# International Conference on BioMedical Photonics

La Grande Motte | France
16-17 March 2018

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http://biomedicalphotonics.org

# Welcome

Dear Colleague,

It is an honour and a great pleasure to welcome you in La Grande Motte- Montpellier, France at the International Conference on Biomedical Photonics, 16-17 March 2018.

First time conceived and organized, this symposium intends to be an international forum to present and hear the latest from leading experts in biomedical photonics research and related technological developments. The objective is to share knowledge, exchange ideas, discuss and to promote collaborations in the domain of biomedical photonics.

Biomedical Photonics is the science established to bring an aide to the goals of modern medicine that are threefold: to understand the cause of diseases, to facilitate an early diagnosis of diseases, and to provide a specific effective treatment. Light plays a key role in turning this ambitious vision into reality. In biomedical research modern optical and photonic techniques allow for monitoring and manipulating life processes in cells and tissues on a molecular level. But also in clinical practice, optical and photonic techniques are well established in many fields of medicine, like in ophthalmology, endoscopy or biomedical imaging. This explains why the last decade is marked by the exponential growth of photonic technologies applied to biology and health.

The main goal of the conference is to exchange on the last years' achievements in the domain of the biomedical applications of various photonic tools spanning from molecules and cells manipulation to tissue and in-vivo studies. Photonic methods include amongst others Raman, fluorescence, non-linear optics, multiphoton, phase imaging, optical coherence tomography and endoscopic microscopy.

The conference affirms very strongly the pertinence of photonics to aid the biomedical research as demonstrated by the high number of scientific abstracts received and this is thanks to all of you, because it is you who make this conference alive.

The conference would have not been possible without the help of the University of Montpellier and our greatly valued sponsors whose names you will find in this leaflet.

Special thanks are going to the local organizing committee and the scientific committee who worked hard to do this meeting enjoyable for everybody from both scientific and social aspects.

Enjoy the meeting and the beautiful surroundings of the French Mediterranean.

Csilla Gergely, Conference Chair

# Summary

## Chair

Csilla GERGELY | L2C, Université de Montpellier, France

## Co-Chairs

Jürgen POPP | Leibniz IPHT, Jena, Germany

Hervé RIGNEAULT | Institut Fresnel, Marseille, France

## Scientific Committee

Csilla GERGELY | L2C, Université de Montpellier, France
Jürgen POPP | Leibniz IPHT, Jena, Germany
Hervé RIGNEAULT | Institut Fresnel, Marseille, France
Marcus CICERONE | NIST, Gaithersburg, USA
Frédéric CUISINIER | LBN, Université de Montpellier, France
Isabelle LEDOUX-RAK | LPQM, CNRS ENS Paris Saclay, Cachan, France
Francesco PAVONE | LENS, Sesto Fiorentino, Italy
Cathie VENTALON | IBENS, ENS CNRS INSERM, Paris, France

## Local Organizing Committee

Hassan BOUKHADDAOUI | INM, INSERM, Montpellier
Thierry CLOITRE | L2C, Université de Montpellier
Frédéric CUISINIER | LBN, Université de Montpellier
Alban DESOUTTER | LBN, Université de Montpellier
Christelle EVE | L2C, Université de Montpellier
Csilla GERGELY | L2C, Université de Montpellier
Marta MARTIN | L2C, Université de Montpellier
Elodie MIDDENDORP | LBN, Université de Montpellier
Orsolya PÁLL | LBN, Université de Montpellier
Francesco PEDACI | CBS, INSERM, Montpellier
Hamideh SALEHI | LBN, Université de Montpellier
Amel SLIMANI | LBN, Université de Montpellier
Vivien SZABO | IGF, INSERM, Montpellier
Nicolas TRICAUD | INM, INSERM, Montpellier
Béla VARGA |L2C, Université de Montpellier

# Venue

Congress Palace
Petit Auditorium, Salle Camargue, Salle Mimosa
192 Av. Jean Béne, 34280 La Grande-Motte


The conference venue is the Palais des Congres La Grande Motte situated in front of the harbor of the city.

# Travel Info

## La Grande Motte by road

A75 motorway from Paris and central France

A9 motorway from Lyon

Two dual carriageways (20 km each) link La Grande Motte to the A9 motorway

- Lunel exit when arriving from the East or North
- Montpellier-Est exit when arriving from the West

A61 motorway when arriving from Toulouse

Autoroutes informations: www.autoroutes.fr

## La Grande Motte By Plane

Montpellier-Méditerranée Airport is 10 kilometres away

Daily flights from Paris, Amsterdam on Air France

- Montpellier-Méditerranée Airport: www.montpellier.aeroport.fr
- Nîmes-Arles-Camargue Airport (35 km):

www.nimes-aeroport.fr

## La Grande Motte by Rail

Daily services to and from all major cities, in particular the TGV high-speed train which arrives in Montpellier.

From the railway station take the tramway (line n°1) to the station "Place de France" where a regular coach (line n°106) provides a return shuttle service to and from La Grande Motte (45 minutes).

SNCF website: www.voyages-sncf.com

# La Grande Motte

The resort town of La Grande Motte was built between 1960 and 1975 on virgin beachfront dunes, and is artificially irrigated to create a green, environment. The architect of the project, Jean Balladur, drew inspiration from pre-Columbian pyramids such as Teotihuacan, in Mexico; and from modernist architecture in Brazil, especially the work of architect Oscar Niemeyer. Balladur developed the master plan for the seaside resort on a site of 750 hectares comprising 450 hectares of land and 300 hectares of wetland. The plan included principles for settlement, with guidelines for each plot, including zones for camping, a town centre, a marina, and a city park. Jean Balladur imagined a green city, hence the landscaper Pierre Pillet collaborated on the project, selecting plant species that were tolerant of the marine climate. Lined with beautiful beaches of fine sand, the resort also offers to holidaymakers numerous leisure and sports activities.

# Social Program

## Friday, 16 March 2018

The gala dinner will take place in the 'Seaquarium' at Grau de Roi that is at 20 min bus-drive from the Congress Hall de La Grande Motte.

19:30 - Bus from Congress Palace (Grande Motte) to Seaquarium (Grau du Roi)
20:00 - Gala Dinner
24:00 (approximately) – Bus to Grande Motte

For over 20 years, Seaquarium has been actively involved in preservation initiatives, research projects and improving knowledge on the marine environment.
With more than 2400m$^2$ of undersea life to explore, Seaquarium boasts numerous pools that are home to over 2000 fishes from Mediterranean and the Tropics, and more than 25 fascinating species of sharks, seals and playful sea lions.

The aquarium will be open for us, feel free to discover it.

Seaquarium
Avenue du Palais de la Mer, 30240 Le Grau-du-Roi
Website: https://www.seaquarium.fr/

# Practical Information

## REGISTRATION DESK

The Registration desk will open at 8:00 on 16th March and at 8:30 on 17th March 2018.

## NAME BADGES

For identification and security purposes, participants must wear their name badges when in the venue. The use of the badge is mandatory for the access to the coffee breaks and lunches.

## PRESENTATIONS INSTRUCTIONS

Speakers presenting in the morning should hand in their presentations in the auditoriums until 8:30 of the presentation day. Speakers presenting in the afternoon sessions, should hand in their presentations during lunch break. A computer will be at the presenters' disposal.

## POSTER PRESENTATIONS

Posters should be of portrait oriented A0 format. They should be hanged for all the period of the conference in the Exhibition Hall.

Poster sessions: authors should be available next to their poster the second hour of the lunch breaks.

- Poster Session I – Imaging | 16 March 2018
- Poster Session II – Diagnostics and probes | 17 March 2018

# Program

## Friday, 16 March 2018

08:00 Registration / Poster Installation

08:30 Conference opening:
**Csilla Gergely, Jürgen Popp, Hervé Rigneault**

**PHOTONICS FOR IMAGING 1**
Raman, OCT, Multiphoton, Fluorescence, Phase (Petit Auditorium)

Chair: **Csilla Gergely**

08:45 Trends and challenges of clinical Raman spectroscopy
**Jürgen Popp** | Leibniz IPHT Jena, Germany

09:15 Spectroscopic Coherent Raman Imaging and Applications in Histology and Cell Biology
**Marcus Cicerone** | NIST, Gaithersburg USA

09:45 Multidimensional and multilevel imaging of tissue disease: towards the 3D digital histology
**Francesco S Pavone** | LENS, Sesto Fiorentino, Italy

10:15 Morphological and metabolic microscopy by optical tomography
**Claude Boccara** | Institut Langevin, ESPCI, Paris, France

10:45 – 11:15 Coffee break

11:15 From coherent Raman microscopy to coherent Raman endoscopy
**Hervé Rigneault** | Institut Fresnel, Marseille, France

11:45 New directions in wide field optical imaging
**Kishan Dholakia** | University of St Andrews, United Kingdom

12:15 Fast 3D imaging of the information coding of spine, dendritic, and neuronal assemblies in large volumes of the visual cortex of behaving animals
**Balázs Rózsa** | Two-Photon Imaging Center / Institute of Experimental Medicine of HAS Budapest, Hungary

12:45 – 14:45 Lunch break | **POSTER SESSION I - IMAGING**

| PHOTONICS FOR IMAGING 2<br>Raman, Multiphoton, Brillouin<br>(Petit Auditorium) | PHOTONICS FOR IMAGING 3<br>OCT, Fluorescence, Phase, Thermal<br>(Camargue Hall) |
|---|---|
| Chair: **Marcus Cicerone** | Chair: **Balázs Rózsa** |
| 14:45<br>**Quantitative Label-Free Chemical Imaging with Broadband Coherent Anti-Stokes Raman Scattering (BCARS) Microspectroscopy**<br>**Charles Camp** \| NIST, Gaithersburg, USA | 14:45<br>**Optical imaging in complex media: wavefront shaping and beyond**<br>**Sylvain Gigan** \| Laboratoire Kastler Brossel, Université Pierre et Marie Curie, Paris, France |
| 15:15<br>**In vivo multiphoton imaging of mitochondria and myelin using fluorescent probes and CARS**<br>**Nicolas Tricaud** \| INM INSERM Montpellier, France | 15:15<br>**Using quantitative phase microscopy, from contrast enhancement to label-free histology**<br>**Serge Monneret** \| Institut Fresnel, Marseille, France |
| **Selected oral communications** (10+5 min) | |
| 15:45<br>**Digital holography imaging of microcirculation in zebrafish larvae (01)**<br>**Alexey Brodoline** \| L2C, Université de Montpellier, France | 15:45<br>**Fast 2-photon imaging and optogenetic manipulation in developing zebrafish (04)**<br>**Matan Golan** \| IGF, Université de Montpellier, CNRS, INSERM, France |
| 16:00<br>**Two photon lensless endscopy (02)**<br>**Siddharth Sivankutty** \| Aix Marseille Université, CNRS, France | 16:00<br>**Metal-Induced Energy Transfer Imaging (05)**<br>**Jörg Enderlein** \| Third Institute of Physics - Biophysics, Georg August University, Göttingen, Germany |
| 16:15<br>**Confocal Raman microscopy to image targeted chemotherapy (03)**<br>**Hamideh Salehi** \| LBN, Université de Montpellier, France | 16:15<br>**Mammalian reproduction and development through functional optical imaging (06)**<br>**Irina V. Larina** \| Baylor College of Medicine, Houston, USA |
| 16:00 – 17:00 **WITEC Workshop** | |

16:30 – 17:00 Coffee break

## PHOTONICS FOR IMAGING 2
Raman, Multiphoton, Brillouin
(Petit Auditorium)

Chair: **Jürgen Popp**

17:00

**Advances in multicolor two- and three-photon microscopy**
**Willy Supatto** | Ecole Polytechnique, Université Paris Saclay, France

17:30

**Pushing the limits of quantitative single molecule localization microscopy to decipher protein organization and dynamics at the nanoscale**
**Jean-Baptiste Sibarita** | IINS, Université de Bordeaux, France

18:00

**Noncontact Brillouin microscopy for three-dimensional submicron tissue and cell biomechanics**
**Giuseppe Antonacci** | CLNS, Istituto Italiano di Tecnologia, Genova, Italy

### Selected oral communications

18:30

**Coherent anti-Stokes Raman Scattering (CARS) imaging of myelin synchronously with two-photons imaging of virally delivered fluorescent probe imaging (07)**
**Gerben van Hameren** | INM, INSERM, Montpellier, France

## PHOTONICS FOR IMAGING 3
OCT, Fluorescence, Phase, Thermal
(Camargue Hall)

Chair: **Nicolas Tricaud**

17:00

**Fast confocal fluorescence imaging in freely-behaving mice**
**Cathie Ventalon** | IBENS, ENS CNRS, Paris, France

17:30

**Temperature microscopy of single living cells**
**Guillaume Baffou** | Institut Fresnel, Marseille, France

### Selected oral communications

18:00

**Live PALM and energy mapping to quantify spatio-temporally HIV-1 Gag assembly in host CD4 T cells (08)**
**Delphine Muriaux**| IRIM, CNRS, Université de Montpellier, France

18:15

**Towards a disruptive technology in Hematology: lens-free imaging for high precision red blood cell counting and sizing (09)**
**Pierre Blandin** | Université Grenoble Alpes, CEA, LETI, DTBS, France

19:30 Departure for GALA DINNER

# Saturday, 17 March 2018

## PHOTONICS FOR DIAGNOSTICS AND THERAPY 1 (Camargue Hall)

Chair: **Francesco Pedaci**

9:00
**Microresonators based optical sensors**
**Isabelle Ledoux-Rak** | LPQM, CNRS ENS Paris Saclay, Centrale Supelec, Cachan, France

9:30
**An exploration of on-chip waveguide-based modalities for ultra-compact and low cost Raman spectroscopy**
**Roel Baets** | Ghent University, Belgium

10:00
**Non-invasive, clinical measurement of cerebral blood flow with laser speckles**
**Turgut Durduran** | ICFO Barcelona, Spain

10:30
**Label-free investigation of liver tissue homogenates of murine models of diabetes, cancer metastasis and nonalcoholic fatty liver disease with the use of vibrational spectroscopy (10)**
**SzymonTott** | Faculty of Chemistry, Jagiellonian University, Kraków, Poland

10:45
**Quantification of human corneal graft transparency (11)**
**Marion Gil** | Aix Marseille Université, CNRS, Centrale Marseille, Institut Fresnel, France

## MATERIALS, MARKERS AND MOLECULAR PROBES FOR PHOTONICS (Mimosa Hall)

Chair: **Hervé Rigneault**

9:00
**Developing Nanodiamond based biosensors**
**Quan Li** | The Chinese University of Hong Kong

9:30
**Time-Gated and Two-Photon Imaging with Porous Silicon Nanoparticles**
**Michael Sailor** | University of California, San Diego, USA

10:00
**Mesoporous Nanoparticles for two-photon drug delivery and photodynamic therapy**
**Jean-Olivier Durand** | ICGM, CNRS, Montpellier, France

**Selected oral communications** (10+5 min)

10:30
**Towards reproducible SERS spectra of human serum (12)**
**Andrei Stefancu** | Faculty of Physics, Babeș-Bolyai University, Cluj-Napoca, Romania

10:45
**Controlled growth of Gd2O2S:Ln3+ based nanostructures: A study of their optical properties and biological response (13)**
**Gabriela Palestino** | Facultad de Ciencias Químicas, Universidad Autónoma de San Luis Potosí, México

11:00 – 11:30 Coffee break

## PHOTONICS FOR DIAGNOSTICS AND THERAPY 2 (Camargue Hall)

Chair: **Isabelle Ledoux-Rak**

11:30

**The power of smFISH for detecting and analyzing pathological cells in their native context**

**Marion Peter** | IGMM, University Montpellier - CNRS, France

**Selected oral communications** (10+5 min)

12:00

**Study of electromechanical activity of a beating heart using fluorescence imaging (14)**

**Vineesh Kappadan** | Max Planck Institute for Dynamics and Self-Organization, Göttingen, Germany

12:15

**Evaluating thermoelastic versus ablative excitation of elastic waves in soft media using Optical Coherence Elastography (15)**

**Kirill. V. Larin** | University of Houston, USA

12:30

**All-semiconductor mid-IR plasmonics for IR-spectroscopy on femtolitre amounts of olive oil and organic solvents (16)**

**Mario Bomers** | IES, Université de Montpellier, CNRS, France

## LASERS IN BIOLOGY AND DIAGNOSTICS (Mimosa Hall)

Chair: **Cathie Ventalon**

11:30

**Research and developments of laser assisted methods for translation into clinical application**

**Ronald Sroka** | University Hospital München, Germany

12:00

**From Bio-engineering to clinics laser-assisted in Dentistry and Oral Surgery**

**Gianluigi Caccianiga** | University of Milano, Bicocca, Italy

12:30

**Optical and magnetic angular manipulation to probe biological systems at the nm-scale**

**Francesco Pedaci** | CBS, INSERM, Montpellier, France

13 :00 – 15 :00 Lunch break | **POSTER SESSION II – DIAGNOSTICS AND PROBES**

| PHOTONICS FOR DIAGNOSTICS AND THERAPY 2 (Camargue Hall) | LASERS IN BIOLOGY AND DIAGNOSTICS (Mimosa Hall) |
|---|---|
| Chair: **Charles Camp** | Chair: **Jean Olivier Durand** |

Selected oral communications (10+5 min)

15:00
Towards multiplexed SERS-based on-chip detection of protease activity (17)
**Nina Turk** | Photonics Research Group, INTEC, Ghent University – imec, Belgium

15:15
Non-invasive detection of calcium hydroxyapatite and calcium oxalate deep inside biological tissue using Transmission Raman Spectroscopy (18)
**Adrian Ghita** | School of Physics and Astronomy, University of Exeter, UK

15:00
Optical stimulation of sensory neurons by infra-red laser light (19)
**Fabrice Bardin** | Université de Nîmes, France

15:15
Cell death response induced by photosensitizer-free photoactivation of singlet oxygen (20)
**Hélène Moulet** | Laboratoire de Physique des Lasers, Atomes et Molécules, Université de Lille, France

## Afternoon Sessions (Camargue Hall)

15:30 **Round table : Education in biomedical photonics**

Erasmus Mundus master in molecular nano- and biophotonics -MONABIPHOT
**Ledoux-Rak Isabelle** | LPQM, CNRS ENS Paris Saclay, Centrale Supelec, Cachan, France

Master of Science in Medical Photonics at the Friedrich Schiller University Jena
**Jürgen Popp** | Leibniz IPHT Jena, Germany

16:30 – 17:00
**Industrial section on photonic technologies**
Opton Laser | Alpha Nova | Toptica

16:30 – 17:30
**WITEC Workshop**
Current trends in 3D Raman imaging: New tools for research and development
**Philippe Ayasse**

17:00 Coffee break

17:30 **General Assembly**

18:30 Conference leave

# Invited Speakers

## Pr. Jürgen Popp
Leibniz IPHT, Jena, Germany

## Dr. Marcus Cicerone
NIST, Gaithersburg, USA

## Pr. Francesco S. Pavone
LENS, Sesto Fiorentino, Italy

## Pr. Claude Boccara
Institut Langevin, ESPCI-CNRS, Paris, France

## Dr. Hervé Rigneault
Institut Fresnel, Marseille, France

## Pr. Kishan Dholakia
University of St Andrews, United Kingdom

## Dr. Balázs Rózsa
Institute of Experimental Medicine, Budapest, Hungary

## Dr. Charles Camp
NIST, Gaithersburg, USA

## Dr. Nicolas Tricaud

INM INSERM, Montpellier, France

## Pr. Sylvain Gigan

LKB, Université Pierre et Marie Curie, Paris, France

## Dr. Serge Monneret

Institut Fresnel, Marseille, France

## Dr. Willy Supatto

Ecole Polytechnique, Université Paris Saclay, France

## Dr. Jean-Baptiste Sibarita

IINS, Université de Bordeaux, France

## Dr. Giuseppe Antonacci

CLNS, Instituto Italiano di Tecnologia, Genova, Italy

## Dr. Cathie Ventalon

IBENS, ENS CNRS, France

## Dr. Guillaume Baffou

Institut Fresnel, Marseille, France

## Pr. Isabelle Ledoux-Rak

LPQM, CNRS ENS Paris Saclay, Cachan, France

## Pr. Roel Baets
Ghent University, Belgium

## Pr. Turgut Durduran
ICFO, Barcelona, Spain

## Pr. Quan LI
The Chinese University of Hong Kong

## Pr. Michael Sailor
University of California, San Diego, USA

## Dr. Jean Olivier Durand
ICGM, CNRS - University Montpellier, Montpellier, France

## Dr. Marion Peter
IGMM, University Montpellier - CNRS, Montpellier, France

## Dr. Ronald Sroka
University Hospital München, Germany

## Dr. Gianluigi Caccianiga
University of Milano Bicocca Italy

## Dr. Francesco Pedaci
CBS, INSERM, Montpellier, France

# Oral communications' list

## 01 | Digital holography imaging of microcirculation in zebrafish larvae

**A Brodoline, N Rawat, D Alexandre and M Gross**

## 02 | Two photon lensless endscopy

**Siddharth Sivankutty, Viktor Tsvirkun, Geraud Bouwmans, Esben Andresen, Hervé Rigneault**

## 03 | Confocal Raman Microscopy to image targeted chemotherapy

**Hamideh Salehi, Siham Al-Arag, Elodie Middendorp, Csilla Gergely, Frédéric Cuisinier, Valeri Orti**

## 04 | Fast 2-photon imaging and optogenetic manipulation in developing zebrafish

**M Golan*, A Pinot*, P Fontanaud, P Mollard and C Lafont**

## 05 | Metal-Induced Energy Transfer Imaging

**Jörg Enderlein**

## 06 | Mammalian reproduction and development through functional optical imaging

**Irina V Larina**

## 07 | Coherent anti-Stokes Raman Scattering (CARS) imaging of myelin synchronously with two-photons imaging of virally delivered fluorescent probe imaging

**G van Hameren and N Tricaud**

## 08 | Live PALM and energy mapping to quantify spatio-temporally HIV-1 Gag assembly in host CD4 T cells.

**Charlotte Floderer*, Jean-Baptiste Masson*, Elise Boilley, Sonia Georgeault, Peggy Merida, Mohamed El Beheiry, Maxime Dahan, Philippe Roingeard, Jean-Baptiste Sibarita, Cyril Favard and Delphine Muriaux**

## 09 | Towards a disruptive technology in Hematology: lens-free imaging for high precision red blood cell counting and sizing

**A Ali-Cherif, E Gremion, D Isèbe, A Daynes, S Bressieux, JL Papilleau, O Cioni, T Bordy, S Morales, JM Dinten, P Blandin**

10 | Label-free investigation of liver tissue homogenates of murine models of diabetes, cancer metastasis and nonalcoholic fatty liver disease with the use of vibrational spectroscopy

**S Tott**, A Filipek, E Szafraniec, E Kus, M Walczak, S Chlopicki, M Baranska

11 | Quantification of human corneal graft transparency

**M Gil**, G Georges, L Siozade Lamoine, C Deumie, C Guerrin and C Gard

12 | Towards reproducible SERS spectra of human serum

**A Stefancu**, V Moisoiu, N Leopold and I E Sizemore

13 | Controlled growth of $Gd_2O_2S:Ln^{3+}$ based nanostructures: A study of their optical properties and biological response

**G Palestino**, B Ortega-Berlanga, F Aguilar-Pérez, L Hernández-Adame, C Del Ángel-Olarte, Sergio Rosales-Mendoza

14 | Study of electromechanical activity of a beating heart using fluorescence imaging

**Vineesh Kappadan**, Johannes Schröder-Schetelig, Ulrich Parlitz, Stefan Luther, and Jan Christoph

15 | Evaluating thermoelastic versus ablative excitation of elastic waves in soft media using Optical Coherence Elastography

S Das, C-H Liu, A Schill, and **K V Larin**

16 | All-semiconductor mid-IR plasmonics for IR-spectroscopy on femtolitre amounts of olive oil and organic solvents

**M Bomers**, B Charlot, F Barho, L Cerutti, F González-Posada and T Taliercio

17 | Towards multiplexed SERS-based on-chip detection of protease activity

**N Turk**, P Wuytens, H Demol, K Gevaert, A Skirtach, M Lamkanfi and R Baets

## 18 | Non-invasive detection of calcium hydroxyapatite and calcium oxalate deep inside biological tissue using Transmission Raman Spectroscopy

**Adrian Ghita**, **Pavel Matousek and Nick Stone**

## 19 | Optical stimulation of sensory neurons by infra-red laser light

**F Bardin**, **B Charlot**, **J Valmier**

## 20 | Cell death response induced by photosensitizer-free photoactivation of singlet oxygen

**Hélène Moulet**, **François Anquez**, **Emmanuel Courtade**

# Posters' list

## POSTER SESSION I - IMAGING

01 | Measurement system combining Raman spectroscopy and low-coherence interferometry
**M Kosowska, D Truchanowicz, M Wróbel and M Jędrzejewska-Szczerska**

02 | Optical Coherence Tomography for Smart Laser Surgery System
**Iris Schmidt, Azhar Zam**

03 | Optical tissue phantoms for Raman spectroscopy
**D Truchanowicz and MS Wróbel**

04 | Surface-Enhanced Raman Scattering Based Endosomal Tracking
**J Names, D Uzunoglu and M Culha**

05 | Wide-field multiphoton imaging in turbid media: tempix
**A Escobet-Montalbán, R Spesyvtsev, M Chen, W Afshar Saber, M Andrews, C S Herrington, M Mazilu and K Dholakia**

06 | Metasurface-based total internal reflection bioimaging
**Antu Gortari and Alejandro Giacomotti**

07 | Compressed spontaneous Raman microspectroscopy
**C Scotté, H B de Aguiar, H Rigneault**

08 | Highly doped semiconductor plasmonic nanoantenna arrays for surface enhanced infrared absorption spectroscopy
**F Barho, M Bomers, F González-Posada, L Cerutti, E Tournié and T Taliercio**

09 | Mapping of intracellular distribution of lipofuscin and norbixin in living retinal epithelial cells with Raman and fluorescence imaging
**S Iancu, V Moisoiu, A Stefancu, A Biriş, O Chakirou, C Coman, LF Leopold, L Szabo, Z Bálint and N Leopold**

## 10 | Imaging drug uptake and distribution with stimulated Raman scattering

**M Lee, W Tipping, K Sepp, A Hulme and V Brunton**

## 11 | Multi-Species Diffusion Studies In Membrane Utilizing Scanning FCS And Super-Resolution Microscopy

**M Gonzalez Pisfil, M König, B Krämer, P Reisch, F Koberling, M Patting, A Herrmann and R Erdmann**

## 12 | Design of a compact SS-OCT system for anterior and posterior segment imaging integrated in an instrument for autonomous evaluation of the visual function

**A Rodríguez-Aramendía, F Díaz-Doutón, J Pujol, JL Güell, I Grulkowski**

## 13 | Long-depth-range OCT for structural cardiac muscle imaging at up to 100 volumes/s

**M Hamkalo, J Christoph, T Pfeiffer, W Draxinger, R Huber, S Luther and M Wojtkowski**

## 14 | BRET Imaging in Freely-Behaving Mice

**Yan Chastagnier, Sophie Sakkaki, Vivien Szabo, Clara Dussaux, Jozsua Fodor, Jean-François Léger, Laurent Bourdieu, Cathie Ventalon and Julie Perroy**

## 15 | Carbon nanodots as fluorescent nanomaterials for biomedical applications

**M Rybarczyk and M Lieder**

## 16 | Nanodiamonds internalization in MCF7 cells monitored by cell membrane stiffness changes and their luminescent signal

**Michal Gulka, Béla Varga, Marta Martin Fernandez, Hamideh Salehi, Elodie Middendorp, Thierry Cloitre, Frederic JG Cuisinier, Petr Cígler, Miloš Nesládek and Csilla Gergely**

## 17 | Cardiomyocyte internal structure of a Duchenne muscular dystrophy murine model by second harmonic generation multiphoton microscopy

**Thierry Cloitre, Albano C Meli, Sylviya Radoslavova, Olivier Cazorla and Csilla Gergely**

18 | Implementation of a Coherent Anti-Stokes Raman Scattering (CARS) System o–n a Ti:Sapphire and OPO Laser Based Standard Laser Scanning Microscope.

**H Boukhaddaoui, V Mytskaniuk, F Bardin, H Rigneault, N Tricaud**

## POSTER SESSION II - DIAGNOSTICS AND PROBES

19 | Raman microscopy analysis of human primary eosinophils

**Bozena Kukla Anna Rygula, Rafaella Ferreira, Patrycja Leszczenko, Marek Grosicki, Stefan Chlopicki and Malgorzata Baranska**

20 | FTIR spectroscopic imaging of endothelial cells stimulated by tumor necrosis factor TNFα : to follow markers of inflammation

**E Wiercigroch, E Staniszewska-Slezak, M Baranska, K Malek**

21 | SERS label-free protein-tethering for detection of drugs of abuse in blood

**Maciej S Wróbel**

22 | Imaging of the biomarkers of an early stage of lung metastasis in a murine model of breast cancer by rapid FTIR screening

**Karolina Chrabaszcz, Katarzyna M Marzec, Agnieszka Jasztal, Marta Smeda, Stefan Chlopicki, Kamilla Malek**

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**Hamideh Salehi*, Siham Al-Arag*, Elodie Middendorp, Csilla Gergely, Frederic Cuisinier, Valerie Orti**

## 38 | Antibacterial effect of aminolevulinic acid on E. facealis biofilm using photodynamic therapy

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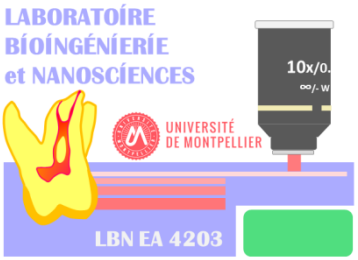



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