

159th ICB SEMINAR

Optics in Neuromonitoring

May 28 - 30, 2018, Warsaw, Poland

Organised by

**NALE CZ INSTITUTE OF BIOCYBERNETICS AND BIOMEDICAL
ENGINEERING POLISH ACADEMY OF SCIENCES (IBIB PAN) AND**

INTERNATIONAL CENTRE OF BIOCYBERNETICS

Chairmen:

Hamid Dehghani, University of Birmingham

Adam Liebert, Nalecz Institute of Biocybernetics and Biomedical
Engineering PAS

Secretary:

Piotr Sawosz, Nalecz Institute of Biocybernetics and Biomedical
Engineering PAS

May 28th

08.30 - Registration	
09.00-09.10 Welcome address Piotr Ładyżyński / Adam Liebert	
Session 1 (Diffuse Correlation Spectroscopy / Near Infrared Spectroscopy) Chairman: Hamid Dehghani	
09.10 – 09.50	<i>Flow Biomarkers in Brain: Recent Progress & Challenges @ Penn</i> Arjun Yodh - University of Pennsylvania
09.50 - 10.30	<i>Neuro-monitoring with Diffuse Correlation Spectroscopy</i> Maria Angela Franceschini - Martinos Center

Coffee break +Posters (30 minutes)

Session 2 Optical methods in Neuro Intensive Care Units Chairman: Toni Belli	
11.00 – 11.40	<i>What is Next for Optical Blood Flow Measurements? Can we overcome the barriers due to cost, scalability and portability?</i> Turgut Durduran - ICFO
11.40 – 12.05	<i>Optical Bedside Biomarkers of Brain Function in Neonates with Hypoxic-Ischaemic Brain Injury</i> Ilias Tachtsidis - UCL
12.05 - 12.30	<i>Bedside Assessment of Brain Perfusion in Post-traumatic Brain Injury Patients</i> Adam Liebert - IBIB PAN

Session 3 (Time-resolved Near Infrared Spectroscopy) Chairman: Adam Liebert	
13.15 - 13.40	<i>Photonics advancements to exploit the full potential of time-domain diffuse optics</i> Antonio Pifferi – Politecnico di Milano

13.40 - 14.05	<i>Discrimination of Tissue Autofluorescence and Immunofluorescence in Biological Tissue Using spectral FLIM</i> Felix Koberling - Picoquant
14.05 – 14.30	<i>Monitoring time-of-flight-resolved temporal dynamics of optical field using interferometric near-infrared spectroscopy (iNIRS)</i> Dawid Borycki - IChF PAN

Coffee break + Posters (40 minutes)

Session 4 (Standardisation/phantoms) Chairman: Turgut Durduran	
15.10 – 15.35	<i>Performance characterization and standardization of instrumentation for near-infrared spectroscopy and imaging</i> Heidrun Wabnitz – PTB Berlin
15.35 – 16.00	<i>Validation of cerebral oximeters in blood-lipid phantoms</i> Stefan Kleiser – University of Zurich

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Session 5 (Tomographic methods) Chairman: Arjun Yodh	
09.00 – 09.40	<i>Computational Developments for Near Infrared Spectroscopic Tomography</i> Hamid Dehghani - University of Birmingham
9.40 - 10.20	<i>Bedside neuromonitoring with high-density diffuse optical tomography</i> Adam Eggebrecht- Washington University St. Louis
10.20- 10.45	<i>Data processing for time-domain diffuse optical tomography by using Mellin-Laplace Transform</i> Lionel Hervé - CEA-LETI Grenoble
10.45 – 11.10	<i>SPAD camera based TD NIROT system for preterm brain imaging</i> Alexander Kalyanov – University of Zurich

Coffee break + Poster session (50 minutes)

Session 6 (Near Infrared Spectroscopy / Neurophysiology)	
Chairman: Maria Angela Franceschini	
12.00 - 12.40	<i>Steps into Language: Is there a Role of NIRS to understand Language Development?</i> Hellmuth Obrig - University of Leipzig
12.40 – 13.05	<i>Combined EEG-NIRS analysis in epilepsy</i> Fabrice Wallois - Université de Picardie
13.05 – 13.30	<i>Coupling between electrophysiological signals, cerebral hemodynamics and systemic blood supply</i> Katarzyna Blinowska – IBIB PAN
13.30 - 13.50	<i>Design for studying parieto-temporal and parieto-frontal cognitive functions in preschoolers with 32-optode CW NIRS system</i> Maciej Haman - UW <i>The Development of Cortical Sensitivity to Audio-visual and Visual Speech Processing in Infancy - the design of an fNIRS study</i> Aleksandra Dopierąła - UW

Session 7 (Clinical Perspectives)	
Chairman: Hellmuth Obrig	
14.30- 14.55	<i>Challenges with neuromonitoring in the neurocritical patient</i> Antonio Belli - University Hospital Birmingham
14.55- 15.20	<i>The application of NIRS to acute care, challenges and requirements of a system</i> David Davies - University Hospital Birmingham
15.20- 15.30	<i>Closing remarks</i> Adam Liebert, Hamid Dehghani