Near-Infrared Imaging To Study Tissue: State Of The Art And Potential

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Near-infrared imaging (NIRI) is a quickly growing method to non-invasively study human tissue using near infrared light, which penetrates tissue several cm deep. The method is appreciated by patients and researchers, because it is quantitative, measures continuously, is painless, can be used at the bedside, is relatively inexpensive and can easily be combined with other modalities such as e.g. fMRI and EEG. Light absorption and scattering of tissue are measured at multiple wavelengths and the concentration of constituents of tissue such as oxyhemoglobin, deoxyhemoglobin, water, lipids and cytochrome oxydase are quantified. These physiological parameters are clinically important, because they represent e.g. blood volume, flow and oxygenation and enable to monitor the function of biological tissue. Multiple light source and detector combinations produce images of whole tissue areas. Results of simulations and new developments in sensor design will be shown. Several clinical applications of NIRI in research are presented to illuminate its promising properties and to demonstrate its excellent potential in biomedical imaging and medicine. The seminar will be concluded by a vision of future applications and research.

4 pm, Thursday., January 28, 2010
College of Science Van Peursem Auditorium, Gosnell Bldg. 08-1250
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