gordon, MS; Daniel McDermott, MS; Dawn Konrad-Martin, PhD, National Center for Rehabilitative Auditory Research, Portland, OR

Poster #88 – EPI03
Association of Hearing Impairment and Hospitalization in Older Adults
Dane Genther, MD; Frank Lin, MD, PhD, Johns Hopkins University School of Medicine, Baltimore, MD
Joshua Betz, MS, Johns Hopkins University, Bloomberg School of Public Health
Sheila Pratt, PhD, VA Pittsburgh Healthcare System
Kathryn Martin, PhD, MPH; Tammy Harris, MD, MS; National Institute on Aging, Bethesda, MD
Suzanne Satterfield, MD, DrPH, University of Tennessee Health Science Center
Douglas Bauer, MD, University of California, San Francisco School of Medicine
Anne Newman, MD, MPH, University of Pittsburgh Graduate School of Public Health
Eleanor Simonsick, PhD, National Institute on Aging, BMJ

Poster #89 – EPI04
Mentored Student Research Poster Award
Racial/Ethnic and Socioeconomic Disparities in Hearing Care Among Older Americans
Carrrie Nieman, MD, Johns Hopkins University School of Medicine, Dept Otolaryngology-HNS, Baltimore, MD

DIAGNOSTIC AUDIOLOGY / OTOLGY

Poster #95 – DX01
Audimetric Properties of Three Circumaural Earphones
Brandon Madsen; Robert Margolis, PhD, University of Minnesota, Minneapolis, MN

Poster #96 – DX02
The Effect of Visual Cues on Scoring of Speech Tests
Heekyung Han, MS; Robert S. Schlauch, PhD; Aparna Rao, PhD, University of Minnesota, Minneapolis, MN
POSTERS – TITLES AND AUTHORS

Poster #97 – DX03
Defining and Describing Progressive Hearing Loss in Children
John Lee; Linda Hood, PhD, Vanderbilt University, Nashville, TN

Poster #106 – DX04
Characterizing Severe Hearing Loss
Pamela Souza, PhD; Michael Blackburn; Eric Hoover, Northwestern University, Evanston, IL
Frederick Gallun, PhD, National Center for Rehabilitative Auditory Research, Portland, OR

AUDITORY PROCESSING

Poster #98 – AP01
Middle Ear Muscle Reflex (MEMR) in Children with Unmedicated ADHD
Kyoko Nagao, PhD; L. Ashleigh Greenwood, AuD; Steven Reader, PhD; Thierry Morlet, PhD; Nemours/Alfred I. DuPont Hospital for Children, Wilmington, DE
Laura Grinstead, Towson University, Towson, MD

Poster #99 – AP02
Are Listening Difficulties Unique to Children with Auditory Processing Disorder?
Melanie Ferguson, PhD, Nihr Nottingham Hearing Biomedical Research Unit, Nottingham, UK
David Moore, PhD, Cincinnati Children’s Hospital Medical Center, Cincinnati, OH

Poster #100 – AP03
Presentation Level Effects on the SCAN-3 in Children and Adults
Tina Stoodly, PhD, University of Northern Colorado, Greeley, CO

Poster #101 – AP04
Perception of Filtered and Dichotic Speech in Two APD Populations
Julianne Ceruti; Frank Musiek, PhD, University of Connecticut, Storrs, CT
Jeffrey Weihing, PhD, University of Louisville, Louisville, KY

Poster #105 – AP05
Biomarkers of Listening Difficulties in Children: an fMRI Study
Rola Farah, PhD, Cincinnati Children’s Hospital Medical Center, Cincinnati, OH
Vincent J. Schmithorst, PhD, Children’s Hospital of Pittsburgh of UPMC, Dept. of Radiology, Pittsburgh, PA
Robert W. Keith, PhD, University of Cincinnati, Dep. of Communication Sciences and Disorders, Cincinnati, OH
Scott K. Holland, PhD, Cincinnati Children’s Hospital, Pediatric Neuroimaging Research Consortium

ANATOMY

Poster #86 – ANAT01
3D Printed Temporal Bone Model for Surgical Training in Mastoidectomy
Joss Cohen, University at Buffalo School of Medicine And Biomedical Sciences, Buffalo, NY
Samuel Reyes, MD, Buffalo Ent Specialists / Ub, Williamsville, NY

Poster #102 – ANAT02
An Illustrative Approach To The Auditory Vertebral Basilar System
Mallory Brown; Frank Musiek, PhD, University of Connecticut, Storrs, CT

DISEASES / SYNDROMES / DNA REPAIR

Poster #107 – DIS01
Comprehensive Auditory Phenotype of Alstrom Syndrome
Carmen Brewer, PhD; Christopher Zalewski; Kelly King, PhD, NIDCD/NIH, Hyattsville, MD
Meral Gunay-aygun, MD, NHGRI/NIH and Johns Hopkins University
H. Jeffrey Kim, MD, NIDCD/NIH and Georgetown University Hospital

Poster #108 – DIS02
Cortical Auditory Evoked Potentials in Pelizaeus-Merzbacher Disease
Thierry Morlet, PhD, Kyoko Nagao, PhD; L. Ashleigh Greenwood, AuD; Mora Sara, PhD; Stacey Koefly; Grace Hobson, PhD, Nemours/Alfred I Dupont Hospital for Children, Wilmington, DE

Poster #109 – DIS03
Inducible DNA Repair Enzymes in the Mammalian Cochlea
O’neil Guthrie, PhD, Lorna Linda Va Medical Center, Lorna Linda, CA

Poster #110 – DIS04
Mentored Student Research Poster Award
Auditory Phenotype of Patients with Isolated Methylenomalonic Acidemia (MMA)
D. Rudyard Nast; Chris Zalewski, PhD; Kelly A. King, PhD; Carmen C. Brewer, PhD, National Institute on Deafness and Other Communication Disorders, Bethesda, MD
Irini Manoli, MD; Jennifer Sloan, PhD; Charles P. Venditti, MD, National Human Genome Research Institute

Poster #123 – DIS05
Mitochondrial DNA (MTDNA) Haplotypes and Dysfunctions in Presbyacusis
Hossam Mostafa; Amal El-attar, MD; Gamal Ahmed, Assuit University Hospital, Assiut
Stefano Berrettini; Francesca Forli; Gabrielle Siciliano; Michelangelo Mancuso, University of Pisa, Italy

Poster #124 – DIS06
Increased Sensorineural Hearing Sensitivity in Children with Progeria During Lonafarnib Treatment
Hamira Osman, University of Washington; Boston Children’s Hospital, Seattle, WA
Brian Fligor, PhD, Boston Children’s Hospital; Harvard Medical School, Boston, MA

COCHLEAR IMPLANTS

Poster #111 – CI01
T35 Research Trainee Poster
Cue Integration in Question-Statement Identification by Hearing and Cochlear-Implanted Children
Alison Goren; Julie Christensen, AuD; Monita Chatterjee, PhD, Auditory Prosthesis and Perception Lab, Boys Town National Research Hospital, Omaha, NE, and The University of Maryland, College Park, MD
Brooke Burianek, Doane College In Crete, Ne
Shu-chen Peng, PhD, U.S. Food and Drug Administration, Silver Spring, MD
Nelson Lu, PhD, Division of Biostatistics, CDHR/FDA (Center for Devices and Radiological Health, Food and Drug Administration), Silver Spring, MD

Poster #112 – CI02
An Assessment of Partial Tripolar Stimulation in Cochlear Implant Users
Melanie Gilbert, AuD; Leonid Litvak, PhD; Myles McLaughlin, PhD, Advanced Bionics LLC, Valencia, CA

Poster #113 – CI03
Effect of Current Levels on Residual Hearing in EAS Subjects
Andrea Buckner, University Of North Carolina At Chapel Hill, Chapel Hill, NC
Margaret Dillon, AuD; Harold Pillsbury, MD; Craig Buchman, MD; Oliver Adunka, MD; UNC Department of Otolaryngology/Head And Neck Surgery, Chapel Hill, NC
Marcia Adunka, AuD; English King, AuD, UNC Department of Audiology, Chapel Hill, NC
Poster #114 – CI04  Mentored Student Research Poster Award  
Near-Infrared Spectroscopy Detects Brain Activity Differences Between CI Simulations  
Sterling Sheffield, AuD; Rene Gifford, PhD, Vanderbilt University, Nashville, TN

Poster #115 – CI05  
Neural Correlates of Phonetic Learning in Adult Cochlear Implant Users  
Sharon Miller, MA; Yang Zhang, PhD; Peggy Nelson, PhD, University of Minnesota, Minneapolis, MN

Poster #116 – CI06  New Investigator Poster Award  
Integration of Electrical Pulses by Listeners with Cochlear Implants  
Ning Zhou, PhD, East Carolina University, Greenville, NC  
Casey Kreft, MS; Bryan E. Pfingst, PhD; Deborah J. Colesa, MS, University of Michigan

Poster #117 – CI07  
Factors Affecting Speech Outcomes in Hearing Preservation Cochlear Implantation  
Sandra Prentiss, PhD, University Of Kansas Medical Center, Department Of Otolaryngology Head & Neck Surgery, Kansas City, KS

Poster #119 – CI08  T35 Research Trainee Poster  
Acoustic Bandwidth Required for Bimodal Benefit in Pediatric Cochlear Implantation  
Michelle Simha, University of South Florida, Tampa, FL  
Sterling Sheffield, AuD; Rene Gifford, PhD, Vanderbilt University, Nashville, TN

Poster #120 – CI09  Mentored Student Research Poster Award  
Exploring Relationships Among Electrophysiological Measures, Behavioral Thresholds and Electrode Position  
Rachel Scheperle, PhD; Paul Abbas, PhD, University of Iowa, Iowa City, IA  
Julie Bierer, PhD, University of Washington, Seattle, WA

Poster #121 – CI10  
Joint Attention in Children Obtaining Cochlear Implants: A Preliminary Report  
Tina Grieco-Calub, PhD; Erin Ingvalson, PhD, Northwestern University, Evanston, IL  
Nancy Young, MD, Northwestern University; Ann & Robert H. Lurie Children’s Hospital of Chicago  
Patrick Wong, PhD, The Chinese University of Hong Kong

Poster #122 – CI11  
Speech Recognition Performance with PRESTO in Five Clinical Populations  
Kathleen Faulkner, PhD; Terrin Tamati; Taylor Twigg; David Pisoni, PhD, Indiana University, Bloomington, IN

Poster #125 – CI12  
Listening Effort in Bilateral Cochlear Implants and Bimodal Hearing  
Matthew Fitzgerald, PhD; Katelyn Glassman, AuD; Keena Seward, AuD; Arlene Neuman, PhD, New York University School of Medicine, New York, NY  
Sapna Mehta, City University of New York, New York, NY

Poster #126 – CI13  
Objective and Subjective Measures of Listening Effort and Fatigue in Adult Cochlear Implant Recipients  
Robert Dwyer; Rene Gifford, PhD, Vanderbilt University, Nashville, TN  
Michael Dorman, PhD, Arizona State University  
Tony Spahr, PhD, Advanced Bionics and Vanderbilt University

Poster #127 – CI14  
Listening Effort: Bilateral and Bimodal Cochlear Implant Listeners  
Douglas Sladen, PhD, Mayo Clinic, Rochester, MN  
Yingjiu Nie, PhD, James Madison University, Harrisonburg, VA

Poster #128 – CI15  
Speech Understanding Using a Roving Target with Spatially Separated Maskers  
Louise Luselle, PhD; Michael Dorman, PhD; William Yost, PhD; Sarah Cook, Arizona State University, Tempe, AZ

Poster #129 – CI16  Mentored Student Research Poster Award  
Effects of Spectral Shift on Dichotic Speech Recognition  
Rebecca Berger; Li Xu, PhD, Ohio University, Athens, OH  
Yitao Mao, Central South University

Poster #130 – CI17  
Short-Time Temporal Fine Structure Processing Improves Speech Perception  
Limmin Hou, PhD; Kyle Brown; Li Xu, PhD, Ohio University, Athens, OH  
Yanmei Feng, MD; Shankai Yin, MD, Shanghai Jiaotong University

Poster #131 – CI18  
Linguistic Cues vs. Acoustic-Visual Coherence in Auditory-Visual Benefit  
Shuai Wang; Julie Liss, PhD; Visar Berisha, PhD; Xuan Zhong, MS; Sarah J. Cook; Michael F. Dorman, PhD, Arizona State University, Tempe, AZ

Poster #132 – CI19  
Exploring the Source of Neural Responses in Cochlear Implant Users  
Akinori Kashio, PhD; Viral Tejani, AuD; Rachel Scheperle, PhD; Carolynn Brown, PhD; Paul Abbas, PhD, University of Iowa Hospitals And Clinics, Iowa City, IA

Poster #133 – CI20  T35 Research Trainee Poster  
Is Visual Temporal Processing Related to Speech Perception after Cochlear-implantation?  
Kelly Jahn; Ryan Stevenson, PhD; Juliane Krueger; Mark Wallace, PhD, Vanderbilt University, Nashville, TN

Poster #134 – CI21  
Visual Contributions to Reverberant Speech Perception for Cochlear Implant Users  
Brianna Boles; Nathaniel Whitmal, PhD; Sarah Poissant, PhD, University of Massachusetts Amherst, Amherst, MA

Poster #135 – CI22  
8.01 Auditory Enhancement in Cochlear-Implant Users with Simultaneous and Forward Masking  
Heather Kreft, MA; Ningyuan Wang; Andrew Oxenham, PhD, University of Minnesota, Minneapolis, MN

Poster #136 – CI23  
Psychophysical Measures Show Treatment Effects in Cochlear Implant Mapping  
Nancy McIntosh, AuD; Jay Rubinstein, MD; Ward Drennan, PhD, VM Bloedel Hearing Research Center, Seattle, WA
THANK YOU

The American Auditory Society and Publisher of Ear and Hearing wish to thank these companies for their support of complimentary memberships for 2014 AuD and PhD Students. We are grateful for their generous educational support for these future audiologists, otolaryngologists and hearing researchers.

Audiology Incorporated

Intelligent Hearing Systems

Knowles Electronics

MED-EL Corporation

Oticon

Siemens Hearing Instruments

Starkey Hearing Technologies