

This is the program for ISAAR 2009

International Symposium on
Auditory and Audiological Research

ISAAR 2009
40 years jubilee symposium

26-28 August 2009
Marienlyst, Helsingør, Denmark

Title: "Binaural processing and spatial hearing"

[List of posters](#)

Wednesday 26 August

08:00-10:00 Registration and hanging of posters

10:00-10:15 Welcome

Session 1: Physiological measures and models of binaural processing

10:15-10:50 David McAlpine: Transformation in ITD coding in the auditory midbrain

10:50-11:25 Philip Joris: Monaural and binaural temporal processing towards spatial hearing

11:25-12:00 Ken Hancock: Neural coding of ITD with bilateral cochlear implants: Effect of auditory experience

12:00-13:00 Lunch

13:00-13:35 Terry Picton: Terry Picton: Objective measures of human binaural processing

13:35-13:55 Jakob Christensen-Dalsgaard: Biophysics, neural processing and robotics of the lizard ear, a highly directional sensor

13:55-14:15 Ville Pulkki: Cross-frequency integration in inputs of functional model of MSO

14:15-14:35 Tamás Harczos: Evaluation of cues for horizontal-plane localization with bilateral cochlear implants

14:35-15:00 Coffee break

Session 2: Perceptual measures and models of spatial hearing

15:00-15:35 Laurel Carney: Binaural cues for detection of signals in noise: Experiments and models

15:35-16:10 John Culling: From EC-theory to speech intelligibility in rooms

16:10-16:30 Tobias May: The effect of temporal integration in a probabilistic model for robust acoustic localization

16:30-16:50 Mathias Dietz: The role of envelope waveform in the processing of high-frequency interaural timing disparities

17:00-19:00 Poster session I

19:00-20:00 Dinner

20:00-22:00 *Jubilee drinks in the poster area*

Thursday 27 August

Session 2 (continued): Perceptual measures and models of spatial hearing

08:30-09:05 Tino Trahiotis: Assessing the processing of interaural temporal disparities within high frequency stimuli via manipulations of the temporal signatures of their

envelopes

09:05-09:40 Dorte Hammershøi: Human localization and performance measures

09:40-10:15 Jens Blauert: Aural assessment by means of binaural algorithms - the AABBA project

10:15-10:45 Coffee break

10:45-11:05 Jörg Buchholz: A loudspeaker-based room auralisation (LoRA) system for auditory perception research

11:05-11:25 Gurjit Singh: The effect of hearing loss on auditory spatial attention

11:25-11:45 Janina Fels: Spatial hearing as a function of growth: How adults differ from children

12:00-13:00 Lunch

Session 3: Speech processing and perception under adverse conditions

13:00-13:35 Michael Akeroyd: The precedence effect for speech and hearing impairment

13:35-14:10 Birger Kollmeier: Human speech recognition, machine speech recognition and hearing aids: What can humans learn from computers and vice versa?

14:10-14:45 Adelbert Bronkhorst: Central auditory processing in the cocktail-party effect

14:45-15:15 Coffee break

15:15-15:50 Stefan Launer: Binaural signal processing in hearing instruments: Applications for speech intelligibility in adverse listening conditions

15:45-16:10 Douglas Brungard: Spatial release from masking in azimuth and elevation with individualized and non-individualized Head-Related Transfer Functions

16:10-16:30 Martin Vestergaard: The advantage of spatial and vocal characteristics in the recognition of competing speech

16:30-18:30 Poster Session II

19:00-20:30 Dinner

20:30-23:30 *Jubilee bar and Jazz band 'Ole Bram Quintet'*

Friday 28 August

Session 4: Recent concepts in binaural cochlear-implant and hearing-aid processing

08:30-09:05 Uwe Baumann: Speech perception with combined electric acoustic stimulation (EAS) and bilateral/bimodal/unilateral cochlear implant in a multi-source noise field

09:05-09:40 Bernhard Laback: Perception of interaural time differences in electric and acoustic hearing

09:40-10:15 Adrew Dittberner: A binaural signal processing strategy for converging hearing instrument adaption with listener intent

10:15-10:45 Coffee break

10:45-11:20 Brent Edwards: Binaural psychoacoustic considerations for hearing aid processing

11:20-11:40 Jorge Mejia: Speech intelligibility enhancement through binaural signal processing

11:40-12:00 Thomas Behrens: A method for quantifying the effects of non-linear hearing-aid signal-processing on interaural level difference cues in conditions with

multiple sound sources

12:00-12:10 Closing remarks

12:15-13:15 Lunch

14:00 Departure

List of posters (Alphabetical order, first author)

CAN ASSESSMENT OF COCHLEAR SENSITIVITY PREDICT SOUND
LOCALIZATION ABILITY
IN NORMAL HEARING SUBJECTS?

Guillaume Andeol

Human Factors service, Armed Forces Biomedical Research Institute, France

SPEECH INTELLIGIBILITY ENHANCEMENT BY EARLY REFLECTIONS

Iris Arweiler, Jörg M. Buchholz, Torsten Dau

Centre for Applied Hearing Research, DTU-Elektro, Technical University of Denmark

LABORATORY EVALUATION OF DIRECTIONAL PREFERENCE:
EFFECTS OF TASK, DIFFICULTY & STIMULI

Shilpi Banerjee

Starkey Audiological Research Laboratories, Minnesota, USA

EXPLORING KING-KOPETZKY SYNDROME AND DEAD REGIONS

Christian Brandt 1), Ture Andersen 1), 2) and Jakob Christensen-Dalsgaard 1)

1) Institute of Biology, University of Southern Denmark, Odense, Denmark.

2) Odense University Hospital, Department of audiology, Odense, Denmark

DEVELOPING A "TELEPHONE SOLUTION" FOR MODERN HEARING AIDS

Josef Chalupper 1), Todd Ricketts 2), Erin Picou 2)

1) Siemens Audiologische Technik, Erlangen, Germany

2) Vanderbilt University, Nashville, USA

A MONAURAL MASKING RELEASE BASED ON A SIMILAR MECHANISM AS
BINAURAL
UNMASKING

Nicholas R. Clark, Barrie A. Edmonds and Katrin Krumbholz

MRC Institute of Hearing Research, Nottingham NG7 2RD, UK

EVALUATING SOUND QUALITY IN HEARING AIDS
WITH REFERENCE TEST AUDIOGRAMS

Carsten Daugaard, Søren L. Jørgensen, and Chris V. Jørgensen

Technical Audiology, Delta, Denmark

PERCEPTUAL EFFECTS OF AMBISONICS ON ROOM AURALIZATION

Sylvain Favrot and Jörg M. Buchholz

Centre for Applied Hearing Research, DTU-Elektro, Technical University of Denmark

USERS OF A COCHLEAR IMPLANT AND A CONTRALATERAL HEARING AID ARE
SENSITIVE TO INTERAURAL TIME DIFFERENCES

Tom Francart, Anneke Lenssen and Jan Wouters

ExpORL, Dept. Neurosciences, K.U. Leuven, Belgium

BINAURAL HEARING AIDS IN PATIENTS WITH ASYMMETRIC HEARING
IMPAIRMENT

T. Golubok-Abizova and Juliya Deyeva

Kiev, Ukraine

EFFECT OF FRINGES ON BINAURAL HEARING: REVISITING THE ONSET
EMPHASIS

Nicolas Le Goff, Armin Kohlrausch and Jeroen Breebaart

Technical University of Eindhoven, NL

SPEECH UNDERSTANDING OF HEARING IMPAIRED LISTENERS IN EVERYDAY
LIFE;

THE ROLE OF BINAURAL UNMASKING, MASKING RELEASE
AND LINGUISTIC PROFICIENCY

S. Theo Goverts, Joost M. Festen and Tammo Houtgast

ENT/Audiology and EMGO+ institute, VU University Medical Center Amsterdam, NL

FISHING FOR MEANINGFUL UNITS IN CONNECTED SPEECH

Peter Juel Henriksen 1) and Thomas Ulrich Christiansen 2)

1) Department of International Language Studies and Computational Linguistics, Denmark

2) Centre for Applied Hearing Research, Technical University of Denmark

NATURAL DIRECTIONALITY II: NEXT GENERATION ASYMMETRIC FITTING

Lotte Hagen Hernvig and Charlotte Thunberg Jespersen

GN ReSound, Denmark

PERCEPTUAL AUDIO EVALUATION BY HEARING IMPAIRED LISTENERS – SOME CONSIDERATIONS ON TASK TRAINING

Renskje Hietkamp, Martin Rune Andersen, and Thomas Lunner

Eriksholm Research Centre, Oticon A/S, Denmark

THE MULTI-MASKER PENALTY AND ROLE OF SPATIAL SEPARATION

Nandini Iyer, Douglas S. Brungart, and Brian D. Simpson

Air Force Research Laboratory, Wright Patterson AFB, USA

FINITE-ELEMENT SIMULATION STUDY OF DIRECTIONAL MICROPHONES

Mads Jakob Herring Jensen

Audiological Research, Widex A/S, Denmark

MODELLING A DAMAGED COCHLEA: BEYOND NON-SPEECH PSYCHOPHYSICS

Morten L. Jepsen 1), Oded Ghitza 2) and Torsten Dau 1)

1) Centre for Applied Hearing Research, DTU-Elektro, Technical University of Denmark

2) Center for BioDynamics and Hearing Research, Boston University, USA

MEASURES AND PERCEPTUAL CORRELATES OF SIGNAL ENVELOPE CHANGES

INDUCED BY HEARING AID COMPRESSION

René Burmand Johannesson and Justyna Walaszek

Eriksholm Research Centre, Oticon A/S, Kongevejen 243, 3070 Snekkersten, Denmark

ORIENTATION ABILITIES AND INTELLIGIBILITY OF SPEECH IN NOISE IN SINGLE SIDED DEAF PERSONS PROVIDED WITH A BONE-ANCHORED HEARING AID, BAH

Susanne Köbler 1), Karin Strömbäck 2), Susan Saeidi 3),

Hans Christian Larsen 1), Konrád Konrádsson 1)

1) Department of Audiology, Uppsala University Hospital, Sweden

2) Department of Otolaryngology, Uppsala University Hospital, Sweden

3) Uppsala Hearing Clinic, Uppsala, Sweden

PREDICTION OF BINAURAL PHENOMENA BY STOCHASTIC PROPERTIES OF COINCIDENCE DETECTOR CELLS

Ram Krips, Tal Klap, Noam Patel and Miriam Furst

Department of Electrical Engineering-Systems, Tel Aviv University, Israel

EXPERIMENTAL EVALUATION OF THE TWO-STAGE BINAURAL SPEECH ENHANCEMENT WITH WIENER FILTER FOR SPEECH ENHANCEMENT AND SOUND

LOCALIZATION

Junfeng Li 1), Shuichi Sakamoto 2), Satoshi Hongo 3), Masato Akagi 1) and Yoiti

Suzuki 2)

1) School of Information Science, Japan Advanced Institute of Science and Technology, Japan

2) Research Institute of Electrical Communication, Tohoku University, Japan

3) School of Information Science, Miyagi National College of Technology, Japan

COMPARISON OF DECISION CRITERIA FOR INTERAURAL CORRELATION DISCRIMINATION

Helge Lüddemann, Helmut Riedel, and Birger Kollmeier

Medizinische Physik, Carl von Ossietzky Universität Oldenburg, Germany

DATA-DRIVEN MASK GENERATION FOR BINAURAL SOURCE SEPARATION

Nilesh Madhu

Institute of Communication Acoustics, Ruhr-University Bochum, Germany

MAXIMUM SENSITIVITY TO INTERAURAL COHERENCE: AT THE PEAK OR THE SLOPE OF ITD TUNING CURVES?

Torsten Marquardt and David McAlpine

UCL Ear Institute, London, UK

EVALUATION OF A NEW STEREOPHONIC REPRODUCTION METHOD WITH MOVING**"SWEET SPOT" USING A BINAURAL LOCALIZATION MODEL**

Sebastian Merchel and Stephan Groth

Communication Acoustics, Dresden University of Technology, 01062 Dresden, Germany

SPEECH UNDERSTANDING AND COGNITIVE SPARE CAPACITY

Sushmit Mishra 1),2),5), Mary Rudner 1),2),5), Thomas Lunner 1),2),3),4),5), Stefan Stenfelt 2),3),5), and Jerker Rönnberg 1),2),5)

1) Department of Behavioural Sciences and Learning, Linköping University, Sweden

2) The Swedish Institute for Disability Research, Linköping University, Sweden

3) Department of Clinical and Experimental Medicine, Linköping University, Sweden

4) Oticon A/S, Research Centre Eriksholm, Snekkersten, Denmark

5) Linnaeus Centre HEAD

EVALUATION OF AIDED BINAURAL PROCESSING IN CHILDREN WITH HEARING IMPAIRMENT BY BINAURAL INTEGRATION AND SEGREGATION TASKS

Tatsuo Nakagawa

Yokohama National University, Yokohama, Japan

THE INFLUENCE OF HEARING-AID MICROPHONE LOCATION AND ROOM REVERBERATION ON BETTER-EAR EFFECTS

Tobias Neher 1), Claudia Breitsprecher 2) and Søren Laugesen 1)

1) Eriksholm Research Centre, Oticon A/S, Denmark

2) Institute of Hearing Technology and Audiology, University of Applied Sciences, Oldenburg, Germany

IN-SITU COMPRESSION FOR OPEN FITTINGS

Morten Nordahn

Widex A/S, Denmark

SPATIAL RELEASE FROM MASKING FOR SENTENCE RECOGNITION IN NOISE

Juan-Pablo Ramirez, Alexander Raake and Anton Schlesinger

Deutsche Telekom AG Laboratories, Berlin, Germany

SPATIAL RECEPTIVE FIELDS OF HUMAN AUDITORY CORTICAL NEURONS REVEALED BY NEUROMAGNETIC RECORDINGS

Nelli H. Salminen, Hannu Tiitinen, and Patrick J.C. May

Department of Biomedical Engineering and Computational Science, Helsinki University of Technology, Finland

PERCEPTION OF SPATIAL DISTRIBUTION OF WIDE SOUND SOURCES

Olli Santala and Ville Pulkki

Department of Signal Processing and Acoustics, Helsinki University of Technology, Finland

DETECTION AND IDENTIFICATION OF MONAURAL AND BINAURAL PITCH CONTOURS IN DYSLEXIC LISTENERS

Sébastien Santurette 1), Torsten Dau 1), Hanne Poelmans 2), Heleen Luts 2), Jan Wouters 2)

1) Centre for Applied Hearing Research, Danmarks Tekniske Universitet, Denmark

2) Division of Experimental Otorhinolaryngology, Katholieke Universiteit Leuven, Belgium

3D SOUND IN THE HELICOPTER ENVIRONMENT: LOCALISATION PERFORMANCE

David Sarafian, Lionel Pellieux, and Jean-Christophe Bouy

Institut de Recherche Biomédical des Armées, Antenne IMASSA, Brétigny sur Orge, France

REPORT ON THE BINAURAL EXTENSION OF A SPEECH-BASED SPEECH TRANSMISSION INDEX METHOD FOR NONLINEAR SYSTEMS AND NARROW-BAND INTERFERENCE

Anton Schlesinger, Juan-Pablo Ramirez, Jasper van Dorp Schuitman and Marinus M. Boone

Acoustical Imaging and Sound Control, Department of Imaging, Science & Technology Faculty of Applied Sciences, Delft University of Technology, Delft, NL

TESTPERSON OPERATED 2-ALTERNATIVE FORCED CHOICE AUDIOMETRY COMPARED TO TRADITIONAL AUDIOMETRY

Jesper Hvass Schmidt 1), Christian Brandt 3), Jacob Christensen Dalsgaard 3),

Ture Andersen 1),3), Jesper Bælum 2), Torben Poulsen 4)

- 1) Dept. of Audiology Odense University Hospital, University of Southern Denmark
- 2) Dept. of Occupational Health and Environmental Medicine, Odense University Hospital, University of Southern Denmark
- 3) Institute of Biology, Center for Sound Communication, University of Southern Denmark
- 4) Acoustic Technology, Department of Electrical Engineering, Technical University of Denmark

INTERVAL SCALING OF VIRTUAL SOUND SOURCES WHEN LISTENING WITH ONE EAR

Daniel E. Shub 1), Virginia M. Richards 2)

- 1) National Biomedical Research Unit in Hearing, Department of Psychology, University of Nottingham,
- 2) Department of Cognitive Sciences, University of California, Irvine, USA

EFFECTS OF SPATIAL UNCERTAINTY AND MASKER FRINGE ON SOUND LOCALIZATION IN NOISE

Brian D. Simpson, Robert H. Gilkey, Douglas S. Brungart, and Nandini Iyer
Air Force Research Laboratory, Wright-Patterson AFB, Ohio, USA

NOISE REDUCTION IN MODERN HEARING AIDS – LONG-TERM AND SHORT-TERM

MEASUREMENTS USING SPEECH

Karolina Smeds, Niklas Bergman and Torbjörn Nyman
ORCA Europe, Stockholm, Sweden

A BINAURAL AUDITORY MODEL AND APPLICATIONS TO SPATIAL SOUND EVALUATION

Marko Takanen 1), Gaëtan Lorho 2) and Matti Karjalainen 1)

- 1) Helsinki University of Technology, Department of Signal Processing and Acoustics, Helsinki, Finland,
- 2) Nokia Research Center, Tampere, Finland

NO SPATIAL RELEASE FROM AMPLITUDE MODULATION MASKING

Eric R. Thompson 1),2), Torsten Dau 1), Barbara Shinn-Cunningham 2)

- 1) Centre for Applied Hearing Research, Technical University of Denmark
- 2) Hearing Research Center, Boston University, USA

ONLINE SELF-HELP VIA DISCUSSION FORUM

Elisabet Sundewall Thorén 1),2) Monica Svensson 3),4), Anna Törnqvist 3),4), Gerhard Andersson 5),6),7), Per Carlbring 6), and Thomas Lunner 1),2),5)

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- 3) Department of Clinical Sciences, Logopedics, Phoniatrics, Audiology Lund University, Sweden
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CONSTANCY IN THE PERCEPTION OF SPEECH WHEN THE LEVEL OF ROOM-REFLECTIONS VARIES

Anthony J. Watkins, Simon J. Makin, and Andrew Raimond

Department of Psychology, The University of Reading, Reading RG6 6AL, UK

OVERVIEW OF NUMERICAL MODELS OF CELL TYPES IN THE COCHLEAR NUCLEUS

Stephan Werner 1), Tamás Harczos 2), and Karlheinz Brandenburg 2)

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