bmpn.ch the biomedical photonics network

The yearly meeting of the Biomedical Photonics Network 2021

Progress in Biomedical Photonics

December 9, 2021 from 9:30 to 16:30

Program

09:30-10:00 Registration and certificate check of participants at the F-152 auditorium in the KO2 building, Karl Schmid-Str. 4, University of Zurich

This event is accessible only with a valid COVID certificate.
Masks must be worn inside the buildings except during lunch.

Chair Martin Wolf

10:00-10:15 Welcome and introduction
Martin Wolf, President BMPN

10:15-10:30 3D virtual histology of thrombi through non-contrast-enhanced propagation-based X-ray phase-contrast microtomography
Somayeh Saghamanesh, DD LaGrange, P Reymond, I Wanke, KO Lövblad, A Neels, R Zboray
Empa, University of Geneva, Hirslanden

10:30-10:45 Hybrid convolutional neural network (CNN) for image reconstruction in near-infrared optical tomography
Meret Ackermann, J Jiang, E Russomanno, M Wolf, A Kalyanov
University Hospital Zurich, UZH

10:45-11:00 Profiling CD4 T cell cytotoxicity against human cancer with a high-throughput picowell array and artificial intelligence-aided imaging
Yen-Cheng Liu, A Cachot, M Bilous, A Mathis, C Jandus, H Altug
EPFL, University of Geneva, University of Lausanne

11:00-11:15 Lock-in incoherent differential phase contrast imaging
Chiara Bonati, D Loterie, T Laforest, C Moser
EPFL

11:15-11:30 Feasibility to measure tissue oxygen saturation using textile-embroidered polymer optical fibres
Tarcisi Cantieni, O Kress, E Morlec, M Camenzind, M González, M Michler, T Rastija, R Grabher, G Piai, LF Boesel, U Wolf
University of Bern, Empa, OST

11:30-11:45 Non-invasive imaging of tau-targeted probe uptake by whole brain multi-spectral optoacoustic tomography
P Vagenknecht, A Luzgin, M Ono, B Ji, M Higuchi, D Noain, CA Maschio, Z Chen, U Konietzko, JA Gerez, R Riek, D Razansky, J Klohs, RM Nitsch, XL Dean-Ben, Ruiqing Ni,
UZH, University Hospital Zurich, ETHZ, NIQRST Japan, Fudan Uni. China

11:45-12:00	Controlling light in scattering materials for volumetric additive manufacturing Jorge Madrid-Wolff, A Boniface, D Loterie, P Delrot, C Moser EPFL
12:00-12:15	Deep ultraviolet in-vivo absorption coefficient of cornea Dominik Inniger, A Porreti, M Ryser, C Meier, T Feurer University of Bern, Bern University of Applied Sciences Biel
12:20-14:20	Lunch break and poster viewing
14:30-14:45	Towards unobtrusive long-term monitoring of sleep apnea syndrome Fabian Braun, F Baty, J Van Zaen, G Bonnier, P Renevey, P Theurillat, M Proença, YM Proust, M Boesch, O Schoch, S Annaheim, M Brutsche, D Ferrario, M Lemay CSEM. Cantonal Hospital St. Gallen, Empa
14:45-15:00	High content screening with Digital Holographic Microscopy: towards an identification of phenotypes and compounds' mode of action Benjamin Rappaz, F Kuttler Lyncée Tec, EPFL
15:00-15:45	Invited talk: Nanobionic devices for applications in biosensing and photosynthetic light-harvesting Ardemis A. Boghossian EPFL
15:45-16:20	Invited talk: The future of medicine - and the role photonics can play in it Peter Seitz Hamamatsu Photonics, epyMetrics AG, EPFL, Photonics21, SATW
16:20-16:30	Award ceremony

We gratefully acknowledge financial support:

SSOM Swiss Society for Optics and Microscopy Société Suisse pour l'Optique et la Microscopie Schweizerische Gesellschaft für Optik und Mikroskopie

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Registation is **required.** Register at **bmpn2021.weebly.com** at the latest by Dec. 1st, 2021. Registration is 50Fr. to be paid in cash on site. Registration is **free** for members of the SSOM: to **become member of SSOM for 40Fr./year go to bmpn.ch/members.php**
For further information about the Biomedical Photonics Network: www.bmpn.ch.

Contacts
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Poster Session

Poster 1 Concept of an electronic device to measure tissue oxygen saturation using textile-embroidered polymer optical fibers
R Grabher, T Rastija, Samuel Bawidamann, T Cantieni, O Kress, LF Boesel, U Wolf, G Piai
OST, University of Bern, Empa

Poster 2 Fluorescence lifetime imaging of the NADH and FAD to monitor the metabolic effects induced by Photobiomodulation in Glioblastoma cells.
Cyrus Kazemiraad, J Joniová, E Gerelli, G Wagnières
EPFL

Poster 3 Towards time of flight polarimetry for tissue diagnosis
Lynn Roth, G Hannink, A Stefanov, M Frenz
University of Bern

Poster 4 Effects of a range of head tissues optical properties on near-infrared spectroscopy
Emanuele Russomanno, A Kalyanov, J Jiang, M Ackermann, M Wolf
UZH, University Hospital Zurich

Poster 5 Near-infrared photoluminescent biosensors based on single-walled carbon nanotubes
Sayyed Hashem Sajjadi, AJ Gillen, SJ Wu, M Reggente, A Antonucci, N Sharif, D Morales, AA Boghossian
EPFL

Poster 6 Optical coherence tomography assisted laser treatment of retinal detachment
Simon Salzmann
Bern University of Applied Sciences, University of Bern

Poster 7 Soft Elastomeric Polymer Optical Fibres Tailored for Pressure Sensing
Khushdeep Sharma, E Morlec, M Camenzind, G Piai, U Wolf, RM Rossi, LF Boesel
Empa, OST, University of Bern

Poster 8 Enabling real-time optoacoustic imaging through GPU-powered frequency-domain reconstruction
Florentin Spadin, M Jaeger, P Subochev, M Frenz
University of Bern, Institute of Applied Physics RAS, Nizhny Novgorod, Russia

Poster 9 Optical tactile skin: development of an optical electronic skin for pressure sensing applications
B Bösch, Daniel Fehr, RM Rossi, M Bonmarin, LF Boesel, Fabrizio Spano
ZHAW, Empa

Poster 10 Investigating sweat glands activity using thermal imaging and computational modelling
A Drexelius, D Fehr, Vincent Vescoli, J Heikenfeld, M Bonmarin
ZHAW, University of Cincinatti

Poster 11 Changes in hemodynamics and oxygenation in the superficial layer of the forhead during a respiratory challenge: A systemic physiology augmented functional near-infrared spectroscopy study
S Guglielmini, Elena Wiggli, F Scholkmann, M Wolf
UZH, University Hospital Zurich

Poster 12 Intersubject variability in cerebral hemodynamics and systemic physiology during a verbal fluency task under colored light exposure: Subjects clustering using unsupervised machine learning
Hamoon Zohdi, L Natale, F Scholkmann, U Wolf
University of Bern