

Professor Maria Franceschini, Harvard Medical School

Diffuse Optics Tools for Monitoring the Brain

Abstract: With the foundation of our seminal near-infrared spectroscopy (NIRS) and diffuse correlation spectroscopy (DCS) work on neonates, we are developing novel devices and approaches to better quantify cerebral blood flow and oxygen metabolism in the clinical setting both in children and adults. In particular, in the last few years we have made substantial progress on DCS technology to improve depth sensitivity, speed and accuracy of the recovered blood flow index (BFi). Validation studies, clinical applications and path to commercialization will also be discussed.

Bio: Dr. Franceschini is an Associate Professor at Harvard Medical School with specific training and expertise in the development of non-invasive optical techniques and applications in neuroscience, neurology, and brain health. She has been a member of the Optics Division of the Martinos Center at Massachusetts General Hospital since 2000. As a pioneer in the field of near-infrared spectroscopy (NIRS), she has made substantial contributions to the development of NIRS instruments and to the modeling and testing of diffusion theory to describe light propagation in turbid media. She has successfully applied the technology to a large range of functional neuroimaging and clinical neuro-monitoring applications.