

International Conference on

Medical Imaging & Diagnosis

October 20-21, 2016 Chicago, USA



Zang-Hee Cho

Seoul National University, Korea

Super-resolution MR tractography with 7T MRI and its applications - From the study of language circuitry to microstructural analysis of the affective neural network

New imaging system, the brain dedicated PET-MRI, using high resolution PET and Ultra High Field 7.0T Magnetic Resonance Imaging (MRI) and their applications to brain research, especially to the areas of neuropsychiatry, neurosurgery and neuroscience will be discussed. Among the interesting topical areas, applications of the high resolution brain PET (HRRT) and the ultrahigh field MRI (7.0T) will be highlighted, especially for the *in vivo* human brain imaging with ultra-high field MRI, such as the 7.0T MRI, one can now visualize the substructures of the thalamus and brainstem *in vivo* as well as tractography hitherto unable to do with existing MRI systems. Together with molecular imaging using Positron Emission Tomography (PET), that is the brain dedicated PET-MRI fusion system developed recently, now, it is possible to visualize molecular mechanisms quantitatively in our human brain *in vivo* as well as tractography. Lastly, ultra-high field MRI also began to provide excellent tractographic images delineating fine fibers such as medial forebrain bundles and internal medullary laminars in the thalamo-limbic areas suggesting future potential applications of these fibers to, among others, such as the DBS (Deep Brain Stimulation). Some recent results of brain PET-MRI fusion system as well as the new tractographic images obtained with 7.0T will be discussed and highlighted.

Biography

Zang-Hee Cho received PhD in Physics, from University of Uppsala, Sweden. Since then, he has been faculty of UCLA, Columbia University, and University of California, Irvine. Last ten years, he served as a Director of the Neuroscience Research Institute, Gachon University and established one of the leading PET-MRI brain imaging centers in the world. He is an early pioneer of CT and PET, developing world's first circular ring PET (at UCLA, 1975) and BGO (PET-detector, 1976) and more recently 7.0T MRI+PET Fusion Brain Imaging System at NRI, in Korea. Currently, he is serving as a Distinguished Research Fellow at Seoul National University, Seoul, Korea, and also as a member of National Academy of Medicine, Washington DC, USA.

zhcho36@gmail.com