

164th ICB SEMINAR

Quantitative diffuse optical methods for neuromonitoring

June 17 - 20, 2019, Warsaw, Poland

Organised by

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

INTERNATIONAL CENTRE OF BIOCYBERNETICS

Chairmen:

Keith St. Lawrence, University of Western Ontario, Lawson Health Research
Institute

Adam Liebert, Nalecz Institute of Biocybernetics and Biomedical Engineering PAS

Secretary:

Anna Gerega, Nalecz Institute of Biocybernetics and Biomedical Engineering PAS

June 18th

08.30 – Registration	
09.00-09.10 Welcome address Piotr Ładyżyński / Adam Liebert	
Session 1 ICG-bolus techniques 1	
40min 9.10-9.50	<i>Cerebral Flow Calibration and Monitoring: Clinical Promise and Challenges</i> Arjun Yodh - University of Pennsylvania (USA)
40 min 9.50- 10.30	<i>Quantifying Cerebral Hemodynamics by Time-Resolved NIRS</i> Keith St. Lawrence - The University of Western Ontario (Canada)

Coffee break (30 minutes)

Session 2 ICG-bolus techniques 2	
40 min 11-11.40	<i>Broadband near-infrared spectroscopy (bNIRS) measures oxygenation, metabolism and cerebral blood flow during spontaneous oxygenation changes in neonatal brain injury</i> Ilias Tachtsidis - University College London (UK)
30min 11.40- 12.10	<i>Multiwavelength time-resolved measurements for estimation of brain hemodynamic parameters</i> Anna Gerega – Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland)
30min 12.10- 12.40	<i>Neurotoxic effects of indocyanine green</i> Beata Toczyłowska - Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland)

Break for lunch (50 minutes)

Session 3 Quantitative diffuse optics techniques 1	
40min	<i>Miniaturization, parallelization and depth resolution in laser</i>

13.30-14.10	<i>speckle based blood flow measurements</i> Turgut Durduran - The Institute of Photonic Sciences (Spain)
30min 14.10-14.40	<i>Influence of intra-abdominal pressure on amplitude of fluctuations of cerebral hemoglobin concentration in respiratory band</i> Piotr Sawosz - Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland)

Coffee break (30 minutes)

Session 4 Quantitative diffuse optics techniques 2	
40min 15.10 – 15.50	<i>Computational algorithms in spatial recovery of functional maps in Near Infrared spectroscopic imaging</i> Hamid Dehghani – University of Birmingham (UK)
30min 15.50 – 16.20	<i>NIRFAST software package for quantitative time-resolved diffuse optical spectroscopy and tomography</i> Stanislaw Wojtkiewicz - University of Birmingham (UK)

June 19th

Session 5 Clinical Applications	
40min 09.00 – 09.40	<i>ICG dye dilution measurements with a NIRS ICP brain tissue probe</i> Emanuela Keller - University Hospital Zurich (Switzerland)
40min 9.40 – 10.20	<i>Cerebral perfusion assessment using ICG passage: historical perspective</i> Adam Liebert - Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland)
30min 10.20 – 10.50	<i>Optical methods in the determination of brain death – clinical considerations</i> Wojciech Weigl - Uppsala University, Akademiska Hospital (Sweden)

Coffee break (30 minutes)

Session 6 Quantitative diffuse optics techniques 3	
40min 11.20 – 12.00	<i>Coherent Hemodynamics Spectroscopy (CHS) for a quantitative approach to cerebral NIRS</i> Sergio Fantini - Tufts University (USA)
40min 12.00 - 12.40	<i>Next Generation Time-Domain Near Infrared Spectroscopy systems</i> Davide Contini - Politecnico di Milano (Italy)
30min 12.40- 13.10	<i>Frequency analysis of oscillations in cerebral hemodynamics measured by time domain near infrared spectroscopy</i> Michal Kacprzak - Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland)

Break for lunch (50 minutes)

Session 7 Clinical Perspectives 2	
30min 14.00- 14.40	<i>(to be announced...)</i> Grzegorz Madycki - Vascular Surgery Department of the Bielany Hospital (Warsaw)
30min 14.40- 15.10	<i>Quantifying brain injury burden in traumatic brain injury; ICG enhanced NIRS techniques and their potential role</i> David Davies - University Hospital Birmingham (UK)
30min 15.10- 15.20	<i>Closing remarks</i> Adam Liebert, Keith St. Lawrence