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2<sup>nd</sup> International Conference and Expo on

# Audiology and Deaf Studies

Audiology 2016

November 10-11, 2016 Las Vegas, Nevada

## TENTATIVE PROGRAM

**Theme: An Insight into Advanced Research Technologies and Application in Audiology**

| AUDIOLoGY 2016 |

2<sup>nd</sup> International Conference and Expo on  
**Audiology and Hearing Devices**

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Program at a Glance	
Day 1 Nov 10, 2016	
Time	Session
08:30-09:30	Registrations
09:30-10:00	Opening Ceremony
	Keynote Forum
10:00-10:30	Introduction
Coffee/Tea Break 10:30-10:45 (Networking)	
10:45-11:45	Track 01: Audiology:Medicine and Instrumentation  ***Keynote Slot Available**
11:45-12:45	Track 02: Auditory Disorders  ***Keynote Slot Available**
Lunch Break 12:45-13:45	
13:45:14:45	Track 03: Diagnostics In Audiology  ***Keynote Slot Available**
14:45-15:45	Track 04: Hearing:Biology and Physiology  ***Keynote Slot Available**
Coffee/Tea Break 15:45-16:00 (Networking)	
16:00-17:00	Track 05: Pediatric Audiology  ***Keynote Slot Available**
Day 2 Nov 11, 2016	
08:30-09:30	Track 06: Hearing Loss and Prevention  ***Keynote Slot Available**
09:30-10:30	Track 07: Auditory Rehabilitation  ***Keynote Slot Available**
Coffee/Tea Break 10:30-10:45 (Networking)	
10:45-11:45	Track 08: Auditory Neurophysiology  ***Keynote Slot Available**
11:45-12:45	Track 09: Hearing Aids and Treatment Technology  ***Keynote Slot Available**
Lunch Break 12:45-13:45	
13:45-14:45	Track 10: Implantable Technologies and Advancement in Treatment  ***Keynote Slot Available**
14:45-15:45	Track 11: Hearing Impairment and Deafness-Causes and Treatment  ***Keynote Slot Available**
Coffee/Tea Break 15:45-16:00 (Networking)	
16:00-16:30	Poster Presentation
16:30-15:00	Group photos/Awards/Closing Ceremony

# Audiology and Deaf Studies

November 10-11, 2016 Las Vegas, Nevada

## Biography

## Abstract

### The shape of the ear canal y

**A.G. Ramm**

**Mathematics Department, Kansas State University,  
Manhattan, KS 66506-2602, USA**

Consider a bounded domain  $D \subset \mathbb{R}^n$ ,  $n = 3$ ; with a connected Lipschitz boundary  $S$ . Let  $F$  be an open subset on  $S$ , a membrane,  $G = S \setminus F$ , and  $N$  is the outer unit normal to  $S$ . The domain  $D$  models the ear canal. The acoustic pressure  $u$  is given on the membrane  $F$ ,  $u = f \neq 0$  on  $F$ . This pressure is zero on  $G$ , and the normal component of the velocity,  $u_N := h$ , is measured on  $F$ . The problem we are concerned with is:

Given the datum  $ff; hg$ , with  $f \neq 0$ , for a single  $f$ , can one recover uniquely the shape of  $D$ , the ear canal?

Let us introduce now the corresponding mathematical formulation of the above

inverse problem. Consider the problem:

$$\Delta u + k^2 u = 0 \text{ in } D; \quad u = f \text{ on } F; \quad u = 0 \text{ on } G; \quad (1)$$

We assume that  $k^2$  is not a Dirichlet eigenvalue of the Laplacian in  $D$ . This assumption will be removed later. If this assumption holds, then the solution to problem (1) is unique. Thus, its normal derivative,  $u_N := h$  on  $F$ , is uniquely determined. Suppose one can measure  $h$  on  $F$  for a single  $f \in C_0(F)$ .

The inverse problem (IP) we are interested in can now be formulated:

Does this datum determine  $G$  uniquely?

Thus, we assume that  $F$ ,  $f$  and  $h$  are known, that  $k^2$  is not a Dirichlet eigenvalue of the Laplacian in  $D$ , and we want to determine the unknown part  $G$  of the boundary  $S$ .

Let be the smallest eigenvalue of the Dirichlet Laplacian  $L$  in  $D$ . Let us assume that

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## Biography

*She is an ENT and Allergist working at the world-renowned specialist ENT hospital in central London. She is also an Educational Supervisor for Foundation doctors in the NHS and is an undergraduates Examiner at University College London Medical School. She has spearheaded research into Rhinitis/Rhinosinusitis and has led international teams in collaborative projects. She is in-charge of the Womens section of Medical Organisation in her local community where she leads volunteer doctors in public health and mass gathering medical care incentives, she is also Student Support Lead helping those interested in medicine and supporting the training of current medical students.*

## Abstract

### Dymista© Nasal Spray with Multifocal Analysis of its Impact on the Rhinitis Disease Experience

**Amtul Salam Sami and Nida Ahmed**

**ENT AND ALLERGY DEPARTMENT, ROYAL NATIONAL THROAT, NOSE AND EAR HOSPITAL, UNIVERSITY COLLEGE LONDON HOSPITALS, LONDON, UK; 2KING'S COLLEGE LONDON SCHOOL OF MEDICINE AT GUY'S, KING'S COLLEGE AND ST THOMAS' HOSPITALS, LONDON, UK**

**Background:** Rhinitis is a prevalent condition both in primary care and in specialist centres. It has been shown to significantly impact on quality of life. Treatment is often best managed on combined therapies. Dymista© nasal spray is filling a niche for an 'all in one' treatment of allergic rhinitis.

**Method:** The MSNOT-20 is a valid disease specific quality of life instrument for rhinitis and rhinosinusitis and it was used to evaluate the symptomatic response to treatment with Dymista nasal spray.

**Results:** Dymista has been shown to improve all domains of the patient experience of rhinitis and rhinosinusitis with positive feedback by both patients and prescribing physicians.

**Conclusion:** Dymista is effective at improving patient symptomatology and improves quality of life. These positive results have opened up further avenues for research to explore its efficiency and place as mode of treatment.

# Audiology and Deaf Studies

November 10-11, 2016 Las Vegas, Nevada

## Biography

Professor Dr. Hossam Abdelghaffar has completed his MD degree in Audiology at the age of 30 years from Cairo University School of Medicine . He was director of Audiology Unit at Dr. Soliman Fakih Hospital in Kingdom of Saudi Arabia from 2003-2005 .Now he is holding the position of professor of Audiology and Head of OtoRhinoLaryngology department at School of Medicine Helwan University ,Cairo ,Egypt He has published more than 15 papers in reputed journals and he is reviewer of the Egyptian Journal of Ear, Nose, Throat and Allied Sciences . He has supervised more than 20 Master and Doctorate degree thesis . He is a member of the International Association of Physicians in Audiology (IAPA)

## Abstract

### Neonatal hearing screening with transient evoked otoacoustic emissions in Western Saudi Arabia

**Hossam Abdelghaffar****Helwan University School of Medicine, Cairo, Egypt**

To study the incidence of congenital hearing impairment in the Saudi population and to evaluate the need of establishing a Saudi universal neonatal hearing screening program based on transient evoked otoacoustic emission.

A total of 11986 well non-high-risk neonates were screened by transient evoked otoacoustic emission over period of 8 years from September 1996 to February 2004. The universal hearing screening was consequently done in a daily base before discharge from nursery. Those who failed the initial screening were followed up diagnostically until hearing loss was confirmed or excluded.

From the total number of 11,986 neonates (41.4% male and 58.6% females) examined in this study

10943 (91.3%) neonates passed the first screening step while 1043(8.7%) neonates failed. From the

1043 neonates examined in the second screening step in the 5th day of life, 300 (29%) neonates

failed. At the age of 5 months, all the 300 infants that failed the second screening step underwent a comprehensive audiological assessment to confirm the existence of hearing loss. The 278 infants

that passed the assessment were considered as normal; while 22 failed and were confirmed to have

congenital hearing loss. Of these 22 infants, 2 had unilateral sensorineural hearing loss, and the remaining 20 had bilateral sensorineural hearing loss. The incidence of sensorineural hearing loss

was estimated to be 0.18% while the incidence of bilateral sensorineural hearing loss was 0.17%.

# Audiology and Deaf Studies

November 10-11, 2016 Las Vegas, Nevada

## Biography

Dr. Hua Ou received her medical degree at West China Center of Medical Sciences at Sichuan University, Sichuan, China and practiced as an otolaryngologist before she came to America ten years ago. She then received her Ph. D. in Hearing Science as well as a Master's Degree in Biostatistics at the University of Iowa. She is an assistant professor and a biostatistician at Illinois State University. She has received multiple awards including ASHA career award and has published ten papers in reputed journals.

## Abstract

### The Relationship between Self-Rated Speech Intelligibility and Acceptable Noise Levels

**Hua Ou**

Illinois State University Department of Communication Sciences and Disorders, IL 61790, USA

The Acceptable Noise Level (ANL) has received substantial attention due to its potential to predict hearing-aid use success. It is a subjective measure of patients' willingness to tolerate noise, while listening to speech at the most comfortable level. Previous research suggests no relationship between ANLs and objective speech recognition performance in noise for hearing-impaired listeners. However, the relationship between self-rated speech intelligibility and ANL is unknown.

Forty-six hearing-impaired listeners and twenty normal-hearing listeners participated in the study. The ANLs were measured by Quick Speech-in-Noise (QuickSIN) test sentences in a four-talker babble. The self-rated speech intelligibility and the objective speech recognition performance were both measured, using the same test format and materials from the QuickSIN protocol. The differences between the rating of intelligibility and objective measures reflect how accurately listeners can judge their ability to listen in noise. Pearson correlation was used for the data analysis. The data revealed a significantly moderate correlation ( $r = 0.6$ ,  $p < .0001$ ) between ANLs and self-rated speech intelligibility for hearing-impaired listeners and a weak but significant correlation of 0.4 for the normal-hearing listeners ( $p = .04$ ). No relationship was found between ANLs and the discrepancy of objective and subjective speech recognition performance for either group. The results indicated that listeners who rated themselves as highly able to listen to speech in noise were better able to tolerate noise than those who rated themselves as less able to listen in noise.

# Audiology and Deaf Studies

November 10-11, 2016 Las Vegas, Nevada

## Biography

Dr. Hua Zhang, has got three the National Natural Science funds, a central health research project, and the Beijing Natural Science Found. The main research directions are clinical audiology and otology, especially in evaluation of cochlear implant and hearing aid, development of speech audiometry, hearing diagnosis research. He has engaged in clinical otology and audiology for more than 30 years

## Abstract

### Effect of implant age on auditory ability of infants in the first year after cochlear implantation

Hua Zhang  
Beijing Institute of Otolaryngology, China

**Background :** At present, more than 90 % of cochlear implant (CI) recipients are children in China. Nowadays the implanting age is getting younger and younger. However, whether a infant less than twelve-month should be implanted immediately after diagnosis of hearing loss or not?

The most used auditory assessment questionnaires for hearing impaired infants in China are categories of auditory performance (CAP) and Infant-Toddler meaningful auditory integration scale (IT-MAIS). The former had no age distinction and no significance in short term. Some studies have indicated that the reliability of IT-MAIS is inexact. Is there any other questionnaire that can make up for the shortages?

**Objective:** To observe the auditory development of infants with CI between the ages of 8~24 months in the first year. The effect of implant age and intervention periods were analyzed.

**Method:** Based on different implant ages, 41 infants with CI were divided into group A ( $\leq 12$ months), group B (13-18 months), group C (19-24months), using LittleEARS Auditory Questionnaire to assess and analyze auditory development before switch-on and 3 months,6 months,9 months and 12 months after switch-on.

**Results:** Auditory ability was no significant difference among three groups at the same period. Significant differences were obtained among different switch-on stages.

**Conclusion:** Auditory abilities of infants after switch-on in the first year were significantly increased. Auditory abilities of infants before age of 24 months with CI were no difference at the same period in the first year. It is suggested that infants implanted before age of 24 months could wear hearing aids. This could establish hearing experience for children to increase the probability of hearing response and the parents' confidence on rehabilitation. At the same time, the experience establishes a link between parents and therapists..

# Audiology and Deaf Studies

November 10-11, 2016 Las Vegas, Nevada

## Biography

Dr. Sanchez learned a PhD in auditory neuroscience from Kent State, a master's degree in audiology from Michigan State and a bachelor's degree in communication sciences and disorders from Northern Colorado. He's clinically trained in audiology from the Cleveland Clinic and completed postdoctoral training in developmental auditory neurobiology at the University of Washington. As director of the Central Auditory Physiology Laboratory at Northwestern, his research investigates developmental mechanisms underlying ion channel and synaptic receptor function. Such biophysical properties may guide requirements for cochlear implant and hearing aid design and potentially provide pharmacological targets to improve disorders of the auditory system.

## Abstract

### Ion channels regulate biophysical specializations in the auditory brainstem

Jason Tait Sanchez, Ph.D., CCC-A  
Department of Communication Sciences and Disorders, Department of Neurobiology  
Northwestern University, Evanston IL, 60208, USA

Ultrafast and temporally precise action potentials are biophysical specializations of auditory brainstem neurons; properties necessary for encoding sound localization and communication cues. Fundamental to this are voltage-dependent potassium and sodium ion channels. In this presentation, I will report our recent findings on how these ion channels shape action potential properties in the developing auditory brainstem. Using patch clamp recordings from individual cochlear nucleus neurons, our results indicate that the refinement of active ion channel properties operate differentially in order to develop action potential specializations. Such differential regulation promotes the firing of fast, reliable and phased locked action potentials at relatively high rates of afferent stimulation, a biophysical property required for normal auditory information processing. Developmental changes in ion channel subunit content were the largest contributor to this process and blockade of specific ion channel function resulted in aberrant neuronal excitability and action potential control. The idea that the regulation of ion channel properties is critical mechanism underlying auditory pathophysiological conditions will also be discussed.

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## Biography

Stephen Newton completed his MD at Howard University where he graduated with honors. He then completed his residency in Otolaryngology at the University of Iowa and also performed a two year research postdoctoral fellowship looking at microRNAs and their role in hearing loss. Later, he did a clinical fellowship in Pediatric Otolaryngology at Boston Children's Hospital. Currently Stephen is a Pediatric Otolaryngologist with Children's Hospital of Colorado and an assistant professor in the Department of Otolaryngology at the University of Colorado. He heads the cochlear implant program at Children's Hospital of Colorado's extension in Colorado Springs.

## Abstract

### Pediatric Conductive Hearing Loss, it's Not All Fluid

**Stephen Newton, MD**

**Childrens Hospital of Colorado, CO 80920**

**Department of Otolaryngology, University of Colorado, CO 80920**

The most common cause for conductive hearing loss in children is a middle ear effusion. However, there can be other causes, both congenital and acquired, that may require intervention beyond observation or pressure equalization tubes. Further evaluation is often required to define these types of hearing loss but an auditory history and audiogram may be the first clue. Congenital abnormalities of the ossicles and middle ear space may be suggested based on the level of hearing loss and tympanogram. These may be amenable to surgical procedure that may obviate the need for hearing aids. On the other hand, acquired and congenital cholesteatomas, can present in a multitude of ways and if not identified can lead to destruction of the ossicles and the potential for permanent hearing loss. Lastly, previous surgical intervention may alter the appearance of audiometric testing. The goal of the talk is to review the various types of conductive hearing loss in children and how they might present to the audiologist and on an audiogram.

# Tourist Attractions



## Glimpses of Past Conference

