NEUROSCIENCE SEMINAR SERIES

TOPIC: From Sound to Silence: A Neuromodulation Approach to Treating Deafness and Tinnitus

SPEAKER: Fan-Gang Zeng, University of California Irvine

TIME: 12:00pm-1:00pm, Friday, 20 Apr, 2018

VENUE: Room 385, Geography Building, Zhongbei Campus
(华东师范大学中山北路校区，地理楼 385 室)

Host: Jiping Zhang, ECNU

ABSTRACT OF THE TALK

Hearing is a remarkable sense that can detect sound intensity changes over 12 orders of magnitude, 0.1% difference in frequency, and 10 microsecond variation in time. Hearing loss or deafness leads to abnormal language development, communication disorder, cognitive decline and social isolation. Deafness was thought to be untreatable until the development of cochlear implants in the last 20-30 years. I will talk about the key scientific and technological advances in cochlear implants that have restored hearing to half million people worldwide. I will also examine the challenges limiting cochlear implant performance and access. I will discuss my work on restoring silence to people suffering from tinnitus – ringing in the ear or more accurately ringing in the brain. At present, there is no cure for tinnitus. Treating tinnitus may require synchronous neuromodulation in multiple sites, which presents a significant challenge to both basic science and engineering communities.

BIOGRAPHY

Fan-Gang Zeng earned a B.S. degree in Electrical Engineering from the University of Science and Technology of China in 1982, M.S. in Biomedical Engineering from Shanghai Institute of Physiology, Academia Sinica in 1985, and Ph.D. in Audiology and Neuroscience from Syracuse University in 1990. He did his post-doctoral training in cochlear implants at the House Ear Institute and held faculty appointments at University of Southern California and University of Maryland, College Park. He is currently Director of the Center for Hearing Research and Professor of Anatomy and Neurobiology, Biomedical Engineering, Cognitive Sciences and Otolaryngology – Head and Neck Surgery at the University of California Irvine.

Dr. Zeng is a leading researcher in hearing science and technology, with 267 publications, 11583 citations and an h-index of 50 (Google Scholar, April 11, 2018). He led development of the Nurotron 26-electrode cochlear implant (SFDA approval in 2011 and CE Mark in 2012) and SoundCure tinnitus suppressor (FDA clearance and CE Mark in 2011). He has consulted for NIH, NSF, DOD, and numerous other public and private agencies. He is the Editorial Board’s Chairman of the Hearing Journal and has been on the editorial board for 6 academic magazines. He served as the Chair of the 2005 International Conference for Auditory Prostheses and edited 3 volumes on cochlear implants and tinnitus for Springer Handbook of Auditory Research. He holds 12 patents and has been on the Advisory Board and helped raise $80M for 5 medical device companies in US and China.