

Mobile Brain/Body Imaging (MoBI) – New directions in human neuroscience

Organizer:

Klaus Gramann

Berlin Institute of Technology, Berlin, Germany

This symposium brings together leading scientists that developed and spearheaded new technologies and experimental approaches in imaging human brain dynamics in actively moving participants. Advances in data-driven analyses approaches, sensor technologies, and experimental protocols have made imaging of brain dynamics in actively behaving participants increasingly feasible. However, understanding of brain dynamic states accompanying changes in behavioral states in complex and dynamic environments requires new approaches to experimental protocols, data analyses approaches and new ideas of investigating embodied cognition. The symposium will provide an overview of the field through selected topics in MoBI demonstrating the feasibility of mobile brain imaging with advanced hardware and software technologies, revealing new insights into the human cognitive architecture during active behavior, and demonstrating applicability of the method in a wide range of scientific areas from basic to applied research questions.

Learning Objectives:

Participants of the symposium will learn new approaches to imaging human brain dynamics in actively moving participants; they will learn about recent software and hardware developments and how they allow for measuring brain activity in mobile participants; the audience will get a feeling how mobile brain/body imaging might provide new insights in their research areas.

Brain dynamics of orienting in 3D space

Klaus Gramann, Berlin Institute of Technology, Berlin, Germany

Cognitive Flexibility of a Body in Motion – Applications of Mobile Brain-Body Imaging (MoBI) in Aging

John Fox, Albert Einstein College of Medicine

Your brain on the move: electrocortical dynamics during human locomotion

Dan Ferris, University of Michigan, Ann Arbor, MI, United States

Mobile Brain/Body Imaging to record and model natural human actions and interactions

Scott Makeig, Swartz Center for Computational Neuroscience, UCSD, La Jolla, CA, United States