

Biomedical Photonics 2025

November 24, 2025 from 9:30 to 16:40
EPFL, Microcity, Rue de la Maladière 71A, Neuchâtel

Program

09:30-09:50 Registration, coffee and hang up posters.

Presentations (Auditorium Charles-Edouard Guillaume) Chairs: Ferda Canbaz, Ursula Wolf

09:50-10:00 Welcome and introduction Martin Wolf, President BMPN

10:00-10:15 **C Kazemiraad***, G Wagnières, EPFL
Photobiomodulation Effects on Cellular Metabolism: Quantitative Assessment of Mitochondrial OXPHOS via NAD(P)H and FAD FLIM Imaging

10:15-10:30 **V Fay***, Y Pu, O Tzang, A Caravaca, R Piestun, G Tolstonog, C Simon, D Psaltis, C Moser, EPFL and others
Fluorescence Lifetime Micro-Endoscopy (FLIMME) via Single Multimode Fiber: A High-Resolution Tool for Identifying Head and Neck Cancer Margins

10:30-10:45 **M Wiggert***, D Theisen-Kunde, MI Alata, J Jurkevičius, T Krähenbühl, A Latshaw, Y Mugnier, P Vanden Berghe, S Karpf, L Bonacina, UniGE, KU Leuven
Spectro-temporal laser scanning for video rate volumetric two-photon imaging

10:45-11:00 **Q Zhang***, F Wechsler, V Sgarminato, C Moser, EPFL
Overcoming scattering in tomographic volumetric bioprinting using computational light optimization

11:00-11:15 **R Rizzo***, F Wechsler, V Sgarminato, C Moser, EPFL
Tomographic Volumetric Additive Manufacturing for Organ-On-A-Chip

11:15-11:30 **RAM Barna***, F Orellana, MR Fasser, D Valent, J Widmer, A Parrilli, EMPA, UniBE, Balgrist
Human intervertebral discs 3D visualization using contrast enhanced micro-CT

11:30-11:45 **H Luo***, M Wolf, J Jiang, UZH, USZ
Data-driven image reconstruction for near infrared optical tomography: AE-VTS

11:45-12:00 **D Yacheur***, L Lanini, T. Li, M Ackermann, A Kalyanov, E Russomanno, A Di Costanzo Mata, M Wolf, J Jiang, UZH, USZ, ETHZ
Quantitative Analysis of Optical Properties in Short-Distance Reflectance

12:00-12:15 **O Ustinov***, Y Ding, M Wolf, A Di Costanzo Mata, UZH, USZ
Glucose Quantification in Microdialysate with an Automated UV-LED Fluorimeter

12:15-12:30 **V Mikhaylov & L Krainer**, Prospective Instruments GmbH
Towards automated high-content Multimodal 3D label-free Imaging

*competing for best presentation award

We gratefully acknowledge financial support:

12:30-14:45 Lunch break and poster viewing**Presentations (Auditorium Charles-Edouard Guillaume) Chairs: Martin Frenz, Martin Wolf**

- 14:45-15:25 **E Charbon**, EPFL Neuchâtel, Invited Talk
Picosecond image sensors: from LiDAR to quantum imaging Prospective
- 15:25-16:05 **V Basoli**, University of Basel, Invited Talk
Single-Walled Carbon Nanotube optical sensors: Opportunities and Constraints in Biomedical field
- 16:05-16:20 **AA Boghossian**
There's Plenty of Room at the NanoBio Boundary for Bioengineering Optical Nanotube Sensors
- 16:20-16:40 Award ceremony and closing

Poster Session

1. **E Auster***, J Zwicky, D Fehr, I Albert, S Lehmann, L Witthauer, M Bonmarin, ZHAW, UniBE
Optical Characterization of Bilirubin States Using Absorbance, Fluorescence, and Anisotropy Measurements
2. **M Dakova***, Vinamrata, A Hamidi, D Mock, F Inhoff, A Barbero, F Canbaz, UniBS, UHB
Early-on Cartilage Degeneration Detection Through Diffuse Reflectance and Autofluorescence Spectroscopy
3. **L Pauly***, A Hamidi, A Guzzetti, PC Cattin, F Canbaz, UniBS
Advancing smart laser osteotomy through Raman spectroscopy-based molecular tissue characterization
4. **MI Uygun***, Ö Eroglu, A Hamidi, F Canbaz, UniBS
Detection of Dental Microfractures Using Multidirectional Optical Coherence Tomography
5. **C Pescatore***, C Perrin, D Wyser, R Gassert, ETHZ, optohive
Multi-day within-subject replicability of task-evoked fNIRS
6. **Vinamrata***, M Dakova, A Hamidi, D Mock, F Inhoff, A Barbero, G Rauter, F Canbaz, UniBS, UHB
Label-Free Optical Detection and Mapping of Cartilage Degeneration
7. **L Lanini***, D Yacheur, M Wolf, J Jiang, UZH, USZ, ETHZ
Automated co-registration of functional near infrared spectroscopy to MRI-derived human head models
8. **M Nasehi***, E Hassanpour, G Risi, S Stepanova, AF Celoria, ML Balmer, A Nikoletic, O Tagit, A Cannizzo, L Witthauer, UniBE
Development of Fatty Acid-Capped Gold Nanoparticles with Dual Optical Properties for Biomedical Imaging
9. **M Liu***, D Blaser, A Hamidi, D Wilson, K Garcia, F Canbaz, UniBS
Deep bone ablation using an Er:YAG laser with a tophat intensity distribution
10. **Ö Eroglu***, A Hamidi, F Canbaz, UniBS
Towards Smart Laser Dental Treatment: Development of Diagnostic and Intraoperative Feedback System

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11. **E Russomanno***, J Jiang, M Ackermann, D Yacheur, L Lanini, M Wolf, A Kalyanov, UZH, USZ
Deep learning based multi-layer optical property estimation from MC-simulated time-domain NIRS
12. **T Cantieni***, G Cheng, U Schonhardt, S Jegatheeswaran, U Wolf, UniBE, Sensawear, Reliyo, Rehab Basel
Tissue oxygenation measurements of tissue covering the ischial tuberosity under controlled pressure exposure
13. **E Wild***, S Guglielmini, M Wolf, UZH, USZ
Effects of gustatory stimulation on cortical and systemic physiology: A systemic physiology augmented functional near-Infrared spectroscopy (SPA-fNIRS) study
14. **T Krähenbühl***, O Foussadier, L Bocanegra Moreno, L Bonacina, G Salbreux, A De Simone, UniGE
Non-linear imaging using a custom-built system with new laser sources in the short-wave infrared region (SWIM, from project FAIRCHARM)
15. **S Jegatheeswaran***, L Probst, H Zohdi, F Scholkmann, U Wolf, UniBE, UZH
fNIRS Insights into Cortical Mayer Wave Oscillations During Colored Light Exposure
16. **BP Singh**, V. Stefanov, and A. Stefanov, UniBe
Performance of a backscattering scanning polarimetric setups
17. **H Zohdi**, S Jegatheeswaran, S Buchwalder, M Geiser, F Scholkmann, M Wolf, U Wolf, UniBE, Oculox, UZH, USZ
SPA-fNIRS Meets Chromatic Pupillometry: Insights into Light-Evoked Brain and Physiological Responses
18. **N Kabir**, F Lucente, R Souza Lima, M Bonmarin, ZHAW, Aseptuva
Smart UVC Monitoring System for Safe Light-based Skin Disinfection
19. **D Gaiki**, P Mos, L Lanini, D Yacheur, S Spinthaki, M Ackermann, J Jiang, E Charbon, M Wolf, A Kalyanov, USZ, UZH, EPFL
Development of Thermally Controlled SPAD Imaging System with PCIe Readout for Low-Noise Time-Domain Measurements
20. **MI Álvarez-Castaño**, R Rizzo, V Sgarminato, Y Pu, C Moser, EPFL
Biofabrication with Holographic Tomographic 3D Printing using a Phase Light Modulator

Registration is required.

Register [here](#) by Nov. 12th, 2025. Registration fee is 50Fr. payable in cash on site. Registration is **free** for members of SSOM: **become member for 40Fr./year** [here](#).

For further information about the Biomedical Photonics Network: www.bmpn.ch.

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