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(국문/영문)강연제목: 알츠하이머 병 분류를 위한 기능적 근적외선 분광기법의 가능성/The potential of functional near-infrared spectroscopy for classification of Alzheimer's disease

### **Abstract(영문):**

Dementia can be due to many causes, and one of the most prevalent cause is due to Alzheimer's disease (AD) which can be pathologically diagnosed by the accumulation of beta-amyloid plaques and neurofibrillary tangles. Functional near-infrared spectroscopy (fNIRS) can monitor the brain activation by monitoring the changes of blood volume and oxygenation from the fact that neuronal activation induces a dramatic increase in blood flow called neurovascular coupling. So far, fNIRS has been applied in AD studies, but most of them focused on screening mild cognitive impairment (MCI) patients from normal cognitively healthy subjects. In this study, we investigated the potential of fNIRS to screen AD subjects as healthy normal, asymptomatic AD, and prodromal AD which are now accepted worldwide as a new guideline for AD classification.

### **Brief Biosketch (간단한 이력, 연구/대외활동 소개,국문/영문)**

Dr. Jae Gwan Kim is currently an associate professor at the department of biomedical science and engineering at Gwangju Institute of Science and Technology since 2011. He is also a visiting professor at Chonnam National University Hospital in Gwangju. Dr. Kim received his B.S. and M.S. from Hanyang University majored in metallurgical engineering. He got his Ph.D. from a joint program of biomedical engineering between the University of Texas at Arlington and the University of Texas Southwestern Medical Center at Dallas in 2005. Since then he moved to Irvine, CA and had Postdoc training under Dr. Bruce Tromberg at the Beckman Laser Institute and Medical Clinic (BLIMC) at the University of California at Irvine. During his postdoc and research faculty at BLIMC, He focused on the translational research of diffuse optical spectroscopy and imaging systems, especially on breast cancer detection and chemotherapy monitoring. His current research topics include brain stimulation by transcranial ultrasound, the anesthesia depth monitoring, screening the stage of Alzheimer's disease by brain functional connectivity measurement, smart cupping therapy, sexual dysfunction diagnosis and treatment along with the continuation in breast cancer research.