

From Cochlea to Cortex: Recent Advances in Auditory Neuroscience

A symposium in honor of
Prof. Dr. Med. Kirsten Kjelsberg Osen's
contributions to the field of auditory neuroscience

Sponsored by the Rectorate, the Medical Faculty and the Centre for
Molecular Biology and Neuroscience (CMBN), the University of Oslo

Oslo, Norway, July 18-19, 2008



“Texo ergo vivo” (“I weave therefore I live”) — a beautiful allegory of
Kirsten’s many contributions to the fabric of life and medicine

Tapestry by Nina Gjestland, presented in recognition of Kirsten Kjelsberg Osen at the time of her retirement from the
professorship, 1993. On display in front of “Nye auditorium 13” (the main anatomy and physiology auditorium) in
Domus Medica, University of Oslo

Venue: Holmenkollen Park Hotel, Oslo

Friday July 18th:

8:30 – 9:00 Registration

9:00 - 9:15 Opening ceremony:

Manolo Malmierca and Jon Storm-Mathisen (Main speakers), Nell Cant, Ole Petter Ottersen

Official opening by the Vice Rector of the University of Oslo, Inga Bostad

**Part 1. The anatomy and physiology of the auditory pathways.
(Chairs: Nell Cant & Manolo Malmierca)**

9:15 - 9:35 [Shin-ichi Usami](#), Yutaka Takumi, Nobuyoshi Suzuki, Tomohiro Oguchi, Aki Oshima, Hiroaki Suzuki, Ryosuke Kitoh, Satoko Abe, Akira Sasaki, Atsushi Matsubara. The highly expressed genes in the inner ear - localization, possible functions, and clinical relevance

9:35 - 9:55 [Carole M. Hackney](#), Yukio Katori, B. Nirmal Kumar and David N. Furness. The dimensions and structural attachments of tip links in mammalian cochlear hair cells and the effects of exposure to different levels of extracellular calcium

9:55 - 10:15 [David N. Furness](#), CM Hackney and S Mahendrasingam. Anchoring the stereociliary bundle of mammalian cochlear hair cells: the structure and possible functions of stereociliary rootlets

10:15 - 10:35 [Eric D. Young](#) and Murray B. Sachs. Postsynaptic effects at auditory nerve synapses in ventral cochlear nucleus

10:35 - 10:55 [David K. Ryugo](#). Projections of low spontaneous rate, high threshold auditory nerve fibers to the small cell cap of the cochlear nucleus in cats

10:55 - 11:10 Coffee break

11:10 - 11:30 [Ian M. Winter](#), Arkadiusz Stasiak and Mark Sayles. Spike waveform shape in the AVCN revisited: when is a primary-like unit not a primary-like unit?

11:30 - 11:50 [José M. Juiz](#). Ion channel distribution in cochlear nucleus neurons: regulation by peripheral input

11:50 - 12:10 [Ricardo Gómez-Nieto](#), Consuelo Sancho, José de Anchieta C. Horta-Junior, Orlando Castellano, M. Javier Herrero-Turrión, Maria E. Rubio and [Dolores E. López](#). Neurochemistry of the afferents to the rat cochlear root nucleus: possible synaptic modulation of the acoustic startle

12:10 - 12:30 [Enrico Mugnaini](#). The granule cell system of the cochlear nuclei revisited

12:30 - 12:50 [Maria E. Rubio](#), Kathryn A. Gudsnuik, Yoland Smith and David K. Ryugo. The primate dorsal cochlear nucleus: new insights

13:00 - 14:00 Lunch

14:10 - 14:30 [Donata Oertel](#), Shalini Shatadal, Xiao-Jie Cao. In the ventral cochlear nucleus Kv1.1 and HCN1 are colocalized at surfaces of neurons that have low-voltage-activated and hyperpolarization-activated conductances

14:30 - 14:50 [Philip X. Joris](#) and Philip H. Smith. The volley theory and the spherical cell puzzle

14:50 - 15:10 [Rudolf Rübtsamen](#). Dependability of synaptic transmission at the giant synapses of Held in vivo

15:10 - 15:30 George A. Spirou, Florin V. Chirila, Henrike von Gersdorff and [Paul B. Manis](#). Heterogenous Ca²⁺ influx along the adult calyx of Held: a structural and computational study

15:30 - 15:45 Coffee break

15:45 - 16:05 William C. Loftus, Manuel S. Malmierca, Deborah C. Bishop, and [Douglas L. Oliver](#). The cytoarchitecture of the inferior colliculus revisited: a common organization of the lateral cortex in rat and cat

16:05 - 16:25 [Nell B. Cant](#) and Christina G. Benson. The inferior colliculus: the organization of terminations from the cochlear nuclei and other major sources of ascending input

16:25 - 16:35 [Avril G. Holt](#), T. Shimano, R. Griffith, R. Altschuler, B. Fyk-Kolodziej. Dopamine in the cochlear nucleus and inferior colliculus

16:35 - 16:55 [Richard A. Altschuler](#), Susan Shore, Ling Tong, Avril G. Holt and Douglas L. Oliver. Vesicular glutamate transporters in the inferior colliculus

16:55 - 17:20 Edward J. Coote and [Adrian Rees](#). NO nucleus is an island entire of itself: distribution of NOS in the inferior colliculus

Saturday July 19th:

9:15 - 9:35 [Hongyu Sun](#) and [Shu Hui Wu](#). Modulation of intrinsic membrane properties and synaptic transmission of inferior colliculus neurons

9:35 - 9:55 [George D. Pollak](#). Mechanisms of FM directional selectivity in the inferior colliculus studied with in-vivo whole cell recordings

9:55 - 10:15 [Manuel S. Malmierca](#), [Salvatore Cristaudo](#), [Flora Antunes](#), [David Pérez-Gonzalez](#), [Lucy Anderson](#) and [Ellen Covey](#). Stimulus-specific adaptation in the auditory midbrain and thalamus

10:15 - 10:35 [Jufang He](#). The tuning of MGB neurons

10:35 - 10:55 [Xiaoqin Wang](#), [Thomas Lu](#), [Daniel Bendor](#), [Edward Bartlett](#). Information processing in auditory cortex

10:50 - 11:10 *Coffee break*

Part 2. The changing auditory system: Development, Learning, Aging and Disease.

(Chairs: [Manolo Malmierca](#) & [Nell Cant](#))

11:10 - 11:30 [Karl Kandler](#). Synaptic reorganization in the lateral superior olive

11:30 - 11:50 [Fernando R. Nodal](#), [Victoria M. Bajo](#), [Carl H. Parsons](#), [Jan W. Schnupp](#) and [Andrew J. King](#). Using measurements of acoustic orientation and sound localization in ferrets to assess the role of the auditory cortex in experience-induced plasticity

11:50 - 12:10 [Tracy A. Schatteman](#), [Larry F. Hughes](#) and [Donald M. Caspary](#). The impact of aging on DCN fusiform cells

12:10 - 12:30 [Donald A. Godfrey](#), [Kejian Chen](#), [Matthew A. Godfrey](#), [Yong-Ming Jin](#), [Kyle T. Robinson](#), [Christopher Hair](#). Effects of cochlear ablation on cochlear nucleus amino acid concentrations, especially among the octopus cells of Osen

12:30 - 12:50 [Marco A. Izquierdo](#), [Pedro M. Gutiérrez-Conde](#), [Miguel A. Merchán](#) and [Manuel S. Malmierca](#). Frequency coding in the inferior colliculus of the rat following noise-induced hearing loss

13:00 - 14:00 *Lunch*

14:10 - 14:30 [Dexter Irvine](#). Plasticity of the adult auditory system

14:30 - 14:50 [Michael M. Merzenich](#). Auditory cortex plasticity

14:50 - 15:10 [Hubert H. Lim](#), [Thomas Lenarz](#), [Gert Joseph](#), [Rolf-Dieter Battmer](#), [James F. Patrick](#) and [Minoo Lenarz](#). Stimulation of the midbrain for hearing restoration: practical and scientific implications

15:10 - 15:30 [Anne Spurkland](#). The genetics of Usher syndrome

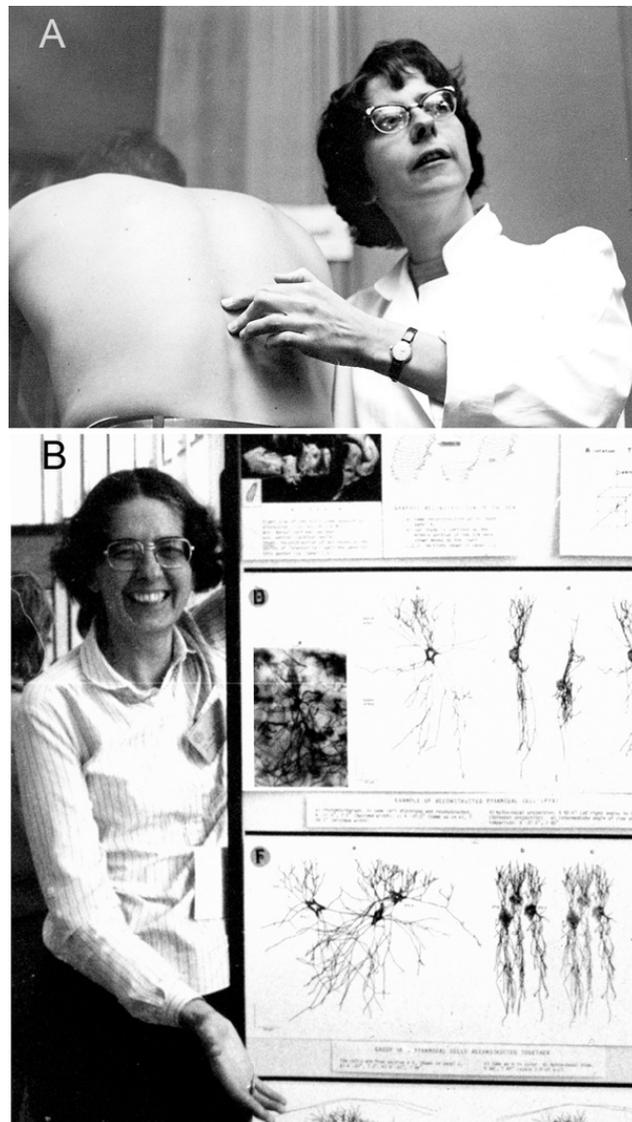
15:30 - 15:45 *Coffee break*

15:45 - 16:05 [Sophie D. Fosså](#). Female medical professor at the University of Oslo
— why are we so few?

16:05 - 16:25 [Donata Oertel](#). How can a woman forge her academic career?

16:25 **Concluding Remarks and thanks to Kirsten**

[Nell Cant](#) (main speaker), Manolo Malmierca, Ole Petter Ottersen and Jon Storm-Mathisen



Kirsten Osen has made lasting contributions in both teaching and research. (A) Teaching anatomy in Oslo, 1967 (photograph by Bent Rolstad). (B) At a poster presentation on cells in the cochlear nuclei, the fifth European Neuroscience Association conference in Liege, Belgium, 1981