

International Conference on BioMedical Photonics 2025

MONTPELLIER– Palavas-les-Flots, France

April 3-5, 2025



PROGRAM

Thursday, 3rd of April 2025

08:00 Registration / Poster Installation

08:40 Conference opening:
Csilla Gergely, Jürgen Popp

PHOTONICS FOR IMAGING 1

Raman, Fluorescence, Photoacoustic, Brillouin

Chair: **Csilla Gergely**

09:00 **Biomedical Photonics - from bench to bedside**

Jürgen Popp | Leibniz IPHT Jena, Germany

09:30 **Open-source multidimensional fluorescence, phase and super-resolved microscopy and high content analysis**

Paul French | Imperial College of London, United Kingdom

10:00 **Morpho functional imaging of the brain**

Francesco S. Pavone | LENS - Univ Florence, Sesto Fiorentino, Italy

10:30 – 11:00 **Selected oral communications**

[10:30 – 10:45](#) Label-Free Imaging of Murine Skeletal Muscle Using Multiphoton Microscopy and Fluorescence Lifetime Imaging

Isabell Wenskus | Universität Rostock, Germany

[10:45 – 11:00](#) Studying bladder tumour margins by Raman spectroscopic classification of urothelial carcinoma in radical cystectomy specimens

Sander Onur | Martini Hospital, St. Antonius Hospital, Netherlands

11:00 Coffee break

Chair: Jürgen Popp

11:30 **Biomechanics seen in a new light**

Francesca Palombo | University of Exeter, United Kingdom

12:00 **Photoacoustic Imaging - technical validation and emerging applications**

James Joseph | University of Dundee, United Kingdom

12:30 – 13:00 **Selected oral communications**

[12:30 – 12:45](#) High-contrast high-efficiency two-stage VIPA based Brillouin imaging spectrometer using a single diffraction mask

Benoît Rufflé | Laboratoire Charles Coulomb, Univ. Montpellier, France

[12:45 – 13:00](#) Metamaterial formalism approach to recognize cancer

Tatjana Gric | Vilnius Gediminas Technical University, Lithuania | Aston University, UK

13:00 – 14:30 **Lunch break**

PHOTONICS FOR IMAGING 2

Light-sheet, Phase, Multiphoton microscopy

Chair: Paul French

14:30 **Viewing life without labels: advanced biomedical imaging approaches for the preimplantation embryo**

Kishan Dholakia | Centre of Light for Life, Univ. Adelaide, South Australia

15:00 **Multiphoton imaging of the cardiovascular system: faster, deeper and label-free**

Willy Supatto | École Polytechnique, Université Paris Saclay, France

15:30 – 16:30 **Poster session 1** | Coffee

Chair: Kishan Dholakia

16:30 **Quantitative imaging at different scales using single objective light-sheet microscopy**

Jean-Baptiste Sibarita | IINS, Université de Bordeaux, France

17:00 **Label-free, quantitative phase imaging using wavefront analysis**

Serge Monneret | Institut Fresnel, Marseille, France

17:30 **Industrial / Facilities section**

[17:30 – 17:45](#) Ingo Rimke | APE GmbH, Germany

[17:45 – 18:00](#) Ugnė Aglinskaitė | Light Conversion, Lithuania

[18:00 – 18:15](#) Jean-Luc Tapié | Coherent, France

[18:15 – 18:30](#) Catalina David | Oxford Instruments WITEC, France

[18:30 – 18:45](#) Chamroeun Sar | Montpellier Ressources Imagerie Facility, France

[18:45 – 19:00](#) Ouis Boumeddine | Lightcore Technologies, France

19:00 **Get-together cocktail**

Friday, 4th of April 2025

PHOTONICS FOR DIAGNOSTICS AND THERAPY 1

Chair: Ronald Sroka

08:30 **Integrated laser Doppler vibrometer array for cardiovascular disease monitoring**

Yanlu Li | Ghent University, IMEC, Belgium

09:00 **Optical biosensing for diagnostics and theranostics based on oligonucleotide switches**

Ambra Giannetti | IFAC CNR, Sesto Fiorentino, Italy

09:30 **Photosensitiser-free direct laser treatment of cancer**

Edik Rafailov | Aston University, UK

10:00 – 10:45 **Selected oral communications**

[10:00 – 10:15](#) Optical vibrational spectroscopy - a promising tool for disease-agnostic health screening

Mihaela Žigman | Ludwig-Maximilians-Universität München, Germany | Max Planck Institute of Quantum Optics, Germany | Center for Molecular Fingerprinting, Hungary

[10:15 – 10:30](#) Near-infrared photoluminescence of single-walled carbon nanotubes to probe drug adsorption and delivery

Tiago Serodre | Laboratoire Charles Coulomb, Univ. Montpellier, France

[10:30 – 10:45](#) Detecting DNA hybridization with Raman spectroscopy
Miklós Veres | HUN-REN Wigner Research Center for Physics, Hungary

10:45 Coffee break

Chair: **Isabelle Ledoux-Rak**

11:15 **Clinical investigations using hyperspectral imaging**
Ronald Sroka | University Hospital München, Germany

11:45 **Developing diamond-based orientation sensing for cell dynamics and mechanics**
Quan Li | The Chinese University of Hong Kong

12:15 – 13:00 **Selected oral communications**

[12:15 – 12:30](#) Multispectral optical sensor for psychological stress detection on skin
Victoria V. Barygina | Dept. of Physics and Astronomy, Univ. Florence, Italy

[12:30 – 12:45](#) High-speed MIR Field-Resolved Spectroscopy with resonant scanners for in-flow Molecular Fingerprinting
Lorenzo Gatto | Max Planck Institute of Quantum Optics, Germany

[12:45 – 13:00](#) Optical photothermal infrared (O-PTIR) spectroscopy in the studies of targeted therapy in glioblastoma
Agnieszka Rusak | Wroclaw Medical University, Poland | Leibniz IPHT, Germany

13:00 – 14:30 **Lunch break**

PHOTONICS FOR DIAGNOSTICS AND THERAPY 2

Chair: **Balázs Rózsa**

14:30 **Coherent Raman imaging for biomedical applications**
Hervé Rigneault | Institut Fresnel, Marseille, France

15:00 **Intercellular interactions probed by vibrational spectroscopy imaging – 2D *in vitro* models of blood-brain barrier**
Kamilla Malek | Jagiellonian University, Kraków, Poland

15:30 **Looking at GPCR structure, dynamics and interactions with single molecule fluorescence**
Emmanuel Margeat | CBS, Montpellier, France

16:00 – 17:00 **Poster session 2** | Coffee, Wine & Cheese

Chair: **Serge Monneret**

17:00 **Moculus: an immersive Virtual Reality System for mice for Fast Visual Learning**

Balázs Rózsa | IEM, HAS, Budapest, Hungary

17:30 **Fast imaging of neuronal activity in freely-behaving mice using a confocal fiberscope**

Cathie Ventalon | IBENS, ENS CNRS, Paris, France

18:00 – 18:15 **Selected oral communication**

[18:00 – 18:15](#) Wide-field multiphoton microscopy with a dual picosecond fast tunable OPA laser system

Federico Vernuccio | Institut Fresnel, France

18:45 **Departure for Gala dinner**

Saturday, 5th of April 2025

PHOTONICS FOR IMAGING 3

Raman, IR, Super resolution, Polarization Microscopy

Chair: **Hervé Rigneault**

09:00 **Depth-coded stimulated Raman scattering tomography for label-free dynamic and functional imaging of live cells and tissue**

Zhiwei Huang | National University of Singapore

09:30 **Advanced VSFG spectroscopy for molecular-level insights into biomacromolecular interfaces**

Zsuzsanna Heiner | Humboldt Universität Berlin, Germany

10:00 – 10:45 **Selected oral communications**

[10:00 – 10:15](#) Probing the interaction of L-phenylalanine with lipid monolayer at air-water interface by nonlinear Sum Frequency Generation Vibrational Spectroscopy

Sagar Shayer Yaar | Indian Institute of Technology Ropar, India

[10:15 – 10:30](#) Label-free imaging by Broadband Coherent Anti-Stokes Raman Scattering (B-CARS) Microscopy

Thierry Cloitre | Laboratoire Charles Coulomb, Univ. Montpellier, France

[10:30 – 10:45](#) On the (mis)-interpretation of human serum SERS bands: facing a long-standing literature debate

Roberto Gobatto | Raman Spectroscopy Laboratory, Univ. Trieste, Italy

Coffee break

Chair: **Kamilla Malek**

11:15 [Unveiling new dimensions in tissue biopsy with 3D polarization mapping of tissues optical anisotropy composition](#)

Igor Meglinski | Aston University, UK

11:45 [Polarized microscopy in 3D to image complex biomolecular organizations](#)

Sophie Brasselet | Institut Fresnel, Marseille, France

12:15 – 13:00 **Selected oral communications**

[12:15 – 12:30](#) Molecular orientation imaging of collagen and polymers with O-PTIR spectroscopy

Honorata Oleś | SOLARIS National Synchrotron Radiation Center, Jagiellonian University, Poland

[12:30 – 12:45](#) Shedding light on subcellular glycolysis pathway kinetics using Spectralomics approach

Nitin Patil | Technological University Dublin, Ireland

[12:45 – 13:00](#) A 3D imaging approach to assess collagen remodeling in spinal cord injury

Joshua De Lizaraga | Laboratoire Charles Coulomb, Univ. Montpellier, France

13:00 – 14:30 **Lunch break**

PHOTONICS FOR DIAGNOSTICS AND THERAPY 3

Chair: **Zsuzsanna Heiner**

14:30 [Label-free optofluidic sensor based on polymeric microresonators for DNA sensing](#)

Isabelle Ledoux-Rak | LPQM, CNRS ENS Paris-Saclay, Cachan, France

15:00 [Label-free IR nanoscopy and tomography of intracellular structure](#)

Joachim Heberle | Freie Universität Berlin, Germany

15:30 [Non-invasive, multi-modal optical monitoring for \(neuro-\)critical care](#)

Turgut Durduran | ICFO Barcelona, Spain

16:00 [Live-cell imaging with IR Microscopy at the Benchtop](#)

Charles Camp | NIST, Gaithersburg, USA

16:30 – 17:00 Coffee, Wine & Cheese

17:00 – 17:30 **Selected oral communications**

[17:00 – 17:15](#) Double-clad tapered multi-core fibers for two-photon lensless endoscopy

Luca Genchi | Institut Fresnel, France

[17:15 – 17:30](#) Changes induced by amyotrophic lateral sclerosis in the morphology and nanomechanics of skeletal muscle fibers

Marta Martin | Laboratoire Charles Coulomb, Univ. Montpellier, France

17:30 **Closing Ceremony - Student prizes**