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Functional optical monitoring of cerebral hemodynamics in brain

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Functional diffuse optical imaging and spectroscopy of tissue is gaining momentum as a diagnostic in functional activation and clinical studies of brain. The author will review the optical technologies that underlie this work, and then he will discuss recent research oriented towards non-invasive measurement of cerebral hemodynamics in adult and pediatric populations through intact skull. To this end, recent progress monitoring management of ischemic stroke at the bedside will be discussed. Other pilot investigations to be described include optical measurements of cerebral responses during transcranial magnetic stimulation (TMS), a cohort of validation studies in pediatric populations, and, finally, new probe pressure-dependent measurement paradigms which can be used to separate cerebral from extra-cerebral vascular signals.

Biography

Arjun G Yodh is the James M. Skinner Professor of Science in the Department of Physics and Astronomy at the University of Pennsylvania in Philadelphia. At Penn, he is also Director of The Laboratory for Research on the Structure of Matter (LRSM), an interdisciplinary materials institute. He has published approximately 300 papers about research that spans across the fields of Biophotonics, Condensed Matter Physics, and Atomic, Molecular & Optical Sciences.

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