

EUROPEAN CONFERENCES ON
**BIOMEDICAL
OPTICS**
SPIE. | OSA

European
Conferences on
**BIOMEDICAL
OPTICS**

The premier European event for scientists, engineers,
and clinicians working with optics and photonics to solve
problems in biomedicine.

spie.org/ecbo19programme

23–27 June 2019
ICM—International Congress Center
Munich, Germany

JUNE 23–27, 2019, MESSE MÜNCHEN

24th International Congress on Photonics in Europe—
collocated with LASER World of PHOTONICS 2019

WORLD^{OF}PHOTONICS CONGRESS 

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TECHNICAL PROGRAMME



WELCOME

EUROPEAN CONFERENCES ON
**BIOMEDICAL
OPTICS**
SPIE. | OSA

23-27 June 2019
ICM – Internationales Congress Center
Munich, Germany

Welcome to Munich, and the European Conferences on Biomedical Optics

The use of optical techniques and tools in biomedical imaging, diagnostics and therapeutics has been in continuous expansion for several decades. The research being produced in this field requires presentation and review at major conferences, and specifically it is important to allow co-location with large technology exhibits. The European Conferences on Biomedical Optics (ECBO) has become the largest such event in Europe for researchers, scientists, engineers and clinicians who are developing applications of optical science and photonic technologies to advance better health world wide.

This meeting provides a forum to span the gap between basic research and instrumentation engineering, all the way to clinical translation research and mature clinical trials. The common theme of the conferences is that they all are employing optics as a tool or solution in biology, medicine or clinical work. This meeting is biennial and jointly sponsored by the Optical Society and SPIE.

General Chairs:



Brett Bouma, Wellman Ctr. for
Photomedicine (USA)



Paola Taroni, Politecnico di
Milano (Italy)

Programme Chairs:



Ronald Sroka, Laser-
Forschungslabor (Germany)



I. Alex Vitkin, Univ. of Toronto
(Canada)

Cosponsored by:





Executive Organizing Committee

- Arjen Amelink**, TNO (Netherlands)
Emmanuel Beaurepaire, Ecole Polytechnique (France)
Stephen Boppart, Univ. of Illinois (USA)
J. Quincy Brown, Tulane Univ. (USA)
Hamid Dehghani, The Univ. of Birmingham (United Kingdom)
Lothar Lilge, Univ. Health Network (Canada)
Seemantini Nadkarni, Wellman Ctr. for Photomedicine (USA)
Vasilis Ntziachristos, Helmholtz Zentrum München GmbH (Germany)
Wang-Yuhl Oh, KAIST (Korea, Republic of)
Francesco Saverio Pavone, LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy)
Carsten Philipp, Evangelische Elisabeth Klinik (Germany)
Peter So, Massachusetts Institute of Technology (USA)
Ton van Leeuwen, Amsterdam UMC (Netherlands)
Heidrun Wabnitz, Physikalisch-Technische Bundesanstalt (Germany)
Maciej Wojtkowski, Polish Academy of Sciences (Poland)
Roger Zemp, Univ. of Alberta (Canada)

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TECHNICAL CONFERENCES

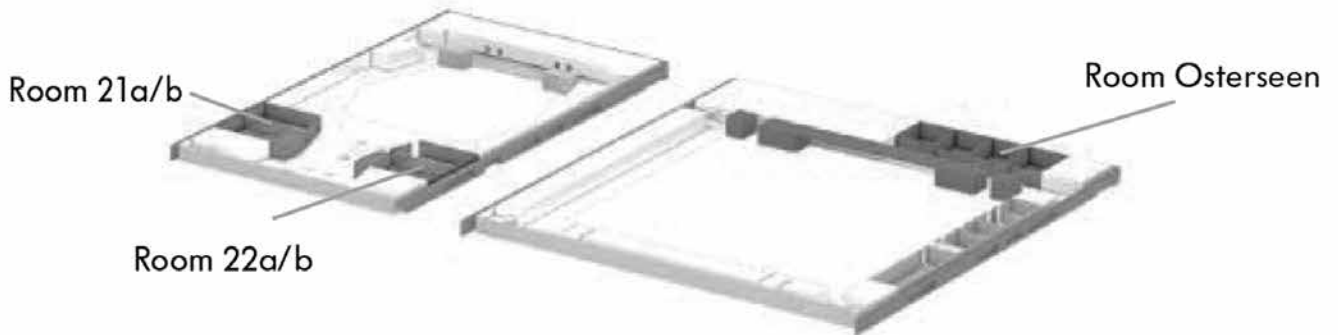
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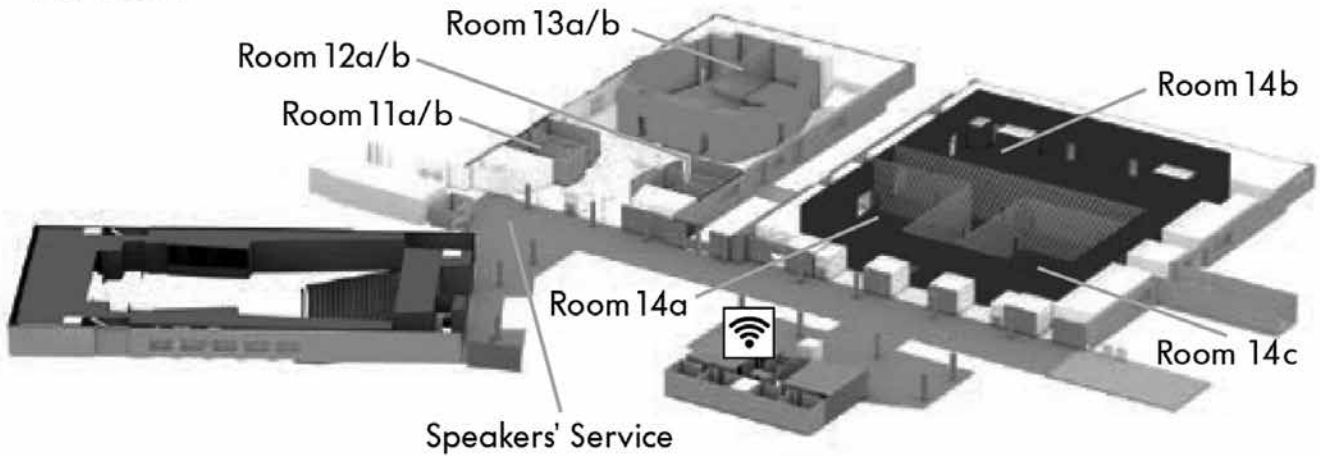
INTERNATIONALES CONGRESS CENTER FLOOR PLANS

ROOMS AT THE ICM AND B0

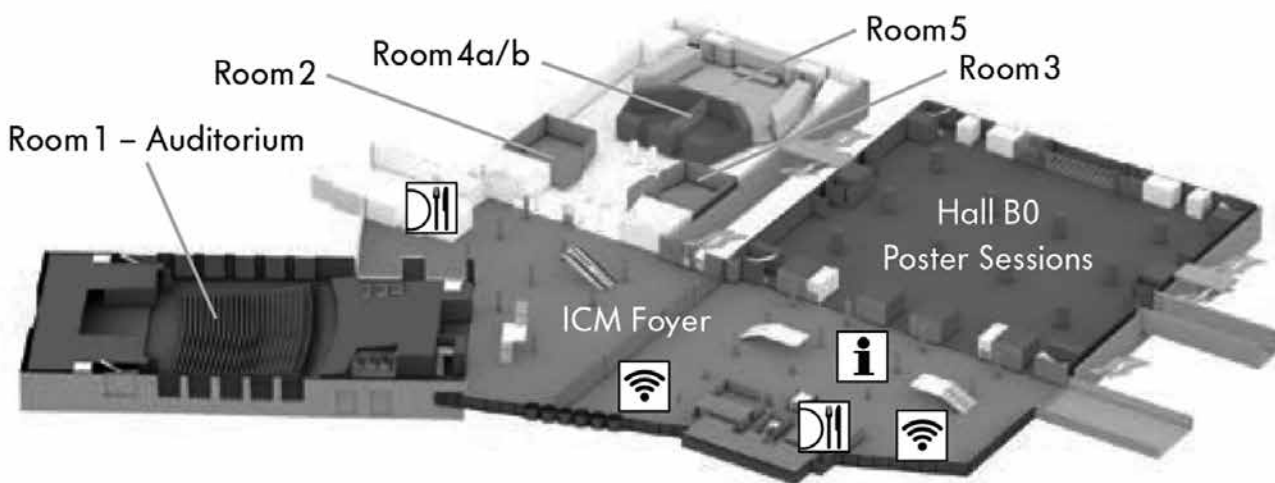
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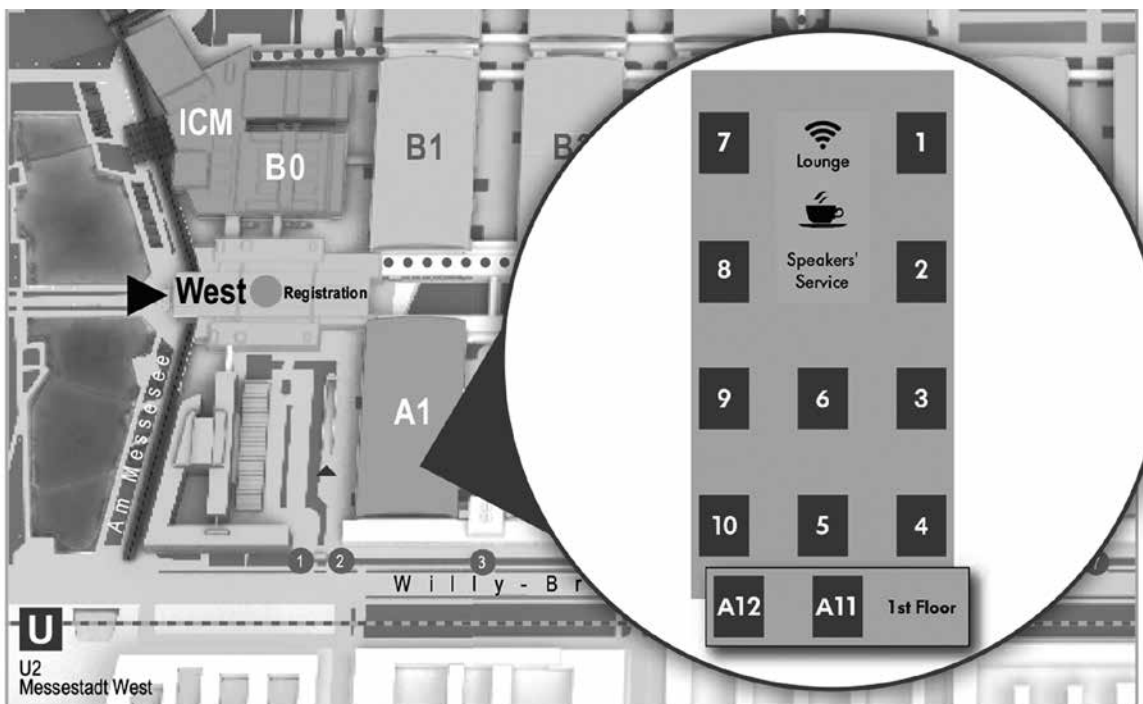
1st Floor



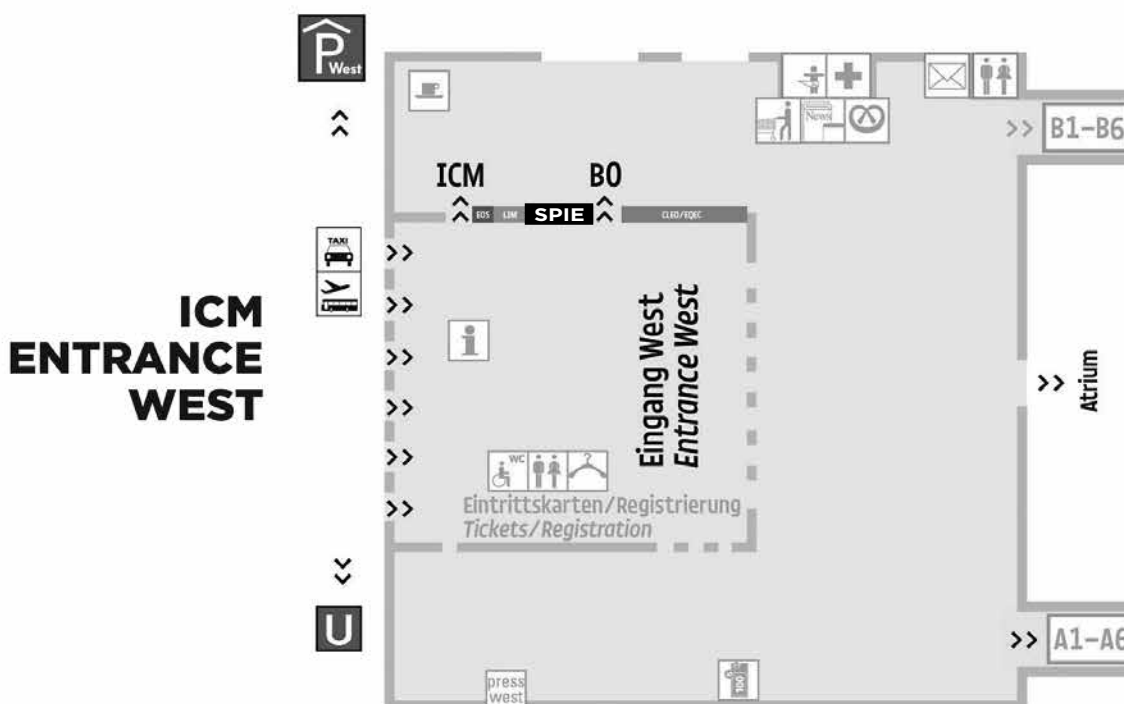
Ground Floor



ROOMS AT THE EXHIBITION HALL A1



- | | | | |
|----------|---|------------|--|
| 1 | Room 1 "Albert Einstein" , Ground Floor, Hall A1 | 7 | Room 7 "Dennis Gábor" , Ground Floor, Hall A1 |
| 2 | Room 2 "Emmy Noether" , Ground Floor, Hall A1 | 8 | Room 8 "Gustav Hertz" , Ground Floor, Hall A1 |
| 3 | Room 3 "Theodore Maiman" , Ground Floor, Hall A1 | 9 | Room 9 "Arthur Schawlow" , Ground Floor, Hall A1 |
| 4 | Room 4 "Emmett Leith" , Ground Floor, Hall A1 | 10 | Room 10 "Wilhelm Röntgen" , Ground Floor, Hall A1 |
| 5 | Room 5 "Marie Curie" , Ground Floor, Hall A1 | A11 | Room A11 "Gordon Gould" , 1st Floor, Hall A1 |
| 6 | Room 6 "Charles Townes" , Ground Floor, Hall A1 | A12 | Room A12 "Max Born" , 1st Floor, Hall A1 |



DAILY EVENT SCHEDULE

Sunday 23 June Monday 24 June Tuesday 25 June Wednesday 26 June Thursday 27 June

CONFERENCES				
Conf. 11073 Preclinical and Clinical Optical Diagnostics (<i>Brown, van Leeuwen</i>), p. 7		Conf. 11075 Novel Biophotonics Techniques and Applications (<i>Amelink, Nadkarni</i>), p. 18		
Conf. 11074 Diffuse Optical Spectroscopy and Imaging (<i>Dehghani, Wabnitz</i>), p. 12		Conf. 11076 Advances in Microscopic Imaging (<i>Beaurepaire, Pavone</i>), p. 22		
		Conf. 11077 Opto-Acoustic Methods and Applications in Biophotonics (<i>Ntziachristos, Zemp</i>), p. 26		
Conf. 11079 Translation of Lasers and Biophotonics Technologies and Procedures: Toward the Clinic (<i>Lilge, Philipp</i>), p. 35		Conf. 11078 Optical Coherence Imaging Techniques and Imaging in Scattering Media (<i>Wojtkowski, Boppart, Oh</i>), p. 30		

SPECIAL EVENTS

ECBO Hot Topics: Light for Life , 14:00 to 15:30, p. 5	Students and SPIE Fellows Luncheon , 12:30 to 14:00, p. 6	Posters , 12:00 to 14:00, p. 6	Posters , 12:00 to 14:00, p. 6	Posters , 12:00 to 14:00, p. 6
	Posters , 12:45 to 14:15, p. 6	ECBO PLENARY , 14:00 to 15:30; Welcome and Presentation of the Michael S. Feld Biophotonics Award , 14:05 to 14:10; Plenary: Photo Medicine, Radiation Medicine and Nano Medicine: An Emerging Golden Braid (<i>Wilson</i>), 2:10 to 3:30, p. 5		
	World of Photonics Congress-wide Nobel Plenary Session: Passion for Extreme Light (<i>Mourou</i>), 18:00 to 19:00, p. 5	Michael S. Feld Biophotonics Award , 14:05 to 14:10, p. 6		
		ECBO Welcome Reception , 19:00 to 21:00, p. 6		

PLAN YOUR WEEK

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ECBO Hot Topics: Light for Life

Sunday 23 June 2019 · 14:00 to 15:30

Location: Room 5 ICM Ground Floor

This session, entitled Light for Life, will feature internationally renowned experts discussing the current status of their fields, emerging developments, and how these technologies are poised to improve the human condition.

14.00 to 14.05: **Welcome and Introduction**, Alex Vitkin, Univ. of Toronto (Canada), Ronald Sroka, Laser-Forschungslabor (Germany)

14.05 to 14.15: **Translation toward the clinic: Where are we and where do we want to be?**, Lothar D. Lilge, Princess Margaret Hospital (Canada)

14.15 to 14.25: **The status of the 'Optical Biopsy' in 2019: Advances, challenges, and a look into the future**, J. Quincy Brown, Tulane Univ. (United States)

14.25 to 14.35: **Lighting up life using diffuse optical spectroscopy and imaging**, Hamid Dehghani, The Univ. of Birmingham (United Kingdom)

14.35 to 14.45: **Optical coherence imaging : New methods and computational developments**, Maciej Wojtkowski, Polish Academy of Sciences (Poland)

14.45 to 14.55: **Molecular optoacoustics: From macro-to micro**, Roger Zemp, Univ. of Alberta (Canada)

14.55 to 15.05: **Advances in microscopic imaging**, Francesco Saverio Pavone, LENS - Lab. Europeo di Spettroscopia Non-Lineari (Italy), Emmanuel Beaulieu, Ecole Polytechnique (France)

15.05 to 15.15: **Optical micromechanics, sensing and diagnostics**, Seemantini K. Nadkarni, Wellman Ctr. for Photomedicine (United States)

15.15 to 15.30: **Questions and Final Discussion**

World of Photonics Congress-wide Nobel Plenary Session

Monday 24 June 2019 · 18:00 to 19:00

Location: ICM, Saal 1

Passion for Extreme Light



Gerard Mourou

École Polytechnique (France); 2018 Physics Nobel Prize Laureate

The Nobel Prize in Physics 2018 was awarded to Arthur Ashkin, Gérard Mourou and Donna Strickland. Strickland and Mourou received the award "for their method of generating high-intensity, ultra-short optical pulses".

Prof. Gérard Mourou was the founding Director of the Center for Ultrafast Optical Science at the University of Michigan. For forty years, he has pioneered the field of ultrafast lasers and their applications in scientific, engineering and medical disciplines. He is also the initiator of the Extreme Light Infrastructure (ELI) in Europe. He is a fellow of The Optical Society and a fellow of the Institute of Electrical and Electronics Engineers and SPIE. Prof. Mourou is a member of the National Academy of Engineering. Currently he is Distinguished Professor Emeritus from the University of Michigan and the Ecole polytechnique in Palaiseau, France.

He has been the recipient of the Wood Prize from The Optical Society, the Edgerton Prize from the SPIE, the Sarnoff Prize from the IEEE, the 2004 IEEE/LEOS Quantum Electronics Award, 2005 Willis E. Lamb Award for Laser Science and Quantum Optics, the 2009 Charles Hard Townes Award, the 2016 Berthold Leibinger Zukunftspreis and the 2016 Frederic Ives Meda./Jarvis Quinn Prize.

ECBO Plenary

Tuesday 25 June 2019 · 14:00 to 15:30

Location: Room 5 ICM Ground Floor

14:00 to 14:05:

Welcome and Introduction

Moderators:



Alex Vitkin, Univ. of Toronto (Canada)



Ronald Sroka, Laser-Forschungslabor (Germany)

14:05 to 14:10:

Presentation of the OSA Michael S. Feld Biophotonics Award

Presented by Paola Taroni, Politecnico di Milano (Italy) to the 2019 winner Valery Tuchin, Saratov State Univ. (Russian Federation), Tomsk State Univ. (Russian Federation), Institute of Precision Mechanics and Control of the RAS (Russian Federation)

14:10 to 15:30:

Photo Medicine, Radiation Medicine and Nano Medicine: An Emerging Golden Braid*



Brian Wilson

Univ. of Toronto (Canada)

Although born at the virtually the same time, the use of light and the use of ionizing radiation in medical diagnostics and therapeutics have evolved as separate fields, although always with some technological cross-links where an optics-based method or device has been adopted into radiology or radiation oncology, or where X-ray imaging has been used to guide or monitor the effect of a phototherapeutic technique. There is now a spectrum of emerging synergies, both at the technological level and in more fundamental ways where light-tissue and radiation-tissue interactions become interdependent. This convergence is accelerated by the use of nanotechnologies, particularly nanoparticles that serve as delivery vehicles, "reporters" and energy transducers to enable novel concepts and techniques that may eventually be translated into clinical use. This presentation will consider the fundamentals of photo-radiation, photo-nano, radiation-nano and photo-radiation-nano intersections, exemplified by established, emerging and potential future techniques and applications.

*with apologies to Douglas Nofstadter

SPECIAL EVENTS



Students and SPIE Fellows Luncheon

Monday 24 June 2019 · 12:30 to 14:00
Location: Am See Restaurant, Level 1 ICM

Students: Advance sign-up required onsite; seating is limited.

Student conference attendees and SPIE Fellows are invited to this engaging networking opportunity. This event gives students an opportunity to network with SPIE Fellows who will share their insights into career paths in optics and photonics. Lunch is complimentary but students must sign up at the SPIE registration desk onsite.

Posters

Monday 24 June 2019 · 12:45 to 14:15
Tuesday 25 June 2019 · 12:00 to 14:00
Wednesday 26 June 2019 · 12:00 to 14:00
Thursday 27 June 2019 · 12:00 to 14:00
Location: ICM Hall BO

Posters will be featured on Monday, Tuesday, Wednesday and Thursday. Each day represents a different set of posters. To see which posters are included each day, please see the individual conference programs.

Poster authors: Please set up posters on the morning of your session before or during the morning coffee break. Plan to stand by your poster to discuss it with session attendees on the day of your session. Remove your poster following the poster session concludes as posters left on the boards will be discarded.

Michael S. Feld Biophotonics Award

Tuesday 25 June 2019 · 14:05 to 14:10
Location: Room 5 ICM Ground Floor

The award was established by The Optical Society (OSA) in 2012 to honor Michael Feld for his fundamental contributions to applications of photonics technologies to solving biomedical problems. The award recognizes individuals for their innovative and influential contributions to the field of biophotonics, regardless of their career stage. The scope of the award encompasses all areas of biophotonics ranging from fundamental optics discoveries in biology to development of new theoretical frameworks and novel instrumentation to clinical translational research for biomedicine.

The 2019 Feld Biophotonics Award is presented to Valery Tuchin, Saratov State University, Russia, for pioneering research in biophotonics, particularly in the field of tissue optics and tissue optical clearing, and for promoting biophotonics by educating future researchers through seminal monographs and reviews. The award will be presented during the ECBO plenary session on Tuesday afternoon, 25 June.

ECBO Welcome Reception

Tuesday 25 June 2019 · 19:00 to 21:00
Location: Paulaner Ratskeller

All attendees are invited to relax, socialise, and enjoy light refreshments. Please remember to wear your conference registration badges. Dress is casual.

Getting to the Welcome Reception via U2 subway route:

From Messestadt West, take U2 (Direction Feldmoching) to stop “Kolumbusplatz” (10 stops); at Kolumbusplatz, change into S8 (Direction Hauptbahnhof Nord) to stop “Kapuzinerplatz/Arbeitsagentur” (5 stops); from there, walk about 1 minute to Paulaner Bräuhaus.

Alternate Route: From Messestadt West, take U2 (Direction Feldmoching) to stop “Sendlinger Tor” (12 stops), change into U6 (Direction Klinikum Großhadern), and get off at Goetheplatz (one stop); from there walk about 4 minutes to Paulaner Bräuhaus.

Join us for the Welcome Reception at the Paulaner Bräuhaus.



Preclinical and Clinical Optical Diagnostics

Conference Chairs: **J. Quincy Brown**, Tulane Univ. (USA); **Ton G. van Leeuwen**, Academisch UMC (Netherlands)

Program Committee: **Caroline Boudoux**, Ecole Polytechnique de Montréal (Canada); **Daniel Cote**, Univ. Laval (Canada); **Kishan Dholakia**, Univ. of St. Andrews (United Kingdom); **Daniel S. Elson**, Imperial College London (United Kingdom); **Sylvain Gioux**, Univ. de Strasbourg (France); **Jonathan T. C. Liu**, Univ. of Washington (USA); **Quan Liu**, Nanyang Technological Univ. (Singapore); **Narasimhan Rajaram**, Univ. of Arkansas (USA); **Lise Lyngsnes Randeberg**, Norwegian Univ. of Science and Technology (Norway); **Daniel Razansky**, Helmholtz Zentrum München GmbH (Germany); **Darren M. Roblyer**, Boston Univ. (USA); **Göran Salerud**, Linköping Univ. (Sweden); **Janis Spigulis**, Univ. of Latvia (Latvia); **Henricus J. C. M. Sterenborg**, Academisch Medisch Centrum (Netherlands); **James W. Tunnell**, The Univ. of Texas at Austin (USA); **Karthik Vishwanath**, Miami Univ. (USA); **Siavash Yazdanfar**, Corning Incorporated (USA)

SUNDAY 23 JUNE

SESSION 1

LOCATION: ROOM 2 ICM GROUND FLOOR SUN 8:30 TO 10:00

Clinical Applications: Spectroscopy

Session Chairs: **Jonathon Quincy Brown**, Tulane Univ. (USA); **Ton G. van Leeuwen**, Amsterdam UMC (Netherlands)

8:30: **Identification of amyloid-beta (A β) plaques in freshly frozen human brain tissue using Raman spectroscopy (Invited Paper)**, Benjamin Lochocki, Vrije Univ. Amsterdam (Netherlands); Tjado H. J. Morrema, Vanderbilt Univ. Medical Ctr. (Netherlands); Freek Ariese, Vrije Univ. Amsterdam (Netherlands); Jeroen J. M. Hoozemans, Vanderbilt Univ. Medical Ctr. (Netherlands); Johannes F. de Boer, Vrije Univ. Amsterdam (Netherlands)[11073-1]

9:00: **Evaluation of cortical neuroexcitation in urinary urgency using simultaneous near infrared spectroscopy of the bladder and brain with quantification of sensation**, Andrew J. Macnab, Lynn Stothers, The Univ. of British Columbia (Canada); John Speich, Adam Klausner, Virginia Commonwealth Univ. (USA)[11073-2]

9:15: **Infrared spectroscopy evaluation of burn wound healing: semi-quantitative study**, Pedro Arthur Augusto de Castro, Denise Zzell, Instituto de Pesquisas Energéticas e Nucleares (Brazil)[11073-3]

9:30: **Label-free spectroscopic diagnosis of urothelial carcinoma**, Enrico Baria, Istituto Nazionale di Ottica (Italy); Simone Morselli, Univ. degli Studi di Firenze (Italy); Suresh Anand, Istituto Nazionale di Ottica (Italy); Riccardo Fantechi, Arcangelo Sebastianelli, Mauro Gacci, Sergio Semi, Univ. degli Studi di Firenze (Italy); Riccardo Cicchi, Istituto Nazionale di Ottica (Italy) and LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy); Francesco S. Pavone, Istituto Nazionale di Ottica (Italy) and LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy) and Univ. degli Studi di Firenze (Italy)[11073-4]

9:45: **Raman spectroscopic investigation of plasma by drop coating deposition for clinical application**, Jing Huang, Anuradha Ramoji, Univ. Jena, Friedrich-Schiller-Univ. Jena (Germany) and Leibniz-Institut für Photonische Technologien e.V. (Germany); Michael Kiehntopf, Univ. Jena (Germany); Michel Noutsias, Univ. Jena (Germany) and Universitätsklinikum Halle (Germany); Shuxia Guo, Thomas Bocklitz, Friedrich-Schiller-Univ. Jena (Germany) and Leibniz-Institut für Photonische Technologien e.V. (Germany); Jürgen Popp, Univ. Friedrich-Schiller-Univ. Jena (Germany) and Leibniz-Institut für Photonische Technologien e.V. (Germany); Ute Neugebauer, Univ. Jena, Friedrich-Schiller-Univ. Jena (Germany) and Leibniz-Institut für Photonische Technologien e.V. (Germany)[11073-5]

Coffee Break Sun 10:00 to 10:30

SESSION 2

LOCATION: ROOM 2 ICM

GROUND FLOOR SUN 10:30 TO 12:00

Clinical Applications: Imaging

Session Chair: **Sylvain Gioux**, Lab. des sciences de l'Ingénieur, de l'Informatique et de l'Imagerie (France)

10:30: **Design of a multi-modality salpingoscope for visualization of the ovary and oviducts (Invited Paper)**, Jennifer K. Barton, Gabriella Romano, David Vega, Kelli Kiekens, Harrison Thurgood, Dominique Galvez, Orkhongua Batjargal, Yi-Hsin Ou, Khanh Kieu, The Univ. of Arizona (USA)[11073-6]

11:00: **Fast stimulated Raman imaging for intraoperative gastro-intestinal cancer detection**, Barbara Sarri, Institut Fresnel, CNRS (France); Flora Poizat, Marc Giovannini, Institut Paoli-Calmettes (France); Hervé Rigneault, Institut Fresnel, CNRS (France)[11073-7]

11:15: **Real time intraoperative functional brain mapping using a RGB camera**, Charly Caredda, Laurent Mahieu-Williams, Raphaël Sablong, Michaël Sdika, Ctr. de Recherche en Acquisition et Traitement d'images pour la Santé (France); Jacques Guyotat, Ctr. Hospitalier Univ. de Lyon (France); Bruno Montcel, Ctr. de Recherche en Acquisition et Traitement d'images pour la Santé (France)[11073-8]

11:30: **Cervical cancer diagnostics with a multispectral Mueller polarimetric colposcope**, Junha Park, Arvid Lindberg, Jérémy Vizet, Ecole Polytechnique (France); Camille Gennet, Institut d'Optique Graduate School (France); Jean Reh binder, Jean-Charles Vanel, Ecole Polytechnique (France); André Nazac, Univ. Hospital Brugmann (Belgium); Elodie Debras, Perrine Capmas, Hervé Fernandez, CHU Bicêtre (France); Angelo Pierangelo, Ecole Polytechnique (France)[11073-9]

11:45: **Study of skin cancer lesions through multispectral and 3D techniques**, Laura Rey Barroso, Francisco Javier Burgos Fernández, Miguel Ares, Santiago Royo, Xana Delpueyo, Univ. Politècnica de Catalunya (Spain); Susana Puig, Josep Malveyh, Hospital Clínic de Barcelona (Spain); Giovanni Pellacani, Univ. degli Studi di Modena e Reggio Emilia (Italy); Meritxell Vilaseca Ricart, Univ. Politècnica de Catalunya (Spain)[11073-10]

Lunch Break Sun 12:00 to 14:00

LOCATION: ROOM 5 ICM

GROUND FLOOR SUN 14:00 TO 15:30

ECBO Hot Topics

Session Chairs: **I. Alex Vitkin**, Univ. Health Network (Canada); **Ronald Sroka**, Laser-Forschungslabor (Germany)

Coffee Break Sun 15:30 to 16:00

CONFERENCE 11073

SESSION 3

LOCATION: ROOM 2 ICM
GROUND FLOOR SUN 16:00 TO 18:00

Novel Technologies in Optical Diagnostics I

Session Chair: **Kishan Dholakia**, Univ. of St. Andrews (United Kingdom)

16:00: **In vivo testing of a CMOS-based diffuse reflectance device for skin condition monitoring** (*Invited Paper*), Nils Petittidier, CEA-LETI (France) and Lab. des sciences de l'Ingénieur, de l'Informatique et de l'Imagerie (France) and Univ. de Strasbourg (France); Enagnon Aguénonon, Lab. des sciences de l'Ingénieur, de l'Informatique et de l'Imagerie (France) and Univ. de Strasbourg (France); Anne Koenig, Rémi Gerbelot, Henri Grateau, CEA-LETI (France); Sylvain Gioux, Lab. des sciences de l'Ingénieur, de l'Informatique et de l'Imagerie (France) and Univ. de Strasbourg (France); Pierre Jallon, Jean-Marc Dinten, CEA-LETI (France). [11073-11]

16:30: **Remote photoplethysmography for skin perfusion monitoring using narrowband illumination**, Zbignevs Marcinkevics, Uldis Rubins, Andris Grabovskis, Univ. of Latvia (Latvia). [11073-12]

16:45: **Feasibility of supercontinuum sources for use in glucose sensing by absorption spectroscopy**, Silje Skeide Fuglerud, Karolina Milenko, Reinold Ellingsen, Astrid Aksnes, Dag Roar Hjelme, Norwegian Univ. of Science and Technology (Norway). [11073-13]

17:00: **Mueller polarimetric imaging through a rigid endoscope**, Arvid Lindberg, Camille Gennet, Jérémy Vizet, Jean-Charles Vanel, Angelo Pierangelo, Ecole Polytechnique (France). [11073-14]

17:15: **Improving depth sensitive fluorescence spectroscopy with wavefront shaping**, Chao-Mao Hsieh, Quan Liu, Nanyang Technological Univ. (Singapore). [11073-15]

17:30: **Ultra-miniature (diameter: 6 mm, thickness: 5 mm) low-cost (price: 1,000 EUR) point-one-shot mid-infrared Fourier spectroscopic imager for ear clip type non-invasive blood glucose sensors**, Natsumi Kawashima, Satoru Adachi, Tomoya Kitazaki, Hanyue Kang, Akira Nishiyama, Kenji Wada, Ichiro Ishimaru, Kagawa Univ. (Japan). [11073-16]

17:45: **Study on the optimal time length of measurement in resting-state fNIRS brain imaging**, GuanCheng Dong, Jung-Chih Chen, National Chiao Tung Univ. (Taiwan); Chia-Yen Lee, National United University (Taiwan); Ching-Cheng Chuang, National Chiao Tung Univ. (Taiwan). [11073-76]

MONDAY 24 JUNE

LOCATION: ICM ROOM 1 MON 9:30 TO 11:00

World of Photonics Opening and Plenary

Coffee to Go Mon 11:00 to 11:15

SESSION 4

LOCATION: ROOM 6 "CHARLES TOWNES"
HALL A1 GROUND FLOOR MON 11:15 TO 12:45

Novel Methods for Cell and Tissue Analysis

Session Chair: **J. Quincy Brown**, Tulane Univ. (USA)

11:15: **Doppler imaging of intracellular dynamics in clinical cancer chemotherapy** (*Invited Paper*), David D. Nolte, John Turek, Purdue Univ. (USA); Daniela Matei, Northwestern Univ. (USA); Shadia Jalal, Indiana Univ. School of Medicine (USA). [11073-18]

11:45: **3D large-volume histological imaging of ex vivo tissue samples using inverted selective plane illumination microscopy (iSPIM)**, Bihe Hu, Guang Li, Jonathon Q. Brown, Tulane Univ. (USA). [11073-19]

12:00: **Monitoring temperature induced phase changes in subcutaneous fatty tissue using an astigmatism corrected dynamic needle probe**, Hinnerk Schulz-Hildebrandt, Univ. zu Lübeck (Germany) and Medizinisches Laserzentrum Lübeck GmbH (Germany) and Deutsches Zentrum für Lungenforschung (Germany); Naja Meyer-Schell, Univ. zu Lübeck (Germany); Malte Casper, Michael Evers, Cutaneous Biology Research Ctr., Massachusetts General Hospital (USA); Reginald Birngruber, Univ. zu Lübeck (Germany) and Medizinisches Laserzentrum Lübeck GmbH (Germany); Dieter Manstein, Cutaneous Biology Research Ctr., Massachusetts General Hospital (USA); Gereon Hüttmann, Univ. zu Lübeck (Germany) and Medizinisches Laserzentrum Lübeck GmbH (Germany) and Deutsches Zentrum für Lungenforschung (Germany). [11073-20]

12:15: **Cell trauma detection using infra-red live cell imaging**, Ben O. Mellors, The Univ. of Birmingham (United Kingdom); Hamid Dehghani, Univ. of Birmingham (United Kingdom); Christopher R. Howle, Abigail M. Spear, Defence Science and Technology Lab. (United Kingdom). [11073-21]

12:30: **850-nm near-infrared-ray computed tomography with high spatial resolutions**, Eiichi Sato, Yasuyuki Oda, Yuichi Sato, Sohei Yoshida, Iwate Medical Univ. (Japan); Hodaka M. Oriyama, Manabu Watanabe, Toho Univ. (Japan). [11073-22]

LUNCH BREAK AND POSTER SESSION-MONDAY

LOCATION: ICM HALL B0 MON 12:45 TO 14:15

Posters will be featured on Monday, Tuesday, and Wednesday. Each day represents a different set of posters. To see which posters are included each day, please see the individual conference programs.

Poster authors: Please set up posters on the morning of your session before or during the morning coffee break. Plan to stand by your poster to discuss it with session attendees on the day of your session. Remove your poster following the poster session concludes as posters left on the boards will be discarded.

Optical coherence tomography (OCT) of chronic lung allograft dysfunction (CLAD), Jeanie Malone, Anthony Lee, Geoffrey Hohert, BC Cancer Research Ctr. (Canada); Roland Nador, The Univ. of British Columbia (Canada); Pierre Lane, BC Cancer Research Ctr. (Canada). [11073-53]

Endoscopic optical coherence tomography at the middle ear diagnostic, Martin Schindler, Lars Kirsten, TU Dresden (Germany); Joseph Morgenstern, Univ. Carl Gustav Carus Dresden (Germany); Jonas Golde, Julia Walter, TU Dresden (Germany); Max Kemper, Matthias Bornitz, Marcus Neudert, Thomas Zahnert, Univ. Carl Gustav Carus Dresden (Germany); Edmund Koch, TU Dresden (Germany). [11073-54]

Conventional Raman and surface-enhanced Raman spectroscopy of ascitic fluid, Lyudmila A. Shamina, Ivan A. Bratchenko, Dmitry N. Artemyev, Oleg O. Myakinin, Samara Univ. (Russian Federation); Alexander A. Moryatov, Samara State Medical Univ. (Russian Federation); Julia V. Starikova, Elena N. Tupikova, Igor A. Platonov, Samara Univ. (Russian Federation); Sergey V. Kozlov, Samara State Medical Univ. (Russian Federation); Valery P. Zakharov, Samara Univ. (Russian Federation). [11073-55]

X-ray irradiation effects on SH-SY5Y human neuroblastoma cells monitored by means of FTIR micro-spectroscopy, Valerio Ricciardi, Univ. degli Studi della Campania Luigi Vanvitelli (Italy) and Istituto Nazionale di Fisica Nucleare (Italy); Marianna Portaccio, Univ. degli Studi della Campania Luigi Vanvitelli (Italy); Lorenzo Manti, Istituto Nazionale di Fisica Nucleare (Italy) and Univ. degli Studi di Napoli Federico II (Italy); Maria Lepore, Univ. degli Studi della Campania Luigi Vanvitelli (Italy). [11073-56]

In vivo multimodal fibre-probe spectroscopy for glioblastoma detection in mouse model, Enrico Baria, Istituto Nazionale di Ottica (Italy); Enrico Pracucci, Vinoshene Pillai, NEST, the National Enterprise for nanoScience and nanoTechnology (Italy); Francesco S. Pavone, Istituto Nazionale di Ottica (Italy) and LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy) and Univ. degli Studi di Firenze (Italy); Gian M. Ratto, NEST, the National Enterprise for

nanoScience and nanoTechnology (Italy) and Scuola Normale Superiore (Italy); Riccardo Cicchi, Istituto Nazionale di Ottica (Italy) and LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy) [11073-57]

Multivariate analysis of Raman spectra of tumor prostate tissues in visible and NIR ranges, Anastasia A. Lykina, Dmitry N. Artemev, Ivan A. Bratchenko, Samara Univ. (Russian Federation); Vladimir Kukushkin, Institute of Solid State Physics (Russian Federation); Sofya T. Avraamova, Nikolay S. Aleksandrov, Sechenov Univ. (Russian Federation) [11073-58]

Diagnosis of inflammatory diseases of the paranasal sinuses using digital diaphanoscopy, Ekaterina Bryanskaya, Orel State Univ. named after I.S. Turgenev (Russian Federation); Irina Makovik, Orel State Univ. named after I.S. Turgenev (Russian Federation) and art photonics GmbH (Germany); Olga Bibikova, art photonics GmbH (Germany); Andrey Dunaev, Orel State Univ. named after I.S. Turgenev (Russian Federation); Olaf Minet, Urszula Zabarylo, Charité Universitätsmedizin Berlin (Germany); Viacheslav Artyushenko, art photonics GmbH (Germany) [11073-59]

Analysis of modern non-invasive methods of optoelectronic control of the skin, Anastasiia B. Bulykina, Victoria Ryzhova, Valery Korotaev, ITMO Univ. (Russian Federation); Ivan Turkovskiy, Kirov Military Medical Academy (Russian Federation) [11073-60]

Blood plasma separation using microfluidic guiding channel in a continuous fashion, GyeongBok Jung, Chosun Univ. (Korea, Republic of); Karimi Ali, Honggu Chun, Korea Univ. (Korea, Republic of); Yang Jun Kang, Chosun Univ. (Korea, Republic of) [11073-61]

Imaging of LED-excited autofluorescence photobleaching rates for skin diagnostics, Alexey Lihachev, Emilija Vija Plorina, Marta Lange, Ilze Lihacova, Univ. of Latvia (Latvia); Aleksands Derjabo, SIA Riga Eastern Clinical Univ. Hospital (Latvia); Dmitrijs Bliznuk, Riga Technical Univ. (Latvia) [11073-63]

Fluorescence from human oral cavity and body fluid saliva for detection of oral precancer: a comparison, Pavan Kumar, Asima Pradhan, Indian Institute of Technology Kanpur (India) [11073-64]

Fluorescence spectroscopy and confocal fluorescence microscopy of colon benign and malignant lesions: comparative study, Ekaterina G. Borisova, Institute of Electronics (Bulgaria) and Saratov State Univ. (Russian Federation); Tsanislava Genova, Victoria Mircheva, Stoyan Ilyov, Institute of Electronics (Bulgaria); Daniil Bratashov, Maria Lomova, Saratov State Univ. (Russian Federation); Ivan Terziev, Univ. Hospital "Tsaritsa Yoanna-ISUL" (Bulgaria); Oxana Semyachkina-Glushkovskaya, Saratov State Univ. (Russian Federation) [11073-65]

Monitoring x-rays exposed and unexposed cell culture media by means of surface-enhanced Raman spectroscopy, Ines Delfino, Univ. degli Studi della Tuscia (Italy); Carlo Camerlingo, CNR-SPIN (Italy); Maria Lepore, Univ. degli Studi della Campania Luigi Vanvitelli (Italy) [11073-66]

Fluorescent imaging of polystyrene microspheres with cyanine dyes for immunofluorescence analysis, Pavel V. Shalae, Ekaterina V. Bondina, Sergey A. Dolgushin, National Research Univ. of Electronic Technology (Russian Federation); Victoria S. Semeykina, Natalya N. Sankova, Ekaterina V. Parkhomchuk, Borekov Institute of Catalysis (Russian Federation) and Novosibirsk State Univ. (Russian Federation) [11073-67]

Terahertz time-domain spectroscopy for human gastric cancer diagnosis, Roman Grigorev, Anna Kuzikova, Anna Kurasova, Mikhail Khodzitsky, Petr Demchenko, ITMO Univ. (Russian Federation); Alexander Zakharenko, Artem Senyuk, Abdo Khamid, Julia Belolipetskaya, Pavlov First Saint Petersburg State Medical Univ. (Russian Federation) [11073-68]

Breath analysis using cavity ring down spectroscopy in UV region for diagnostics of diabetes, Karlis Grundšteins, Univ. of Latvia (Latvia); Gita Revalde, Riga Technical Univ. (Latvia); Anda Abola, Univ. of Latvia (Latvia) [11073-70]

Lymphedema tissue analysis using optical imaging and gradient processing, Yury V. Kistenev, National Research Tomsk State Univ. (Russian Federation) and Siberian State Medical Univ. (Russian Federation) and Institute of Strength Physics and Materials Science (Russian Federation); Alexey V. Borisov, National Research Tomsk State Univ. (Russian Federation); Viktor V. Nikolaev, Denis A. Vrazhnov, Anastasya I. Knyazkova, National Research Tomsk State Univ. (Russian Federation) and Institute of Strength Physics and Materials Science (Russian Federation); Natalya A. Kryvova, National Research Tomsk State Univ. (Russian Federation); Ekaterina A. Sandykova, National Research Tomsk State Univ. (Russian Federation) and Siberian State Medical Univ. (Russian Federation) [11073-71]

Clinical use of contrast agents to enhance skin structures in reflectance and fluorescence confocal microscopy and optical coherence tomography: a systematic review and patient cases, Mette Mogensen, Hans Christian Ring, Merete Haedersdal, Bispebjerg Hospital (Denmark); Niels M. Israelsen, Ole Bang, Technical Univ. of Denmark (Denmark) [11073-72]

Measurement of human-body-window spectra using a white power light-emitting diode and its application to high-spatial-resolution computed tomography, Hodaka Moriyama, Toho Univ. (Japan); Eiichi Sato, Yasuyuki Oda, Sohei Yoshida, Iwate Medical Univ. (Japan); Osahiko Hagiwara, Toshiyuki Enomoto, Manabu Watanabe, Toho Univ. (Japan) [11073-74]

Modulation interference microscopy as a promising method for assessing the risk of metastasis in patients with breast cancer, Irina Vasilenko, Vladislav Metelin, A.N. Kosygin Russian State Univ. (Russian Federation) and M.F. Vladimirsky Moscow Regional Research and Clinical Institute (Russian Federation); Andrey Balkanov, M.F. Vladimirsky Moscow Regional Research and Clinical Institute (Russian Federation); Pavel Ignatiev, Ural Optical and Mechanical Plant (Russian Federation) [11073-75]

SESSION 5

LOCATION: ROOM 6 "CHARLES TOWNES"
HALL A1 GROUND FLOOR MON 14:15 TO 15:45

Tissue Characterization and Analysis

Session Chair: **Sylvain Gioux**, Lab. des sciences de l'Ingénieur, de l'Informatique et de l'Imagerie (France)

14:15: **Determination of optical properties of human tissues obtained from parotidectomy in the spectral range of 250 to 800 nm**, Eric L. Wisotzky, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany) and Humboldt-Univ. zu Berlin (Germany); Florian C. Uecker, Steffen Dommerich, Charité Universitätsmedizin Berlin (Germany); Anna Hilsmann, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany); Peter Eisert, Fraunhofer-Institut für Nachrichtentechnik Heinrich-Hertz-Institut (Germany) and Humboldt-Univ. zu Berlin (Germany); Philipp Arens, Charité Universitätsmedizin Berlin (Germany) [11073-23]

14:30: **Identification of azimuthal light scattering signatures to selectively track changes in subnuclear refractive index profile of epithelial cell models**, Dizem Arifler, Middle East Technical Univ. (Cyprus); Martial Guillaud, BC Cancer Research Ctr. (Canada) [11073-24]

14:45: **Analysis of human skin Raman and autofluorescence for kidney failure and cancer detection**, Ivan A. Bratchenko, Lyudmila A. Shamina, Dmitry N. Artemyev, Oleg O. Myakinin, Yulia A. Khristoforova, Vladimir N. Grishanov, Dmitry V. Kornilov, Samara Univ. (Russian Federation); Peter A. Lebedev, Daria Y. Pimenova, Alexander A. Moryatov, Sergey V. Kozlov, Samara State Medical Univ. (Russian Federation); Valery P. Zakharov, Samara Univ. (Russian Federation) [11073-25]

15:00: **Study of malignant brain gliomas using optical coherence tomography and terahertz pulsed spectroscopy aimed on advanced intraoperative neurodiagnosis**, Irina N. Dolganova, Bauman Moscow State Technical Univ. (Russian Federation) and Institute of Solid State Physics (Russian Federation); Polina V. Aleksandrova, Bauman Moscow State Technical Univ. (Russian Federation); Nikita V. Chernomyrdin, Bauman Moscow State Technical Univ. (Russian Federation) and A.M. Prokhorov General Physics Institute (Russian Federation); Sheykh-Islyam T. Beshpav, Aleksandra V. Kosyr'kova, Pavel V. Nikitin, N.N. Burdenko Neurosurgery Institute (Russian Federation); Arsenii A. Gavdush, A.M. Prokhorov General Physics Institute (Russian Federation) and Bauman Moscow State Technical Univ. (Russian Federation); Igor V. Reshetov, Sechenov Univ. (Russian Federation); Valery V. Tushin, Saratov State Univ. (Russian Federation) and Tomsk State Univ. (Russian Federation) and Institute of Precision Mechanics and Control (Russian Federation); Kirill I. Zaytsev, A.M. Prokhorov General Physics Institute (Russian Federation) and Bauman Moscow State Technical Univ. (Russian Federation) [11073-26]

15:15: **Assessing the spectrochemical signatures of skin components using FTIR microspectroscopy**, Cássio A. Lima, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Luciana Correa, Univ. de São Paulo (Brazil); Hugh J. Byrne, Dublin Institute of Technology (Ireland); Denise Zezell, Instituto de Pesquisas Energéticas e Nucleares (Brazil) [11073-27]

15:30: **5-ALA induced PpIX fluorescence guided surgery: a clinical study of spectral complexity in healthy tissues and margin boundaries in high and low grade gliomas**, Laure Alston, Laurent Mahieu-Williams, Ctr. de Recherche en Acquisition et Traitement d'images pour la Sante (France); Mathieu Hebert, Lab. Hubert Curien (France); Pascal Kantapareddy, David Meyronet, Ctr. Hospitalier Univ. de Lyon (France); David Rousseau, Ctr. de Recherche en Acquisition et Traitement d'images pour la Sante (France); Jacques Guyotat, Ctr. Hospitalier Univ. de Lyon (France); Bruno Montcel, Ctr. de Recherche en Acquisition et Traitement d'images pour la Sante (France) [11073-28]

Coffee Break Mon 15:45 to 16:15

SESSION 6

**LOCATION: ROOM 6 “CHARLES TOWNES”
HALL A1 GROUND FLOOR MON 16:15 TO 18:00**

Novel Technologies in Optical Diagnostics II

Session Chair: **Siavash Yazdanfar**, Corning Incorporated (USA)

16:15: **An OCT endoscope for clinical trials in the field of ENT** (*Invited Paper*), Martin Ahrens, Univ. zu Lübeck (Germany); Christian Idel, Univ. Schleswig-Holstein, Clinic for ENT (Germany); Barbara Wollenberg, Univ. Schleswig-Holstein (Germany); Peter König, Hinnerk Schulz-Hildebrandt, Gereon Hüttmann, Univ. of Lübeck (Germany) [11073-29]

16:45: **Real-time multispectral optical imaging using GPGPU processing**, Enagnon Aguénonon, Foudil Dadouche, Wilfried Uhring, Sylvain Gioux, Lab. des sciences de l'Ingénieur, de l'Informatique et de l'Imagerie (France) [11073-30]

17:00: **Handheld OCT probe for intraoral dental diagnostics**, Martin Ahrens, Univ. zu Lübeck (Germany); Hartmut Schneider, Claudia Rueger, Matthias Haefler, Rainer Haak, Univ. of Leipzig (Germany); Gereon Hüttmann, Univ. of Lübeck (Germany); Dirk Theisen-Kunde, Medical Laser Center Lübeck (Germany); Hinnerk Schulz-Hildebrandt, Univ. of Lübeck (Germany) [11073-31]

17:15: **Rapid intraoperative margin assessment by using multi-modal third-harmonic generation and three-photon fluorescence microscopy**, Chi-Kuang Sun, Chien-Ting Kao, Yi-Hua Liao, Ming-Liang Wei, National Taiwan Univ. (Taiwan) [11073-32]

17:30: **Hyperspectral eye fundus imaging with extended spectral range towards the near infrared**, Tommaso Alterini, Fernando Diaz-Doutón, Meritxell Vilaseca Ricart, Univ. Politècnica de Catalunya (Spain) [11073-33]

17:45: **Functional near infrared spectroscopy (fNIRS) in pigmented subjects: a manoeuvre to confirm sufficient transcutaneous photon transmission for measurement of hemodynamic change in the anterior cortex**, Mathijs Bronkhorst, Artinis Medical Systems B.V. (Netherlands); Ronald Mukisa, Stellenbosch Institute for Advanced Study, Stellenbosch Univ. (South Africa); Willy Colier, Artinis Medical Systems B.V. (Netherlands); Lynn Stothers, The Univ. of British Columbia (Canada); Andrew J. Macnab, The Univ. of British Columbia (Canada) and Stellenbosch Institute for Advanced Study (South Africa) [11073-34]

TUESDAY 25 JUNE

SESSION 7

**LOCATION: ROOM 6 “CHARLES TOWNES”
HALL A1 GROUND FLOOR TUE 8:30 TO 10:00**

Novel Technologies for In Vitro Diagnostics

Session Chair: **Janis Spigulis**, Univ. of Latvia (Latvia)

8:30: **Raman micro-spectroscopy investigation on the effects of x-rays and polyphenols in human neuroblastoma cells**, Valerio Ricciardi, Univ. degli Studi della Campania Luigi Vanvitelli (Italy) and Istituto Nazionale di Fisica Nucleare (Italy); Giuseppe Perna, Maria Lasalvia, Univ. degli Studi di Foggia (Italy) and Istituto Nazionale di Fisica Nucleare (Italy); Ines Delfino, Univ. degli Studi della Toscana (Italy); Lorenzo Manti, Univ. degli Studi di Napoli Federico II (Italy); Simona Piccolella, Severina Pacifico, Univ. degli Studi della Campania Luigi Vanvitelli (Italy); Vito Capozzi, Univ. degli Studi di Foggia (Italy) and Istituto Nazionale di Fisica Nucleare (Italy); Maria Lepore, Univ. degli Studi della Campania Luigi Vanvitelli (Italy) [11073-35]

8:45: **Automated readout of a SERS lateral flow assay**, Jean-Charles Baritoux, Antoine Hoang, CEA-LETI (France); Nathalie Morel, CEA (France) [11073-36]

9:00: **Drop-coating deposition surface-enhanced Raman spectroscopy on silver substrates for biofluid analysis**, Maciej S. Wróbel, Gdansk Univ. of Technology (Poland); Zufang Huang, Johns Hopkins Univ. (USA) and Fujian Normal Univ. (China); Soumik Siddhanta, Ishan Barman, Johns Hopkins Univ. (USA) [11073-37]

9:15: **Improved forward scatter detection of a flow cytometer for detection of extracellular vesicles**, Paul R. Bloemen, Leonie de Rond, Edwin van der Pol, Ton G. van Leeuwen, Frank A. W. Coumans, Amsterdam UMC (Netherlands) [11073-38]

9:30: **A compact multichannel spectrometer for label-free monitoring of biochips for point-of-care testing**, Fabian Dortu, Hendrik Von Horsten, Damien Bernier, Maxime Denti, Yves Hernandez, Multitel A.S.B.L. (Belgium); Ana López-Hernandez, Rafael Casquel, Miguel Holgado, Univ. Politècnica de Madrid (Spain); Theo Veenstra, Lionix International BV (Netherlands); Paula Ciaurriz, Edurne Tellechea, Iñaki Cornago, Naitec (Spain); María V. Maigler, BIOD (Spain); Jean-Pierre Vilcot, Sophie Maricot, Institut d'Electronique de Microélectronique et de Nanotechnologie (France); Cédric Lenaerts, Ctr. Spatial de Liège (Belgium); Aline Roobroek, Sylvain Deprez, Materia Nova ASBL (Belgium) [11073-39]

9:45: **Potential of bacterial infection diagnosis using infrared spectroscopy of WBC and machine learning algorithms**, Shaul Mordechai, Ben-Gurion Univ. of the Negev (Israel) [11073-40]

Coffee Break Tue 10:00 to 10:30

SESSION 8

LOCATION: ROOM 6 “CHARLES TOWNES” HALL A1 GROUND FLOOR TUE 10:30 TO 12:00

Computational Analysis and Machine Learning

Session Chair: **Ton G. van Leeuwen**, Amsterdam UMC (Netherlands)

10:30: **Assessment of sampling adequacy using persistent homology for the evaluation of heterogeneity in 3D histology acquired through inverted selective plane illumination microscopy (iSPIM)**

(*Invited Paper*), Peter J. Lawson, Bihe Hu, Tulane Univ. (USA); Brittany T. Fasy, Montana State Univ. (USA); Brian Summa, Carola Wenk, Jonathon Quincy Brown, Tulane Univ. (USA) [11073-41]

11:00: **Pixel-wise modified Beer-Lambert model for intraoperative functional brain mapping**, Charly Caredda, Laurent Mahieu-Williams, Raphaël Sablong, Michaël Sdika, Ctr. de Recherche en Acquisition et Traitement d'images pour la Santé (France); Jacques Guyotat, Ctr. Hospitalier Univ. de Lyon (France); Bruno Montcel, Ctr. de Recherche en Acquisition et Traitement d'images pour la Santé (France) [11073-42]

11:15: **Objective and quantitative analysis of corneal transparency with clinical spectral-domain optical coherence tomography**, Romain Bocheux, Bathilde Rivière, Ecole Polytechnique (France); Pascal Pernot, Univ. Paris-Sud (France); Cristina Georgeon, Vincent Borderie, Kristina Irsch, Ctr. Hospitalier National d'Ophthalmologie des Quinze-Vingts (France) and Sorbonne Univ. (France); Karsten Plamann, Ecole Polytechnique (France) [11073-43]

11:30: **Analysis of in vivo optical coherence tomography images of human peripheral nerves using texture analysis**, Marcel Lenz, Jens Möller, Ruhr-Univ. Bochum (Germany); Rene Miemieć, Ruhr-Univ Bochum (Germany); Anne Carolus, Christopher Brenke, Kirsten Schmieder, Univ. Knappschaftskrankenhaus Bochum GmbH (Germany); Hubert Welp, Technische Hochschule Georg Agricola (Germany); Nils C. Gerhardt, Martin R. Hofmann, Ruhr-Univ. Bochum (Germany) [11073-44]

11:45: **Classification and identification of human colon cancer cell line in terahertz domain using t-SNE**, Guangxin Zhang, Yuqi Cao, Jiani Chen, Pingjie Huang, Weiting Ge, Dibo Hou, Zhejiang Univ. (China) [11073-45]

LUNCH BREAK AND POSTER SESSION-TUESDAY

ROOM: ICM HALL B0 TUE 12:00 TO 14:00

Posters will be featured on Monday, Tuesday, and Wednesday. Each day represents a different set of posters. To see which posters are included each day, please see the individual conference programs.

Poster authors: Please set up posters on the morning of your session before or during the morning coffee break. Plan to stand by your poster to discuss it with session attendees on the day of your session. Remove your poster following the poster session concludes as posters left on the boards will be discarded.

Non-invasive LED-based screening solution for skin cancer, Marta Lange, Riga Stradiņš Univ. (Latvia); Norbert Kiss, Luca Fesus, Semmelweis Univ. (Hungary); Emilija Vija Plorina, Univ. of Latvia (Latvia); Aleksandrs Derjabo, SIA Riga Eastern Clinical Univ. Hospital (Hungary); Janis Spigulis, Univ. of Latvia (Latvia) [11073-17]

ECBO PLENARY SESSION

LOCATION: ROOM 5 ICM GROUND FLOOR TUE 14:00 TO 15:30

Session Chairs: **I. Alex Vitkin**, Univ. Health Network (Canada);
Ronald Sroka, Laser-Forschungslabor (Germany)

14:00 to 14:05: **Welcome and Introduction**

14:05 to 14:10: **Presentation of the OSA Michael S. Feld
 Biophotonics Award**

14:10 to 15:30: **Plenary**

**Photo Medicine, Radiation Medicine and Nano Medicine:
 An Emerging Golden Braid**

Brian Wilson, Univ. of Toronto (Canada)

Coffee Break Tue 15:30 to 16:00

SESSION 9

**LOCATION: ROOM 6 "CHARLES TOWNES"
 HALL A1 GROUND FLOOR TUE 16:00 TO 18:00**

In Vivo Imaging and Spectroscopy

Session Chairs: **Jonathon Quincy Brown**, Tulane Univ. (USA); **Ton G.
 van Leeuwen**, Amsterdam UMC (Netherlands)

16:00: **Longitudinal monitoring of in-vivo mice mammary tumor
 progression using intravital fluorescence tomography and optical
 coherence tomography** (*Invited Paper*), Mehmet S. Ozturk, Ling Wang, Lucas
 M. Chaible, Martin Jechlinger, Robert Prevedel, European Molecular Biology
 Lab. (Germany) [11073-46]

16:30: **Depth sensitive Raman spectroscopy for skin wounds in rodents**,
 Joshua Su, Nanyang Technological Univ. (Singapore); Qiang Wang, Macquarie
 Univ. (Australia); Yao Tian, Leigh E. Madden, Erica Teo, David L. Becker, Quan
 Liu, Nanyang Technological Univ. (Singapore) [11073-47]

16:45: **Label-free tumor detection with active infrared thermal
 laparoscopic system in a mouse tumor model**, Gyungseok Oh, Euiheon
 Chung, Gwangju Institute of Science and Technology (Korea, Republic
 of) [11073-48]

17:00: **In vivo optical coherence tomography of a mouse model of
 spontaneous ovarian cancer**, Travis W. Sawyer, Jennifer Watson-Koevary,
 Photini F. S. Rice, Jennifer K. Barton, The Univ. of Arizona (USA) . . . [11073-49]

17:15: **Remote photoplethysmography for assessment of oral mucosa**,
 Uldis Rubins, Zbignevs Marcinkevics, Robert Andrianirina Muckle, Ieva
 Henkuzena, Andris Roze, Andris Grabovskis, Univ. of Latvia (Latvia) [11073-50]

17:30: **Discrimination of brain tumours and dysplastic tissues through
 multimodal fibre-probe spectroscopy**, Enrico Baria, Istituto Nazionale di
 Ottica (Italy); Flavio Giordano, Azienda Ospedaliera Univ. Anna Meyer (Italy);
 Suresh Anand, Istituto Nazionale di Ottica (Italy); Anna M. Buccoliero, Univ.
 degli Studi di Firenze (Italy); Riccardo Cicchi, Istituto Nazionale di Ottica (Italy)
 and LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy); Francesco
 S. Pavone, Istituto Nazionale di Ottica (Italy) and LENS - Lab. Europeo di
 Spettroscopie Non-Lineari (Italy) and Univ. degli Studi di Firenze
 (Italy) [11073-51]

17:45: **Colorectal cancer phantoms for optical coherence tomography
 application**, Natalia Zulina, Oscar Caravaca, Lucile Zorn, Michalina Gora, Lab.
 des sciences de l'Ingénieur, de l'Informatique et de l'Imagerie
 (France) [11073-52]

CONFERENCE 11074

LOCATION: ROOM 5 ICM GROUND FLOOR

Sunday-Tuesday 23-25 June 2019 • Proceedings of SPIE Vol. 11074

Diffuse Optical Spectroscopy and Imaging

Conference Chairs: **Hamid Dehghani**, The Univ. of Birmingham (United Kingdom); **Heidrun Wabnitz**, Physikalisch-Technische Bundesanstalt (Germany)

Program Committee: **Wesley B. Baker**, Univ. of Pennsylvania (USA); **Regine Choe**, Univ. of Rochester (USA); **Davide Contini**, Politecnico di Milano (Italy); **Jean-Marc Dinten**, MINATEC (France); **Turgut Durduran**, ICFO - Institut de Ciències Fotòniques (Spain); **Adam T. Eggebrecht**, Washington Univ. School of Medicine in St. Louis (USA); **Dirk Grosenick**, Physikalisch-Technische Bundesanstalt (Germany); **Yoko Hoshi M.D.**, Hamamatsu Univ. School of Medicine (Japan); **Shudong Jiang**, Thayer School of Engineering at Dartmouth (USA); **Jana M. Kainerstorfer**, Carnegie Mellon Univ. (USA); **Adam Liebert**, Institute of Biocybernetics and Biomedical Engineering (Poland); **Eiji Okada**, Keio Univ. (Japan); **Felix Scholkmann**, UniversitätsSpital Zürich (Switzerland); **Ilias Tachtsidis**, Univ. College London (United Kingdom)

SUNDAY 23 JUNE

SESSION 1

LOCATION: ROOM 5 ICM GROUND FLOOR SUN 8:30 TO 10:00

Advances in Instrumentation and Technology I

Session Chairs: **Davide Contini**, Politecnico di Milano (Italy); **Wesley B. Baker**, The Children's Hospital of Philadelphia (USA)

8:30: **Large area SiPM and high throughput timing electronics: toward new generation time-domain instruments** (*Invited Paper*), Anurag Behera, Laura Di Sieno, Politecnico di Milano (Italy); Sumeet Rohilla, PicoQuant GmbH (Germany); Antonio Pifferi, Alessandro Torricelli, Davide Contini, Politecnico di Milano (Italy); Benedikt Kraemer, Felix Koberling, PicoQuant GmbH (Germany); Alberto Dalla Mora, Politecnico di Milano (Italy)[11074-1]

9:00: **Advances in wearable high-density diffuse optical tomography: first applications of a new commercial technology and development of an infant-specific research device**

, Hubin Zhao, Univ. College London (United Kingdom); Sabrina Brigadoi, Univ. degli Studi di Padova (Italy); Reuben Hill, Greg Smith, Luke Dunne, Gowerlabs Ltd. (United Kingdom); Elisabetta Maria Frijia, Univ. College London (United Kingdom); Samuel Powell, Nick L Everdell, Gowerlabs Ltd. (United Kingdom); Robert Cooper, Univ. College London (United Kingdom)[11074-2]

9:15: **A wearable time domain near-infrared spectroscopy system**, Michele Lacerenza, Alessandro Torricelli, Alberto Dalla Mora, Alberto Tosi, Marco Renna, Mauro Buttafava, Politecnico di Milano (Italy); Antonio Pifferi, Politecnico di Milano (Italy) and CNR-Istituto di Fotonica e Nanotecnologie (Italy); Franco Zappa, CNR-Istituto di Fotonica e Nanotecnologie (Italy); Davide Contini, Politecnico di Milano (Italy)[11074-3]

9:30: **Integrating motion sensing and wearable, modular high-density diffuse optical tomography: preliminary results**, Sabrina Brigadoi, Univ. degli Studi di Padova (Italy); Aman Ganglani, Hubin Zhao, Robert J. Cooper, Univ. College London (United Kingdom)[11074-4]

9:45: **A new multichannel broadband NIRS system for quantitative monitoring of brain hemodynamics and metabolism during seizures**, Isabel De Roeveer, Univ. College London (United Kingdom); Aikaterini Vezyroglou, Univ. College London (United Kingdom) and Great Ormond St Hospital for Children NHS Trust (United Kingdom); Peter Hebden, Univ. College London (United Kingdom); Rachel Thornton, Alan Worley, Mariana Alves, Emma Dean, Great Ormond St Hospital for Children NHS Trust (United Kingdom); Gemma Bale, Paola Pinti, Univ. College London (United Kingdom); J. Helen Cross, Univ. College London (United Kingdom) and Great Ormond St Hospital for Children NHS Trust (United Kingdom); Ilias Tachtsidis, Univ. College London (United Kingdom)[11074-5]

Coffee Break Sun 10:00 to 10:30

SESSION 2

LOCATION: ROOM 5 ICM GROUND FLOORSUN 10:30 TO 12:00

Theory, Algorithms and Computational Tools I

Session Chair: **Hamid Dehghani**, The Univ. of Birmingham (United Kingdom)

10:30: **Time-resolved diffuse optical tomography with l_p sparsity regularization for thyroid cancer imaging**, Shinpei Okawa, National Defense Medical College (Japan); Tetsuya Mimura, Hamamatsu Univ. School of Medicine (Japan); Hiroyuki Fujii, Hokkaido Univ. (Japan); Hiroshi Kawaguchi, Yukari Tanikawa, National Institute of Advanced Industrial Science and Technology (Japan); Manabu Machida, Hamamatsu Univ. School of Medicine (Japan); Eiji Okada, Keio Univ. (Japan); Yoko Hoshi, Hamamatsu Univ. School of Medicine (Japan)[11074-6]

10:45: **Spectral approach to time domain diffuse optical tomography for breast cancer: validation on meat phantoms**, Edoardo Ferocino, Politecnico di Milano (Italy); Giuseppe Di Sciacca, Univ. College London (United Kingdom); Laura Di Sieno, Alberto Dalla Mora, Politecnico di Milano (Italy); Antonio Pifferi, Politecnico di Milano (Italy) and Consiglio Nazionale delle Ricerche (Italy); Simon Arridge, Univ. College London (United Kingdom); Fabrizio Martelli, Univ. degli Studi di Firenze (Italy); Paola Taroni, Politecnico di Milano (Italy) and Consiglio Nazionale delle Ricerche (Italy); Andrea Farina, Consiglio Nazionale delle Ricerche (Italy)[11074-7]

11:00: **Time-resolved diffuse optical tomography: a novel method to compute datatypes allows better absorption quantification**, David Drive-Miguel, Lionel Hervé, CEA-LETI (France); Jérôme Mars, Grenoble Images Parole Signal Automatique, Univ. Grenoble Alpes (France); Laurent Condat, Grenoble Images Parole Signal Automatique (France); Pierre Jallon, CEA-LETI (France)[11074-8]

11:15: **Spatially-enhanced time-domain NIRS for determination of optical properties in layered structures**, Lin Yang, Physikalisch-Technische Bundesanstalt (Germany); Pranav Lanka, Politecnico di Milano (Italy); Heidrun Wabnitz, Physikalisch-Technische Bundesanstalt (Germany); Rinaldo Cubeddu, Politecnico di Milano (Italy); Thomas Gladysz, Physikalisch-Technische Bundesanstalt (Germany); Sanathana Konugolu Venkata Sekar, Politecnico di Milano (Italy); Dirk Grosenick, Physikalisch-Technische Bundesanstalt (Germany); Antonio Pifferi, Politecnico di Milano (Italy); Rainer Macdonald, Physikalisch-Technische Bundesanstalt (Germany)[11074-9]

11:30: **Time-domain diffuse correlation spectroscopy quantifies path-length-resolved dynamical properties of a layered turbid media**, Saeed Samaei, Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland); Dawid Borycki, Institute of Physical Chemistry of the Polish Academy of Sciences (Poland); Michal Kacprzak, Piotr Sawosz, Adam Liebert, Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland) ... [11074-10]

11:45: **Simulation of fluorescence molecular tomography using a registered digital mouse atlas**, Mavi N. Polatoglu, ETH Zurich (Switzerland) and Univ. Zürich (Switzerland); Yan Liu, ETH Zurich (Switzerland); Ruiqing Ni, ETH Zurich (Switzerland) and Univ. Zürich (Switzerland); Jorge Ripoll, Univ. Carlos III de Madrid (Spain) and Instituto de Investigación Sanitaria Gregorio Marañón (Spain); Markus Rudin, ETH Zurich (Switzerland) and Univ. Zürich (Switzerland); Martin Wolf, UniversitätsSpital Zürich (Switzerland) and Univ. Zürich (Switzerland) and UniversitätsSpital Zürich (Switzerland) and Univ. Zürich (Switzerland)[11074-11]

Lunch Break Sun 12:00 to 14:00

LOCATION: ROOM 5 ICM GROUND FLOORSUN 14:00 TO 15:30

ECBO Hot Topics

Session Chairs: **I. Alex Vitkin**, Univ. Health Network (Canada); **Ronald Sroka**, Laser-Forschungslabor (Germany)

Coffee Break Sun 15:30 to 16:00

SESSION 3

LOCATION: ROOM 5 ICM
GROUND FLOOR SUN 16:00 TO 18:00

Cerebral Hemodynamics and Neural Activity I

Session Chairs: **Yoko Hoshi M.D.**, Hamamatsu Univ. School of Medicine (Japan); **Adam T. Eggebrecht**, Washington Univ. School of Medicine in St. Louis (USA)

16:00: **A mild orthostatic challenge shows impairment of cerebrovascular autoregulation on the ipsilesional hemisphere of ischemic stroke patients** (*Invited Paper*), Clara Gregori-Pla, ICFO - Institut de Ciències Fotòniques (Spain); Rickson C. Mesquita, Univ. Estadual de Campinas (Brazil); Christopher G. Favilla, Univ. of Pennsylvania (USA); David R. Busch, The Univ. of Texas Southwestern Medical Ctr. at Dallas (USA); Igor Blanco, Lisa Kobayashi Frisk, ICFO - Institut de Ciències Fotòniques (Spain); Pol Camps-Renom, Hospital de la Santa Creu i Sant Pau (Spain); Michael T. Mullen, Univ. of Pennsylvania (USA); Joan Martí-Fàbregas, Lluís Prats-Sánchez, Alejandro Martínez-Domeño, Raquel Delgado-Mederos, Hospital de la Santa Creu i Sant Pau (Spain); John A. Detre, Arjun G. Yodh, Univ. of Pennsylvania (USA); Turgut Durduran, ICFO - Institut de Ciències Fotòniques (Spain) and Institutació Catalana de Recerca i Estudis Avançats (Spain) [11074-12]

16:30: **Mapping hemodynamic changes during hypoglycemia in the very preterm neonatal brain: preliminary results**, Sabrina Brigadoi, Alfonso Galderisi, Edoardo Pieropan, Univ. degli Studi di Padova (Italy); Robert J. Cooper, Univ. College London (United Kingdom); Simone Cutini, Padova Neuroscience Ctr., Univ. degli Studi di Padova (Italy); Eugenio Baraldi, Claudio Cobelli, Univ. degli Studi di Padova (Italy); Roberto Dell'Acqua, Padova Neuroscience Ctr., Univ. degli Studi di Padova (Italy); Giovanni Sparacino, Daniele Trevisanuto, Univ. degli Studi di Padova (Italy) [11074-13]

16:45: **Non-invasive optical assessment of intracranial pressure: pilot results in human patients**, Wesley B. Baker, Tracy M. Flanders, The Children's Hospital of Philadelphia (USA); Ramani Balu, Lian He, Univ. of Pennsylvania (USA); Kristina Heye, The Children's Hospital of Philadelphia (USA); Elizabeth Mahanna Gabrielli, Univ. of Pennsylvania (USA); John J. Flibotte, Daniel J. Licht, Gregory G. Heuer, The Children's Hospital of Philadelphia (USA); Arjun G. Yodh, W. Andrew Kofke, Univ. of Pennsylvania (USA) [11074-14]

17:00: **High-density functional speckle contrast optical tomography (HD-fSCOT) of the adult brain**, Tanja Dragojevic, Ernesto E. Vidal-Rosas, Joseph L. Hollmann, ICFO - Institut de Ciències Fotòniques (Spain) and The Barcelona Institute of Science and Technology (Spain); Rudi Lussana, Politecnico di Milano (Italy); Joseph P. Culver, Washington Univ. School of Medicine in St. Louis (USA) and Washington Univ. in St. Louis (USA); Federica Villa, Politecnico di Milano (Italy); Turgut Durduran, ICFO - Institut de Ciències Fotòniques (Spain) and Institutació Catalana de Recerca i Estudis Avançats (Spain) [11074-15]

17:15: **Cortical activity underlying overt and covert language generation measured using high-density diffuse optical tomography**, Mariel Schroeder, Washington Univ. School of Medicine in St. Louis (USA) [11074-16]

17:30: **Hybrid diffuse optical assessment of hyperventilation treatment in neuro-critical care**, Susanna Tagliabue, ICFO - Institut de Ciències Fotòniques (Spain); Michal Kacprzak, Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland) and ICFO - Institut de Ciències Fotòniques (Spain); Federica Maruccia, ICFO - Institut de Ciències Fotòniques (Spain) and Vall d'Hebron Institut de Recerca (Spain); Marilyn Riveiro Vilaboa, Anna Rey-Perez, Vall d'Hebron Institut de Recerca (Spain); Jonas B. Fischer, ICFO - Institut de Ciències Fotòniques (Spain) and HemoPhotonics S.L. (Spain); María Antonia Poca, Hospital Univ. Vall d'Hebron, Univ. de Barcelona (Spain); Juan Sahuquillo, Vall d'Hebron Institut de Recerca (Spain); Turgut Durduran, ICFO - Institut de Ciències Fotòniques (Spain) and Institutació Catalana de Recerca i Estudis Avançats (Spain) [11074-17]

17:45: **Investigation of functional connectivity in prefrontal cortex in Alzheimer's disease stages during verbal fluency task: an fNIRS study**, Minhee Kim, Thien Nguyen, Gwangju Institute of Science and Technology (Korea, Republic of); Jeonghwan Gwak, Seoul National Univ. Hospital (Korea, Republic of); Jang Jae Lee, Kyu Yeong Choi, Kun Ho Lee, Chosun Univ. (Korea, Republic of); Jae Gwan Kim, Gwangju Institute of Science and Technology (Korea, Republic of) [11074-18]

MONDAY 24 JUNE

SESSION 4

LOCATION: ROOM 5 ICM GROUND FLOOR MON 8:30 TO 9:30
Computation Software and Analysis Tools

Session Chair: **Anabela Da Silva**, Institut Fresnel (France)

8:30: **Cloud-based NIRFAST server for tissue parameters recovery: laser and ultrasound co-analyser of thyroid nodules** (*Invited Paper*), Stanislaw Wojtkiewicz, The Univ. of Birmingham (United Kingdom); Udo M. Weigel, HemoPhotonics S.L. (Spain); Turgut Durduran, ICFO - Institut de Ciències Fotòniques (Spain) and The Barcelona Institute of Science and Technology (Spain); Hamid Dehghani, The Univ. of Birmingham (United Kingdom) [11074-25]

9:00: **NeuroDOT: an extensible Matlab toolbox for streamlined optical functional mapping** (*Invited Paper*), Adam T. Eggebrecht, Joseph P. Culver, Washington Univ. School of Medicine in St. Louis (USA) [11074-26]

LOCATION: ICM ROOM 1 MON 9:30 TO 11:00

World of Photonics Opening and Plenary

Coffee to Go Mon 11:00 to 11:15

SESSION 5

LOCATION: ROOM 5 ICM GROUND FLOOR MON 11:15 TO 12:45

Theory, Algorithms and Computational Tools II

Session Chairs: **Hamid Dehghani**, The Univ. of Birmingham (United Kingdom); **Anabela Da Silva**, Institut Fresnel (France)

11:15: **Visual appearance of blood vessels**, Christian J. Zoller, Alwin Kienle, Institut für Lasertechnologien in der Medizin und Messtechnik (Germany) [11074-27]

11:30: **Sample-tailored light transport modelling: combining OCT and finite element modelling**, Leah S. Wilk, Maurice C. G. Aalders, Amsterdam UMC (Netherlands) [11074-28]

11:45: **A broadband multi-distance approach to measure tissue oxygen saturation with continuous wave near-infrared spectroscopy**, Zuzana Kovacsova, Gemma Bale, Univ. College London (United Kingdom); Joshua Deepak Veesa, Hamid Dehghani, The Univ. of Birmingham (United Kingdom); Ilias Tachtsidis, Univ. College London (United Kingdom) [11074-29]

12:00: **Diffuse optical tomography with polarized light: a GPU-accelerated polarization-sensitive Monte Carlo simulations for efficient sensitivity kernel computation**, Hind Oulhaj, Institut Fresnel, Aix-Marseille Univ., CNRS (France); Julien Wojak, Ugo Tricoli, Callum M. Macdonald, Aix-Marseille Univ. (France); Vadim A. Markel, Univ. of Pennsylvania (USA); Anabela Da Silva, Aix-Marseille Univ. (France) [11074-30]

12:15: **Modelling light propagation for fetal monitoring in utero**, Jacqueline E. Gunther, Baptiste Jayet, Raymond Burke, Stefan Andersson-Engels, Tyndall National Institute (Ireland) [11074-31]

12:30: **Theoretical analysis of hemodynamic signal from the scalp in time-gated NIRS imaging using null source-detector separation**, Genya Nakamura, Eiji Okada, Keio Univ. (Japan) [11074-32]

LUNCH BREAK AND POSTER SESSION-MONDAY

LOCATION: ICM HALL B0 MON 12:45 TO 14:15

Posters will be featured on Monday, Tuesday, and Wednesday. Each day represents a different set of posters. To see which posters are included each day, please see the individual conference programs.

Poster authors: Please set up posters on the morning of your session before or during the morning coffee break. Plan to stand by your poster to discuss it with session attendees on the day of your session. Remove your poster following the poster session concludes as posters left on the boards will be discarded.

Optical analysis of bone tissue in osteoporosis and treatment by allogenic hydroxyapatite using Raman spectroscopy, Yana V. Fedorova, Elena V. Timchenko, Pavel E. Timchenko, Elena V. Pisareva, Samara Univ. (Russian Federation); Larisa T. Volova, Samara State Medical Univ. (Russian Federation); Anna S. Tyumchenkova, Oleg O. Frolov, Anastasia Subatovich, Samara Univ. (Russian Federation) [11074-57]

- Monte-Carlo simulations of light transport in dense materials: dependent scattering and influence on sunscreen formulations**, Lena Bressel, Univ. Potsdam (Germany); Bernd Herzog, Univ. Basel (Switzerland); Oliver Reich, Univ. Potsdam (Germany) [11074-58]
- Chemometric analysis of the Raman spectra of bone demineralized implants in processing**, Oleg O. Frolov, Pavel E. Timchenko, Elena V. Timchenko, Samara Univ. (Russian Federation); Larisa T. Volova, Samara State Medical Univ. (Russian Federation) [11074-59]
- The detail analysis of surface of regenerates after the chondroplasty using enriched platelet plasma in rabbits**, Maria D. Markova, Elena V. Timchenko, Pavel E. Timchenko, Alexandera Lomkina, Samara Univ. (Russian Federation); Larisa T. Volova, Dmitry Dolgyskin, Vladimir Lazarev, Samara State Medical Univ. (Russian Federation) [11074-60]
- Tissue fixation and substrate selection in hyperspectral imaging of murine models**, Jošt Stergar, Rok Dolenc, Univ. of Ljubljana (Slovenia); Katja Lakota, Univ. Medical Ctr., Ljubljana (Slovenia); Martina Perše, Univ. of Ljubljana (Slovenia); Matija Tomšič, Univ. Medical Ctr., Ljubljana (Slovenia) and Univ. of Ljubljana (Slovenia); Matija Milanic, Univ. of Ljubljana (Slovenia) and Jožef Stefan Institut (Slovenia) [11074-61]
- Modeling diffuse reflectance spectra of donated blood with their haematological parameters**, Osman Melih Can, Yekta Ülgen, Bogaziçi Üniv. (Turkey) [11074-62]
- Spatial phase function (SPF) filter imaging device for deep interrogation of scattering media**, Aditya Pandya, Irina Schelkanova, Alexandre Douplik, Ryerson Univ. (Canada) [11074-63]
- Non-invasive spectroscopic method of glucose concentration determination in human blood: mathematical description**, Boris S. Gurevich, Scientific Instruments CJSC (Russian Federation) and Saint Petersburg Electrotechnical Univ. "LETI" (Russian Federation); Valentin Shapovalov, Sergey Dudnikov, Igor Zagorsky, Saint Petersburg Electrotechnical Univ. "LETI" (Russian Federation); Andrey Belyaev, Institute for Analytical Instrumentation (Russian Federation) [11074-64]
- Investigation of skin conditions producing similar reflectance spectra but different point spread functions in Monte Carlo simulation**, Kaustav Das, Yuta Kobori, Tomoki Hashisaka, Takehiro Ohya, Tomonori Yuasa, Hideki Funamizu, Yoshihisa Aizu, Muroran Institute of Technology (Japan) . [11074-65]
- Portable device to assess and monitor the skin condition upon diffuse multi-spectral illumination**, Marija Strojnik Scholl, Centro de Investigaciones en Óptica, A.C. (Mexico) [11074-67]
- Efficient Monte Carlo simulations of spatially resolved reflectance for detection schemes with low numerical apertures**, Yevhen Zelinskyi, Peter Naglic, Franjo Pernuš, Boštjan Likar, Miran Bürmen, Univ. of Ljubljana (Slovenia) [11074-68]
- Imaging of the optical properties of turbid media with integrated detection based on the Kubelka-Munk model**, Armin J. M. Lenz, Univ. Jaume I (Spain); Kohei Arai, Kyoto Institute of Technology (Japan); Yessenia Jauregui-Sánchez, Pere Clemente, Vicent Climent, Jesus Lancis, Enrique Tajahuerce, Univ. Jaume I (Spain) [11074-69]
- Experimental investigation on the light transmission of a textile-based over-cap used in functional near-infrared spectroscopy**, Habib Sherkat, Terje Gjovaag, Peyman Mirtaheeri, OsloMet - Oslo Metropolitan Univ. (Norway) [11074-70]
- Spatial-frequency-domain optical tomography in the radiative transport regime**, Manabu Machida, Hamamatsu Univ. School of Medicine (Japan) [11074-71]
- Multi-wavelength time-resolved NIRS measurements for estimation of absolute concentration of chromophores: blood phantom study**, Aleh Sudakou, Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland); Frédéric Lange, Univ. College London (United Kingdom); Helene Isler, Univ. College London (Switzerland); Anna Gerega, Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland); Daniel Ostojic, Univ. College London (Switzerland); Piotr Sawosz, Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland); Ilias Tachtsidis, Univ. College London (United Kingdom); Adam Liebert, Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland) [11074-72]
- The study of the composition of bioimplants for the treatment of gingival recession using the method of Raman spectroscopy**, Oleg O. Frolov, Elena V. Timchenko, Pavel E. Timchenko, Samara Univ. (Russian Federation); Larisa T. Volova, Samara State Medical Univ. (Russian Federation); Elena F. Yagofarova, Samara Univ. (Russian Federation) [11074-73]
- Preliminary vastus lateralis characterization with time domain near infrared spectroscopy during incremental cycle exercise**, Ileana Pirovano, Politecnico di Milano (Italy); Simone Porcelli, Consiglio Nazionale delle Ricerche (Italy); Fabio Azzarello, Rebecca Re, Politecnico di Milano (Italy); Lorenzo Spinelli, CNR-Istituto di Fotonica e Nanotecnologie (Italy); Davide Contini, Politecnico di Milano (Italy); Mauro Marzorati, Consiglio Nazionale delle Ricerche (Italy); Alessandro Torricelli, Politecnico di Milano (Italy) [11074-74]
- Multimodal imaging platform for surgical guidance during epilepsy surgery**, Audrey Laurence, Émile Beaulieu, Ecole Polytechnique de Montréal (Canada); Dang Khoa Nguyen, Ctr. Hospitalier de l'Univ. de Montréal (Canada); Alain Bouthillier, Univ. de Montréal (Canada); Roy W. R. Dudley, McGill Univ. (Canada); Dominique Trudel, CRCHUM (Canada); Frédéric Leblond, Ecole Polytechnique de Montréal (Canada) [11074-76]
- Fitting a spectral model for component analysis in diffuse optical tomography**, Giuseppe Di Sciaccia, Univ. College London (United Kingdom); Edoardo Ferocino, Andrea Farina, Antonio Pifferi, Paola Taroni, Politecnico di Milano (Italy); Simon Arridge, Univ. College London (United Kingdom) [11074-77]
- Blood oxygenation in buried flaps: a bi-layer reconstruction**, Audrey Dot, Univ. Grenoble Alpes, Institut des biosciences avancées (France); Anne Planat-Chrétien, Mathieu Perriollat, Michel Berger, Univ. Grenoble Alpes, CEA-LETI (France); Rodolphe Lartzien, Ctr. Hospitalier Annecy Genevois (France); Maxime Henry, Univ. Grenoble Alpes, Institut des biosciences avancées (France); Georges Bettega, Ctr. Hospitalier Annecy Genevois (France); Jean-Luc Coll, Univ. Grenoble Alpes, Institut des biosciences avancées (France) . [11074-78]
- Experimental assessment of sensitivity profiles in multidistance time-resolved near infrared spectroscopy measurements**, Magdalena Morawiec, Piotr Sawosz, Roman Maniewski, Adam Liebert, Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland) [11074-79]
- Robust calibration of reflectance acquired with optical fiber probes**, Peter Naglic, Boštjan Likar, Franjo Pernuš, Miran Bürmen, Univ. of Ljubljana (Slovenia) [11074-80]
- Direct determination of the spectrally resolved scattering phase function of suspensions and emulsions**, Steffen Nothelfer, Alwin Kienle, Florian Foschum, Institut für Lasertechnologien in der Medizin und Messtechnik (Germany) [11074-81]
- Hemodynamic change from menopause animal model using diffuse optical spectroscopy**, Hyeryun Jeong, Gwangju Institute of Science and Technology (Korea, Republic of); Myeongsu Seong, Shanghai Jiao Tong Univ. (China); Hyun-Suk Lee, Kwang Sung Park, Chonnam National Univ. Medical School (Korea, Republic of); Jae Gwan Kim, Gwangju Institute of Science and Technology (Korea, Republic of) [11074-82]
- A new forward model for diffuse optical tomography**, Wenqi Lu, The Univ. of Birmingham (United Kingdom); Jinming Duan, Imperial College London (United Kingdom); Joshua Deepak Veesa, Iain B. Styles, The Univ. of Birmingham (United Kingdom) [11074-83]
- Spectral parameter recovery of cerebral and extra-cerebral tissues using broadband near-infrared spectroscopy**, Joshua Deepak Veesa, Hamid Dehghani, The Univ. of Birmingham (United Kingdom) [11074-84]
- Reducing object curvature and height variation effects in hyperspectral images**, Luka Rogelj, Urban Pavlovčič, Matija Jezeršek, Univ. of Ljubljana (Slovenia); Matija Milanic, Univ. of Ljubljana (Slovenia) and Jožef Stefan Institut (Slovenia); Urban Simončič, Univ. of Ljubljana (Slovenia) and Jožef Stefan Institute (Slovenia) [11074-85]
- Simulation method for damage prediction using optical property in liver microwave ablation**, Jinzhe Zhao, Zhiyu Qian, Juan Wang, Nanjing Univ. of Aeronautics and Astronautics (China) [11074-86]
- Spectral determination of μ_a , μ_s and g of one thick turbid sample from three scattered light signals**, Xin-Hua Hu, East Carolina Univ. (USA) [11074-87]
- Frequency multiplexed intensity modulated diffuse reflectance system for quantification of tissue and arterial oxygen saturation**, Sheng-Hao Tseng, National Cheng Kung Univ. (Taiwan) [11074-88]
- An adaptive scheme for diffuse-optical tomography based on combined structured-light illumination and single-pixel camera detection**, Andrea Farina, CNR-Istituto di Fotonica e Nanotecnologie (Italy); Marta Betcke, Univ. College London (United Kingdom); Andrea Bassi, Gianluca Valentini, Politecnico di Milano (Italy) and CNR-Istituto di Fotonica e Nanotecnologie (Italy); Simon Arridge, Univ. College London (United Kingdom); Cosimo D'Andrea, Politecnico di Milano (Italy) and Ctr. for Nano Science and Technology, Istituto Italiano di Tecnologia (Italy) [11074-89]
- Assessing extracerebral signal contamination in optical measurements of cerebral blood flow and oxygenation**, Daniel Milej, Lawson Health Research Institute (Canada) and Western Univ. (Canada); Ajay Rajaram, Androu Abdalmalak, Mahro Khalid, Marwan Shahid, Matthew Kewin, Western Univ. (Canada); Keith St. Lawrence, Lawson Health Research Institute (Canada) and Western Univ. (Canada) [11074-90]
- Pathlength distribution of (sub)diffusively reflected light**, Dirk J. Faber, Anouk L. Post, Ton G. van Leeuwen, Amsterdam UMC (Netherlands) [11074-91]
- Influence of optical path length on multi-wavelength measurement of oxy- and deoxy-hemoglobins in the skin**, Taiki Shirai, Eiji Okada, Keio Univ. (Japan) [11074-93]

SESSION 6

LOCATION: ROOM 5 ICM GROUND FLOOR MON 14:15 TO 15:45

Cerebral Hemodynamics and Neural Activity II

Session Chairs: **Yoko Hoshi M.D.**, Hamamatsu Univ. School of Medicine (Japan); **Adam T. Eggebrecht**, Washington Univ. School of Medicine in St. Louis (USA)

14:15: **Time-resolved near infrared spectroscopy in ischemic stroke patients** (*Invited Paper*), Marta Zanoletti, Politecnico di Milano (Italy); Giacomo Giacalone, San Raffaele Scientific Institute-Neurology Department (Italy); Davide Contini, Rebecca Re, Politecnico di Milano (Italy); Lorenzo Spinelli, Istituto di Fotonica e Nanotecnologie (Italy); Bruno Nicolò Germinario, Luisa Roveri, San Raffaele Scientific Institute-Neurology Department (Italy); Alessandro Torricelli, Politecnico di Milano (Italy) and Istituto di Fotonica e Nanotecnologie, Consiglio Nazionale delle Ricerche (Italy) [11074-33]

14:45: **Effects of head-of-bed position on the critical closing pressure and the pulsatility of blood flow measured by fast diffuse correlation spectroscopy**, Jonas B. Fischer, HemoPhotonics S.L. (Spain) and ICFO - Institut de Ciències Fotòniques (Spain) and The Barcelona Institute of Science and Technology (Spain); Giacomo Giacalone, ICFO - Institut de Ciències Fotòniques (Spain) and Istituto Scientifico San Raffaele (Italy) and The Barcelona Institute of Science and Technology (Spain); Daniel Fernandez Cuenca, Ameer Ghouse, ICFO - Institut de Ciències Fotòniques (Spain) and The Barcelona Institute of Science and Technology (Spain); Wesley B. Baker, The Children's Hospital of Philadelphia (USA); Turgut Durduran, ICFO - Institut de Ciències Fotòniques (Spain) and Institutio Catalana de Recerca i Estudis Avançats (Spain); Udo M. Weigel, HemoPhotonics S.L. (Spain). [11074-34]

15:00: **Short and mid-term reproducibility analysis of cerebral tissue saturation measured by time domain-NIRS**, Frédéric Lange, Ilias Tachtsidis, Univ. College London (United Kingdom). [11074-35]

15:15: **Patterns of intrinsic neural and hemodynamic activity recover uniquely following stroke**, Byungchan Kim, Zachary Rosenthal, Joseph P. Culver, Jin-Moo Lee, Adam Q. Bauer, Washington Univ. in St. Louis (USA) [11074-36]

15:30: **Direct and in utero monitoring of fetal cerebral blood flow in the lamb fetus**, Giuseppe Lo Presti, Lorenzo Cortese, ICFO - Institut de Ciències Fotòniques (Spain); Sergio Berdún, Ctr. de Medicina Materna Fetal y Neonatal de Barcelona, Univ. de Barcelona (Spain); Elisenda Eixarch, Eduard Gratacós, Ctr. de Medicina Materna Fetal y Neonatal de Barcelona (Spain) and Ctr. de Investigación Biomédica en Red de Enfermedades Raras (Spain); Turgut Durduran, ICFO - Institut de Ciències Fotòniques (Spain) and Institutio Catalana de Recerca i Estudis Avançats (Spain) [11074-37]

Coffee Break Mon 15:45 to 16:15

SESSION 7

LOCATION: ROOM 5 ICM GROUND FLOOR MON 16:15 TO 17:45

Advances in Instrumentation and Technology II

Session Chairs: **Davide Contini**, Politecnico di Milano (Italy); **Wesley B. Baker**, The Children's Hospital of Philadelphia (USA)

16:15: **New near-infrared spectroscopy method for local measurements of cerebral blood flow**, Thao Pham, Angelo Sassaroli, Giles Blaney, Sergio Fantini, Tufts Univ. (USA) [11074-19]

16:30: **Diffuse correlation spectroscopy for intracranial pressure estimation through cardiac pulse waveform analysis**, Alexander Ruesch, Jason Yang, Carnegie Mellon Univ. (USA); Deepshikha Acharya, Carnegie Mellon Univ. (USA) and Univ. of Pittsburgh (USA); Samantha Schmitt, Deepa Issar, Univ. of Pittsburgh (USA); Matthew A. Smith, Univ. of Pittsburgh (USA) and Ctr. for the Neural Basis of Cognition (USA); Jana M. Kainerstorfer, Carnegie Mellon Univ. (USA) and Ctr. for the Neural Basis of Cognition (USA) [11074-20]

Monitoring radiofrequency ablation of biological tissue using broadband time-resolved diffuse optical spectroscopy, Pranav Lanka, Politecnico di Milano (Italy); Francis Kalloor Joseph, Hindrik Kruit, Univ. of Twente (Netherlands); Sanathana Konugolu Venkata Sekar, Politecnico di Milano (Italy); Andrea Farina, CNR-Istituto di Fotonica e Nanotecnologie (Italy); Rinaldo Cubeddu, Politecnico di Milano (Italy); Srirang Manohar, Univ. of Twente (Netherlands); Antonio Pifferi, Politecnico di Milano (Italy) [11074-94]

Extended Kalman Filtering for the recovery of the absorption coefficients in layered turbid media, Guido Baez, Pladema (Argentina); Hector A. Garcia, CIFICEN (Argentina); Dirk Grosenick, Heidrun Wabnitz, Physikalisch-Technische Bundesanstalt (Germany). [11074-95]

Construction of spectral reflectance database for estimation of absorption and scattering parameters in skin tissue, Tomonori Yuasa, Tomoki Hashisaka, Muroran Institute of Technology (Japan); Yuji Masuda, Shiseido Co., Ltd. (Japan); Takaaki Maeda, Kushiro National College of Technology (Japan); Hideki Funamizu, Yoshihisa Aizu, Muroran Institute of Technology (Japan). [11074-96]

A multi-tau, fast, stackable correlator for multi-channel diffuse correlation spectroscopy, Daniel Fernandez Cuenca, ICFO - Institut de Ciències Fotòniques (Spain); Jonas B. Fischer, ICFO - Institut de Ciències Fotòniques (Spain) and HemoPhotonics S.L. (Spain); Lorenzo Cortese, Ameer Ghouse, Giuseppe Lo Presti, Marco Pagliuzzi, ICFO - Institut de Ciències Fotòniques (Spain); Ferran José Torra, Udo M. Weigel, HemoPhotonics S.L. (Spain); Turgut Durduran, ICFO - Institut de Ciències Fotòniques (Spain) and Institutio Catalana de Recerca i Estudis Avançats (Spain) [11074-97]

Time resolved multi-wavelength, dual-channel system for diffuse spectroscopy: performance assessment, Marta Zanoletti, Marco Renna, Mauro Buttafava, Anurag Behera, Pranav Lanka, Laura Di Sieno, Alberto Dalla Mora, Alberto Tosi, Davide Contini, Politecnico di Milano (Italy) [11074-98]

Instrument response function acquisition in reflectance geometry for time-resolved diffuse optical measurements, Ileana Pirovano, Rebecca Re, Davide Contini, Politecnico di Milano (Italy); Lorenzo Spinelli, CNR-Istituto di Fotonica e Nanotecnologie (Italy); Alessandro Torricelli, Politecnico di Milano (Italy) [11074-99]

Diffuse correlation tomography in the transport regime: a theoretical study of the sensitivity to Brownian motion, Anabela Da Silva, Institut Fresnel, Aix-Marseille Univ., CNRS (France); Ugo Tricoli, Callum M. Macdonald, Aix-Marseille Univ. (France); Turgut Durduran, ICFO - Institut de Ciències Fotòniques (Spain) and Institutio Catalana de Recerca i Estudis Avançats (Spain); Vadim A. Markel, Aix-Marseille Univ. (France) and Univ. of Pennsylvania (USA) [11074-100]

Effects of ultrasound impedance matching fluids on diffuse optical measurements, Laura Di Sieno, Davide Contini, Politecnico di Milano (Italy); Giuseppe Lo Presti, Lorenzo Cortese, ICFO - Institut de Ciències Fotòniques (Spain) and The Barcelona Institute of Science and Technology (Spain); Tony Mateo, Bogdan Rosinski, Vermon S.A. (France); Elena Venturini, Pietro Panizza, Ospedale San Raffaele - Milano (Italy); Mireia Mora, Gloria Aranda, Mattia Squarcia, Institut d'Investigacions Biomèdiques Agustí Pi Sunyer (Spain); Andrea Farina, CNR-Istituto di Fotonica e Nanotecnologie (Italy); Turgut Durduran, ICFO - Institut de Ciències Fotòniques (Spain) and The Barcelona Institute of Science and Technology (Spain); Paola Taroni, Antonio Pifferi, Politecnico di Milano (Italy) and CNR-Istituto di Fotonica e Nanotecnologie (Italy); Alberto Dalla Mora, Politecnico di Milano (Italy) [11074-102]

Compressive sensing time-domain Raman spectrometer for depth sensing of diffusive media, Michele Lacerenza, Politecnico di Milano (Italy); Antonio Pifferi, Politecnico di Milano (Italy) and Consiglio Nazionale delle Ricerche (Italy); Sanathana Konugolu Venkata Sekar, Politecnico di Milano (Italy); Andrea Farina, Istituto Italiano di Tecnologia (Italy); Gianluca Valentini, Politecnico di Milano (Italy) and Consiglio Nazionale delle Ricerche (Italy); Cosimo D'Andrea, Consiglio Nazionale delle Ricerche (Italy) and Politecnico di Milano (Italy) [11074-103]

In vivo time-domain diffuse correlation spectroscopy of the human muscle above 1000 nm, Lorenzo Colombo, Politecnico di Milano (Italy); Marco Pagliuzzi, ICFO - Institut de Ciències Fotòniques (Spain); Sanathana Konugolu Venkata Sekar, Davide Contini, Alberto Dalla Mora, Politecnico di Milano (Italy); Lorenzo Spinelli, CNR-Istituto di Fotonica e Nanotecnologie (Italy); Alessandro Torricelli, Politecnico di Milano (Italy); Turgut Durduran, ICFO - Institut de Ciències Fotòniques (Spain); Antonio Pifferi, Politecnico di Milano (Italy) [11074-104]

Three-dimensional printed tissue-simulating phantoms for fluorescence imaging, Sandra Schädel-Ebner, Katrin Schira, Ole Hirsch, Dirk Grosenick, Physikalisch-Technische Bundesanstalt (Germany) [11074-105]

DOI

CONFERENCE 11074

16:45: **The LUCA device: laser and ultrasound co-analyzer for thyroid nodules**, Lorenzo Cortese, ICFO - Institut de Ciències Fotòniques (Spain) and The Barcelona Institute of Science and Technology (Spain); Gloria Aranda, Institut d'Investigacions Biomèdiques Agustí Pi Sunyer (Spain); Mauro Buttafava, Davide Contini, Alberto Dalla Mora, Politecnico di Milano (Italy); Sixte de Fraguier, ECM Echo Control Medical S.A.S. (France); Hamid Dehghani, The Univ. of Birmingham (United Kingdom); Eduardo García, HemoPhotonics S.L. (Spain); Ramon Gomis, Felicia Hanzu, Institut d'Investigacions Biomèdiques Agustí Pi Sunyer (Spain); Ferran José Torra, HemoPhotonics S.L. (Spain); Katharina Krischak, European Institute for Biomedical Imaging Research (Austria); Giuseppe Lo Presti, ICFO - Institut de Ciències Fotòniques (Spain) and The Barcelona Institute of Science and Technology (Spain); Mireia Mora, Institut d'Investigacions Biomèdiques Agustí Pi Sunyer (Spain); Antonio Pifferi, Marco Renna, Politecnico di Milano (Italy); Bogdan Rosinski, Vermon S.A. (France); Sanathana Konugolu Venkata Sekar, Politecnico di Milano (Italy); Mattia Squarcia, Institut d'Investigacions Biomèdiques Agustí Pi Sunyer (Spain); Paola Taroni, Alberto Tosi, Politecnico di Milano (Italy); Udo M. Weigel, HemoPhotonics S.L. (Spain); Stanislaw Wojtkiewicz, The Univ. of Birmingham (United Kingdom); Marta Zanoletti, Politecnico di Milano (Italy); Pamela Zolda, European Institute for Biomedical Imaging Research (Austria); Turgut Durduran, ICFO - Institut de Ciències Fotòniques (Spain) [11074-21]

17:00: **In vivo time domain speckle contrast optical spectroscopy**, Marco Pagliuzzi, Ernesto E. Vidal-Rosas, ICFO - Institut de Ciències Fotòniques (Spain); Sanathana Konugolu Venkata Sekar, Laura Di Sieno, Lorenzo Colombo, Davide Contini, Politecnico di Milano (Italy); Alessandro Torricelli, Antonio Pifferi, Politecnico di Milano (Italy) and Consiglio Nazionale delle Ricerche (Italy); Alberto Dalla Mora, Politecnico di Milano (Italy); Joseph P. Culver, Washington Univ. School of Medicine in St. Louis (USA); Turgut Durduran, ICFO - Institut de Ciències Fotòniques (Spain) [11074-22]

17:15: **Compressive sensing based hyperspectral bioluminescence imaging**, Alexander Bentley, Hamid Dehghani, The Univ. of Birmingham (United Kingdom) [11074-23]

17:30: **A near-infrared hyperspectral imaging system for quantitative monitoring of hemodynamics and metabolism on the exposed cortex of mice**, Luca Giannoni, Frédéric Lange, Ilias Tachtsidis, Univ. College London (United Kingdom) [11074-24]

TUESDAY 25 JUNE

SESSION 8

LOCATION: ROOM 5 ICM GROUND FLOOR TUE 8:30 TO 10:00

Novel Applications of Diffuse Optics

Session Chairs: **Ilias Tachtsidis**, Univ. College London (United Kingdom); **Adam Liebert**, Nalecz Institute of Biocybernetics and Biomedical Engineering PAS (Poland)

8:30: **Multimodal measurements of brain tissue metabolism and perfusion in a neonatal model of hypoxic-ischaemic injury**, Gemma Bale, Univ. College London (United Kingdom); Ajay Rajaram, Matthew Kewin, Lawson Health Research Institute (Canada) and Western Univ. (Canada); Laura Morrison, Lawson Health Research Institute (Canada); Alan Bainbridge, Univ. College London Hospitals NHS Foundation Trust (United Kingdom); Linshan Liu, Lawson Health Research Institute (Canada); Udunna Anazodo, Mamadou Diop, Keith St. Lawrence, Lawson Health Research Institute (Canada) and Western Univ. (Canada); Ilias Tachtsidis, Univ. College London (United Kingdom) [11074-38]

8:45: **Towards depth-resolved characterization of hemodynamics and oxygenation in the rat kidney**, Thomas Gladysz, Physikalisch-Technische Bundesanstalt (Germany); Kathleen Cantow, Bert Flemming, Charité Universitätsmedizin Berlin (Germany); Andreas Pohlmann, Thoralf Niendorf, Max-Delbrück-Ctr. für Molekulare Medizin Berlin-Buch (Germany); Erdmann Seeliger, Charité Universitätsmedizin Berlin (Germany); Dirk Grosenick, Physikalisch-Technische Bundesanstalt (Germany) [11074-39]

9:00: **Diffuse reflectance bi-layer algorithm to enhance spoof detection of a TFT based biometry device**, Anne Koenig, CEA-LETI (France); Marina Pouet, IDEMIA (France); Nils Petitdidier, CEA-LETI (France); Jean Beaudet, Alain Thiebot, Mokrane Malek, IDEMIA (France); Pierre Jallon, CEA-LETI (France) [11074-40]

9:15: **Excitatory and inhibitory neural circuits distinctly regulate cerebral hemodynamic activity**, Joonhyuk Lee, Annie R. Bice, Zachary Rosenthal, Jin-Moo Lee, Adam Q. Bauer, Washington Univ. School of Medicine in St. Louis (USA) [11074-41]

9:30: **The evaluation of hypertonic saline on lipopolysaccharide-induced brain edema model of mouse**, Yuemei Zhao, Weitao Li, Yameng Zhang, Zhiyu Qian, Nanjing Univ. of Aeronautics and Astronautics (China) [11074-42]

9:45: **Functionalized upconversion luminescent nanoparticles for theranostics**, Irina Yu K. Yanina, Saratov State Univ. (Russian Federation); Nikita Navolokin, Saratov State Medical Univ. (Russian Federation); Irina Vidyasheva, Irina Goryacheva, Vyacheslav Kochubey, Valery Tuchin, Saratov State Univ. (Russian Federation) [11074-43]

Coffee Break Tue 10:00 to 10:30

SESSION 9

LOCATION: ROOM 5 ICM

GROUND FLOOR TUE 10:30 TO 12:00

Phantoms and Performance Assessment

Session Chairs: **Heidrun Wabnitz**, Physikalisch-Technische Bundesanstalt (Germany); **Hamid Dehghani**, The Univ. of Birmingham (United Kingdom)

10:30: **The BITMAP Exercise: a multi-laboratory effort at standardizing performance assessment of diffuse optical instrumentation**, Pranav Lanka, Politecnico di Milano (Italy); Lin Yang, Physikalisch-Technische Bundesanstalt (Germany); David Orive-Miguel, CEA-LETI (France); Joshua Deepak Veesa, The Univ. of Birmingham (United Kingdom); Susanna Tagliabue, ICFO - Institut de Ciències Fotòniques (Spain); Aleh Sudakou, Saeed Samaei, Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland); Mario Forcione, Univ. Hospitals Birmingham NHS Foundation Trust (United Kingdom); Zuzana Kovacsova, Univ. College London (United Kingdom); Anurag Behera, Politecnico di Milano (Italy); Lionel Hervé, CEA-LETI, MINATEC (France); Turgut Durduran, ICFO - Institut de Ciències Fotòniques (Spain) and The Barcelona Institute of Science and Technology (Spain); Adam Liebert, Piotr Sawosz, Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland); Antonio Belli, Univ. Hospitals Birmingham NHS Foundation Trust (United Kingdom); Ilias Tachtsidis, Univ. College London (United Kingdom); Alberto Dalla Mora, Politecnico di Milano (Italy); Hamid Dehghani, The Univ. of Birmingham (United Kingdom); Heidrun Wabnitz, Physikalisch-Technische Bundesanstalt (Germany); Antonio Pifferi, Politecnico di Milano (Italy) [11074-44]

10:45: **The BitMap dataset: an open dataset on performance assessment of diffuse optics instruments**, David Orive-Miguel, CEA-LETI (France) and Grenoble Images Parole Signal Automatique (France); Pranav Lanka, Politecnico di Milano (Italy); Lin Yang, Physikalisch-Technische Bundesanstalt (Germany); Susanna Tagliabue, The Barcelona Institute of Science and Technology (Spain); Aleh Sudakou, Saeed Samaei, Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland); Joshua Deepak Veesa, The Univ. of Birmingham (United Kingdom); Mario Forcione, Univ. Hospitals Birmingham NHS Foundation Trust (United Kingdom); Zuzana Kovacsova, Univ. College London (United Kingdom); Anurag Behera, Politecnico di Milano (Italy); Lionel Hervé, CEA-LETI (France); Turgut Durduran, The Barcelona Institute of Science and Technology (Spain); Adam Liebert, Piotr Sawosz, Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland); Antonio Belli, Univ. Hospitals Birmingham NHS Foundation Trust (United Kingdom); Ilias Tachtsidis, Univ. College London (United Kingdom); Alberto Dalla Mora, Politecnico di Milano (Italy); Jérôme Mars, Laurent Condat, Grenoble Images Parole Signal Automatique (France); Alessandro Torricelli, Politecnico di Milano (Italy); Hamid Dehghani, The Univ. of Birmingham (United Kingdom); Heidrun Wabnitz, Physikalisch-Technische Bundesanstalt (Germany); Antonio Pifferi, Politecnico di Milano (Italy) [11074-45]

11:00: **A solid phantom recipe for biophotonics applications: a step towards anatomically correct 3D tissue phantoms**, Sanathana Konugolu Venkata Sekar, Tyndall National Institute (Italy); Andrea Pacheco, Tyndall National Institute (Ireland) and Univ. College Cork (Ireland); Pierluigi Martella, Tyndall National Institute (Ireland) and Univ. degli Studi di Pavia (Italy); Haiyang Li, Tyndall National Institute (Ireland) and Northeastern Univ. (China); Pranav Lanka, Politecnico di Milano (Italy); Antonio Pifferi, Politecnico di Milano (Italy) and CNR-Istituto di Fotonica e Nanotecnologie (Italy); Stefan Andersson-Engels, Tyndall National Institute (Ireland) and Univ. College Cork (Ireland) [11074-46]

11:15: **Fabrication, measurement, and characterization of standard reference materials of tissue-simulating phantoms with adjustable light scattering and absorption properties**, Jeeseong Hwang, Paul Lemaillet, Sowon Yoon, Nikki Rentz, Hyun-Jin Kim, Thomas A. Germer, Hanh N.D. Le, John Lu, David W. Allen, Kimberly A. Briggman, National Institute of Standards and Technology (USA) [11074-47]

11:30: **Blood-lipid liquid phantom for assessing time and frequency domain tissue oximeter performances**, Lorenzo Spinelli, CNR-Istituto di Fotonica e Nanotecnologie (Italy); Davide Contini, Politecnico di Milano (Italy); Antonio Pifferi, Alessandro Torricelli, Politecnico di Milano (Italy) and CNR-Istituto di Fotonica e Nanotecnologie (Italy); Udo M. Weigel, HemoPhotonics S.L. (Spain); Helene Isler, Daniel Ostojic, UniversitätsSpital Zürich (Switzerland); Heidrun Wabnitz, Physikalisch-Technische Bundesanstalt (Germany); Martin Wolf, UniversitätsSpital Zürich (Switzerland) [11074-48]

11:45: **Digital phantom for time-domain diffuse optical spectroscopy: proof-of-principle experiments**, Heidrun Wabnitz, Lin Yang, Rainer Macdonald, Physikalisch-Technische Bundesanstalt (Germany); Jeeseong Hwang, National Institute of Standards and Technology (USA) [11074-49]

Lunch Break Tue 12:00 to 14:00

ECBO PLENARY SESSION

LOCATION: ROOM 5 ICM GROUND FLOOR TUE 14:00 TO 15:30

Session Chairs: **I. Alex Vitkin**, Univ. Health Network (Canada); **Ronald Sroka**, Laser-Forschungslabor (Germany)

14:00 to 14:05: **Welcome and Introduction**

14:05 to 14:10: **Presentation of the OSA Michael S. Feld Biophotonics Award**

14:10 to 15:30: **Plenary**

Photo Medicine, Radiation Medicine and Nano Medicine: An Emerging Golden Braid

Brian Wilson, Univ. of Toronto (Canada)

Coffee Break Tue 15:30 to 16:00

SESSION 10

LOCATION: ROOM 5 ICM GROUND FLOOR TUE 16:00 TO 17:45

Clinical Application of Diffuse Optics

Session Chairs: **Jana M. Kainerstorfer**, Carnegie Mellon Univ. (USA); **Dirk Grosenick**, Physikalisch-Technische Bundesanstalt (Germany)

16:00: **Deep variational autoencoders for breast cancer tissue modeling and synthesis in SFDI imaging**, Arturo Pardo, Univ. de Cantabria (Spain); José Miguel López-Higuera, Univ. de Cantabria (Spain) and IDIVAL (Spain) and Ctr. de Investigación Biomédica en Red en Bioingeniería, Biomateriales y Nanomedicina (Spain); Brian W. Pogue, Thayer School of Engineering at Dartmouth (USA); Olga M. Conde, Univ. de Cantabria (Spain) and IDIVAL (Spain) and Ctr. de Investigación Biomédica en Red en Bioingeniería, Biomateriales y Nanomedicina (Spain) [11074-50]

16:15: **Machine learning for the derivation of an intracranial pressure index using the waveform of the cerebral blood flow measured non-invasively using fast diffuse correlation spectroscopy**, Jonas B. Fischer, HemoPhotonics S.L. (Spain) and ICFO - Institut de Ciències Fotòniques (Spain) and The Barcelona Institute of Science and Technology (Spain); Ameer Ghouse, Susanna Tagliabue, ICFO - Institut de Ciències Fotòniques (Spain) and The Barcelona Institute of Science and Technology (Spain); Federica Maruccia, Vall d'Hebron Institut de Recerca (Spain) and ICFO - Institut de Ciències Fotòniques (Spain) and The Barcelona Institute of Science and Technology (Spain); Riccardo Zucca, Institute for Bioengineering of Catalonia (Spain) and The Barcelona Institute of Science and Technology (Spain); Udo M. Weigel, HemoPhotonics S.L. (Spain); Juan Sahuquillo, María Antonia Poca, Vall d'Hebron Institut de Recerca (Spain) and Hospital Univ. Vall d'Hebron (Spain); Turgut Durduran, ICFO - Institut de Ciències Fotòniques (Spain) and Institutio Catalana de Recerca i Estudis Avançats (Spain) and The Barcelona Institute of Science and Technology (Spain) [11074-51]

16:30: **Deep neural networks improve diagnostic accuracy of rheumatoid arthritis using diffuse optical tomography**, Hamid Dehghani, The Univ. of Birmingham (United Kingdom) [11074-52]

16:45: **The increase in amplitude of fluctuations of cerebral hemoglobin concentration in respiratory band related to increase in intra-abdominal pressure**, Piotr Sawosz, Magdalena Morawiec, Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland); Wojciech Dabrowski, Medical Univ. of Lublin (Poland); Michal Kacprzak, Przemyslaw Pulawski, Karolina Bejm, Roman Maniewski, Adam Liebert, Nalecz Institute of Biocybernetics and Biomedical Engineering (Poland) [11074-53]

17:00: **TD-fNIRS for diagnosing glaucoma: a clinical pilot study**, Rebecca Re, Politecnico di Milano (Italy); Dario Messenio, ASST Fatebenefratelli Sacco (Italy); Lorenzo Spinelli, CNR-Istituto di Fotonica e Nanotecnologie (Italy); Ileana Pirovano, Davide Contini, Politecnico di Milano (Italy); Renato Colombo, ASST Fatebenefratelli Sacco (Italy); Rinaldo Cubeddu, Politecnico di Milano (Italy); Alessandro Torricelli, Politecnico di Milano (Italy) and CNR-Istituto di Fotonica e Nanotecnologie (Italy) [11074-54]

17:15: **Pilot measurement of the microvascular blood flow of thyroid nodules by diffuse optics**, Giuseppe Lo Presti, ICFO - Institut de Ciències Fotòniques (Spain); Gloria Aranda, Institut d'Investigacions Biomèdiques Agustí Pi Sunyer (Spain); Davide Contini, Politecnico di Milano (Italy); Sixte de Fraguier, IMV imaging (United Kingdom); Lorenzo Cortese, ICFO - Institut de Ciències Fotòniques (Spain); Alberto Dalla Mora, Politecnico di Milano (Italy); Ramon Gomis, Felicia Hanzu, Mireia Mora Porta, Institut d'Investigacions Biomèdiques Agustí Pi Sunyer (Spain); Antonio Pifferi, Politecnico di Milano (Italy); Bogdan Rosinski, Vermon S.A. (France); Sanathana Konugolu Venkata Sekar, Politecnico di Milano (Italy); Mattia Squarcia, Institut d'Investigacions Biomèdiques Agustí Pi Sunyer (Spain); Paola Taroni, Politecnico di Milano (Italy); Udo M. Weigel, HemoPhotonics S.L. (Spain); Turgut Durduran, ICFO - Institut de Ciències Fotòniques (Spain) [11074-55]

17:30: **Diffuse reflectance spectroscopy for onchocerca volvulus nodules characterization**, Anne Planat-Chrétien, Michel Berger, CEA-LETI (France); Belen Pedrique, Drugs for Neglected Diseases Initiative (Switzerland); Samuel Wanji, REFOTDE (Cameroon) [11074-56]

THURSDAY 27 JUNE

LUNCH BREAK AND POSTER SESSION -THURSDAY

ROOM: ICM HALL B0 THU 12:00 TO 14:00

Posters will be featured on Monday, Tuesday, and Wednesday. Each day represents a different set of posters. To see which posters are included each day, please see the individual conference programs.

Poster authors: Please set up posters on the morning of your session before or during the morning coffee break. Plan to stand by your poster to discuss it with session attendees on the day of your session. Remove your poster following the poster session concludes as posters left on the boards will be discarded.

Towards to deep neural network application with limited training data: synthesis of melanoma's diffuse reflectance spectral images, Ilze Lihacova, Univ. of Latvia (Latvia); Katrina Bolocko, Dmitrijs Bliznuzs, Riga Technical Univ. (Latvia); Dilshat Uteshev, C.T. Co., Ltd. (Latvia); Alexey Lihachev, Univ. of Latvia (Latvia); Yuriy Chizhov, Riga Technical Univ. (Latvia); Andrey Bondarenko, C.T. Co., Ltd. (Latvia) [11074-66]

CONFERENCE 11075

LOCATION: ROOM 7 “DENNIS GÁBOR” HALL A1 GROUND FLOOR

Wednesday–Thursday 26–27 June 2019 • Proceedings of SPIE Vol. 11075

Novel Biophotonics Techniques and Applications

Conference Chairs: **Arjen Amelink**, Netherlands Organization for Applied Scientific Research TNO (Netherlands); **Seemantini K. Nadkarni**, Wellman Ctr. for Photomedicine (USA)

Program Committee: **Dirk J. Faber**, Academisch Medisch Ctr. (Netherlands); **DongKyun Kang**, College of Optical Sciences, The Univ. of Arizona (USA); **Venkataraman Krishnaswamy**, Thayer School of Engineering at Dartmouth (USA); **Linbo Liu**, Nanyang Technological Univ. (Singapore); **Igor V. Meglinski**, Univ. of Otago (New Zealand); **Guenther Paltauf**, Karl-Franzens-Univ. Graz (Austria); **Dvir Yelin**, Technion-Israel Institute of Technology (Israel)

TUESDAY 25 JUNE

LUNCH BREAK AND POSTER SESSION - TUESDAY

ROOM: ICM HALL B0 TUE 12:00 TO 14:00

Posters will be featured on Monday, Tuesday, and Wednesday. Each day represents a different set of posters. To see which posters are included each day, please see the individual conference programs.

Poster authors: Please set up posters on the morning of your session before or during the morning coffee break. Plan to stand by your poster to discuss it with session attendees on the day of your session. Remove your poster following the poster session concludes as posters left on the boards will be discarded.

Speckle sensors: laser speckle patterns for diagnostics in dermatology, Michael Zieger, Steffen Springer, Claudia Deumer, SRH Wald-Klinikum Gera GmbH (Germany); Rainer Riesenberger, Andreas Wuttig, Mario Kanka, Sarmiza E. Stanca, Leibniz-Institut für Photonische Technologien e.V. (Germany); Carina Reble, Georg Khazaka, Courage+Khazaka Electronic GmbH (Germany); Martin Kaatz, SRH Wald-Klinikum Gera GmbH (Germany) [11075-59]

WEDNESDAY 26 JUNE

SESSION 1

LOCATION: ROOM 7 “DENNIS GÁBOR”

HALL A1 GROUND FLOOR WED 8:30 TO 10:00

Physiology and Flow

Session Chairs: **Arjen Amelink**, TNO (Netherlands); **Seemantini K. Nadkarni**, Wellman Ctr. for Photomedicine (USA)

8:30: **Optical interferometric temperature sensors for intravascular blood flow measurements**, Elizabeth Carr, Eleanor Mackle, Univ. College London (United Kingdom); Malcolm Finlay, Barts Heart Ctr. (United Kingdom); Charles Mosse, Jo Coote, Adrien Desjardins, Ioannis Papakonstantinou, Univ. College London (United Kingdom) [11075-1]

8:45: **Assessment of optical coherence tomography speckle patterns for low scatterer concentrations in application to lymphatic vessels mapping: simulation study and in vivo demonstrations**, Lev A. Matveev, Institute of Applied Physics of the RAS (Russian Federation); Valentin Demidov, Univ. of Toronto (Canada); Alexander L. Matveyev, Institute of Applied Physics of the RAS (Russian Federation); Marina A. Sirotkina, Privolzhsky Research Medical Univ. (Russian Federation); Dmitry A. Karashtin, Alexander A. Moiseev, Institute of Applied Physics of the RAS (Russian Federation); Ivan Popov, Univ. of Toronto (Canada); Alexander A. Sovetsky, Institute of Applied Physics of the RAS (Russian Federation); Olga Demidova, Seneca College of Applied Arts and Technology (Canada); Grigory V Gelikonov, Institute of Applied Physics of the RAS (Russian Federation); Costel Fluerau, National Research Council Canada (Canada); Elena V. Zagaynova M.D., Natalia D. Gladkova, Privolzhsky Research Medical Univ. (Russian Federation); Vladimir Y. Zaitsev, Institute of Applied Physics of the RAS (Russian Federation); I. Alex Vitkin, Univ. of Toronto (Canada) [11075-2]

9:00: **Transcranial Laser Speckle Contrast Imaging of Brain Vasculature Under the Broken Ergodicity Conditions**, Anton Y. Sdobnov, Alexander Bykov, Alexey Popov, Univ. of Oulu (Finland); Vyacheslav Kalchenko, Weizmann Institute of Science (Israel); Igor Meglinski, Univ. of Oulu (Finland) [11075-3]

9:15: **Towards direct measurements of remitted photon path lengths in skin: kinetic studies in the range 550–790 nm**, Janis Spigulis, Vanesa Lukinsone, Martins Osis, Janis Latvels, Ilona Kuzmina, Uldis Rubins, Univ. of Latvia (Latvia) [11075-4]

9:30: **Surface Enhanced Raman Spectroscopy (SERS) optical fibers for remote sensing**, Aditya Pandya, J. Carl Kumaradas, Alexandre Douplik, Ryerson Univ. (Canada) [11075-5]

9:45: **Studies of age-related changes in blood perfusion coherence using wearable blood perfusion sensor system**, Yulia I. Loktionova, Orel State Univ. named after I.S. Turgenev (Russian Federation); Evgeny A. Zhrebtsov, Research and Development Ctr. of Biomedical Photonics, Orel State Univ. (Russian Federation) and Optoelectronics and Measurement Techniques Unit, Univ. of Oulu (Finland); Elena V. Zharkikh, Igor O. Kozlov, Angelina I. Zhrebtsova, Research and Development Ctr. of Biomedical Photonics, Orel State Univ. (Russian Federation); Victor V. Sidorov, SPE “LAZMA” (Russian Federation); Ilya E. Rafailov, Aston Medical Technology Ltd. (United Kingdom); Andrey V. Dunaev, Orel State Univ. named after I.S. Turgenev (Russian Federation) and Research and Development Ctr. of Biomedical Photonics (Russian Federation); Edik U. Rafailov, Aston Institute of Photonic Technologies, Aston Univ. (United Kingdom) and Aston Medical Technology Ltd. (United Kingdom) [11075-6]

Coffee Break Wed 10:00 to 10:30

SESSION 2

LOCATION: ROOM 7 “DENNIS GÁBOR”

HALL A1 GROUND FLOOR WED 10:30 TO 12:00

Multimodal and Clinical Imaging

Session Chair: **Guenther Paltauf**, Karl-Franzens-Univ. Graz (Austria)

10:30: **Combined fluorescence lifetime imaging-optical coherence tomography for in vivo label-free assessment of high-risk atherosclerotic plaque (Invited Paper)**, Hyeong Soo Nam, Hanyang Univ. (Korea, Republic of); Sunwon Kim, Korea Univ. Ansan Hospital (Korea, Republic of); Woo Jae Kang, KAIST (Korea, Republic of); Min Woo Lee, Jeongmoo Han, Hanyang Univ. (Korea, Republic of); Joon Woo Song, Korea Univ. Guro Hospital (Korea, Republic of); Yosuf S. Ahmed, Aurios Medical, Inc. (Korea, Republic of); Wang-Yuhl Oh, KAIST (Korea, Republic of); Hyungil Kim, Aurios Medical, Inc. (Korea, Republic of); Jin Won Kim, Korea Univ. Guro Hospital (Korea, Republic of); Hongki Yoo, Hanyang Univ. (Korea, Republic of) [11075-7]

11:00: **Diagnostics of high grade cervical intraepithelial neoplasia with Mueller matrix polarimetry**, Tatiana Novikova, CNRS, Ecole Polytechnique (France); Meredith Kupinski, College of Optical Sciences, The Univ. of Arizona (USA); Matthieu Boffety, Institut d’Optique Graduate School (France); Razvigor Ossikovski, Angelo Pierangelo, CNRS, Ecole Polytechnique (France); Jean Rehbinder, CNRS (France); Jérémy Vizet, CNRS, Ecole Polytechnique (France); François Goudail, Institut d’Optique Graduate School (France) [11075-8]

11:15: **Design and evaluation of two imaging systems for very wide field fluorescence microscopy**, Isaure Le Cardinal de Kernier, CEA-LETI (France); Nelly Rongeat, HORIBA ABX S.A.S. (France); Sophie Morales, CEA-LETI (France); Serge Monneret, Institut Fresnel (France); Pierre Blandin, CEA-LETI (France) [11075-9]

11:30: **Smartphone-based epifluorescence microscope for fresh tissue imaging (Invited Paper)**, Wenbin Zhu, College of Optical Sciences, The Univ. of Arizona (USA); Giacomo Pirovano, Memorial Sloan-Kettering Cancer Ctr. (USA); Cheng Gong, Nachiket Kulkarni, Christopher D. Nguyen, College of Optical Sciences, The Univ. of Arizona (USA); Christian Brand, Summit Biomedical Imaging, LLC (USA); Thomas Reiner, Memorial Sloan-Kettering Cancer Ctr. (USA); DongKyun Kang, College of Optical Sciences, The Univ. of Arizona (USA) [11075-10]

LUNCH BREAK AND POSTER SESSION - WEDNESDAY

ROOM: ICM HALL B0 WED 12:00 TO 14:00

Posters will be featured on Monday, Tuesday, and Wednesday. Each day represents a different set of posters. To see which posters are included each day, please see the individual conference programs.

Poster authors: Please set up posters on the morning of your session before or during the morning coffee break. Plan to stand by your poster to discuss it with session attendees on the day of your session. Remove your poster following the poster session concludes as posters left on the boards will be discarded.

Optical trapping dynamics probed by real-time back-scatter imaging, Anita Devi, Indian Institute of Science Education and Research Mohali (India) [11075-32]

Activity of smooth muscle cells after short-term heating/stretch-fixing up to 96 hours, Nao Kaminota, Keio Univ. (Japan) [11075-55]

SESSION 3

**LOCATION: ROOM 7 “DENNIS GÁBOR”
HALL A1 GROUND FLOOR WED 14:00 TO 15:30**

Cell Physiology and Imaging I

Session Chair: **Dirk J. Faber**, Amsterdam UMC (Netherlands)

14:00: Microlaser-based contractility sensing in single cardiomyocytes and whole hearts (*Invited Paper*), Marcel Schubert, Lewis Woolfson, Isla R. M. Barnard, Andrew Morton, Becky Casement, Gavin B. Robertson, Gareth B. Miles, Samantha J. Pitt, Univ. of St. Andrews (United Kingdom); Carl S. Tucker, The Queen’s Medical Research Institute, The Univ. of Edinburgh (United Kingdom); Malte C. Gather, Univ. of St. Andrews (United Kingdom) . [11075-11]

14:30: Influence of interaction time on the red blood cell (dis)aggregation dynamics in vitro studied by optical tweezers, Ruixue Zhu, Tatiana Avsievich, Alexey Popov, Igor Meglinski, Univ. of Oulu (Finland) . . . [11075-12]

14:45: Probing living cells by terahertz attenuated total reflection. Application to permeabilization dynamics., Guilhem Gallot, Xijun Zheng, Marianne Grognot, Ecole Polytechnique (France); Antoine Azan, Tomas Garcia-Sanchez, Lucie Descamps, Lluís M. Mir, Gustave Roussy (France) . [11075-13]

15:00: Combined use of optical tweezers and scanning electron microscopy to reveal influence of nanoparticles on red blood cells interactions, Tatiana Avsievich, Yana V. Tarakanchikova, Alexey Popov, Univ. of Oulu (Finland); Artashes Karmenyan, National Yang-Ming Univ. (Taiwan); Alexander Bykov, Igor Meglinski, Univ. of Oulu (Finland) [11075-14]

15:15: Label-free monitoring of cell death using terahertz ATR spectroscopy, Yi Zou, China Academy of Engineering Physics (China) [11075-15]

Coffee Break Wed 15:30 to 16:00

SESSION 4

**LOCATION: ROOM 7 “DENNIS GÁBOR”
HALL A1 GROUND FLOOR WED 16:00 TO 17:30**

Cell Physiology and Imaging II

Session Chair: **Dvir Yelin**, Technion-Israel Institute of Technology (Israel)

16:00: Hydrogels for light delivery in in vivo optogenetic applications (*Invited Paper*), Sonja Johannsmeier, Laser Zentrum Hannover e.V. (Germany); Maria L. Torres-Mapa, Institute of Quantum Optics, Leibniz Univ. Hannover (Germany); Tammo Ripken, Dag Heinemann, Laser Zentrum Hannover e.V. (Germany); Alexander Heisterkamp, Institute of Quantum Optics, Leibniz Univ. Hannover (Germany) and Laser Zentrum Hannover eV (Germany) . . . [11075-16]

16:30: Anesthesia affects forepaw motor output and movement complexity during optogenetic light-based motor mapping, Trevor Voss, Washington Univ. in St. Louis (USA) [11075-17]

16:45: Results on identification of bacteria aging in complex environmental samples using Raman spectroscopy, Véronique Rebuffel, Jean-Charles Baritoux, Emeric Bergmann, Pierre Marcoux, CEA-LETI (France); Isabelle Espagnon, CEA-Grenoble (France); Sophie Morales, CEA-LETI (France) [11075-18]

17:00: Delayed Luminescence for in vitro study of mitochondrial dysfunctions in neurodegenerative diseases, Rosaria Grasso, Univ. degli Studi di Catania (Italy); Rosalia Pellitteri, Institute of Neurological Sciences, Italian National Research Council (Italy); Francesco Musumeci, Rosaria V. Rapicavoli, Giovanni Sposito, Antonio Triglia, Univ. degli Studi di Catania (Italy); Agata Scordino, Univ. degli Studi di Catania (Italy) and Istituto Nazionale di Fisica Nucleare, Lab. Nazionali del Sud (Italy); Agata Campisi, Univ. degli Studi di Catania (Italy) [11075-19]

17:15: Laser Speckle Micro-rheology for investigating the biomechanics of breast cancer progression, Zeinab Hajarian Kashany, Elena F Brachtel, Diane Tshikudi, Seemantini Nadkarni, Harvard Medical School (USA) [11075-67]

THURSDAY 27 JUNE

SESSION 5

**LOCATION: ROOM 7 “DENNIS GÁBOR”
HALL A1 GROUND FLOOR THU 8:30 TO 10:00**

Sensing, Diagnostics and Therapy I

Session Chair: **DongKyun Kang**, College of Optical Sciences, The Univ. of Arizona (USA)

8:30: Deep-tissue label-free quantitative optical coherence projection tomography (*Invited Paper*), Jeroen Kalkman, Jelle Van der Horst, Technische Univ. Delft (Netherlands) [11075-20]

9:00: Use of dynamic light scattering for assessing acute pain, Adi Schejter Bar-Noam, Elfi-Tech Ltd. (Israel); Suzanne Broens, Leiden Univ. Medical Ctr. (Netherlands); Ilya Fine, Elfi-Tech Ltd. (Israel); Louis Shenkman M.D., Sackler School of Medicine (Israel); Monique van Velzen, Marieke Niesters M.D., Albert Dahan M.D., Leiden Univ. Medical Ctr. (Netherlands) [11075-21]

9:15: High accuracy platelet counting using lensfree imaging, Damien Isèbe, Estelle Gremion, Aurélien Daynès, Benoit Thouy, Nelly Rongeat, Stéphanie Bressieux, Anaïs Ali-Cherif, HORIBA ABX S.A.S. (France); Véronique Rebuffel, Pierre Joly, Sophie Morales, Olivier Cioni, Pierre Blandin, Univ. Grenoble Alpes, CEA-LETI (France) [11075-22]

9:30: Novel method for measuring blood pressure from the finger using an optical system based on dynamic light scattering, Adi Schejter Bar-Noam, Albert Bravo, Elfi-Tech Ltd. (Israel); Louis Shenkman M.D., Sackler School of Medicine (Israel); Alexander Kaminsky, Elfi-Tech Ltd. (Israel); Naomi Nacasch M.D., Meir Medical Ctr. (Israel); Ilya Fine, Elfi-Tech Ltd. (Israel) [11075-23]

9:45: Correlation of mosquito wing-beat harmonics to aid in species classification and flight heading assessment, Samuel Jansson, Lund Univ. (Sweden) [11075-24]

Coffee Break Thu 10:00 to 10:30



SESSION 6

LOCATION: ROOM 7 "DENNIS GÁBOR"

HALL A1 GROUND FLOOR THU 10:30 TO 12:00

Sensing, Diagnostics and Therapy II

Session Chair: **Seemantini K. Nadkarni**, Wellman Ctr. for Photomedicine (USA)

10:30: **Influence of scattering and birefringence on the phase shift between electric field components of polarized light propagated through biological tissues**, Mariia A. Borovkova, Alexander Bykov, Alexey Popov, Igor Meglinski, Univ. of Oulu (Finland) [11075-25]

10:45: **Multifunctional bioresorbable optical fibers for theranostics**, Daniel Milanese, Politecnico di Torino (Italy) [11075-26]

11:00: **Tumor growth monitoring using polarized light**, Briséis Varin, Jean Rehlinger, Jean Dellinger, Christian Heinrich, Jordane Schmidt, Dominique Bagnard, Jihad Zallat, Univ. de Strasbourg (France) [11075-27]

11:15: **Raman spectroscopy using spatial light modulators**, Zhiyu Liao, Faris Sinjab, Ioan Nottingher, The Univ. of Nottingham (United Kingdom) [11075-28]

11:30: **Disposable and versatile optical sensors for SERS analysis of liquid samples by fiber-based spectroscopy**, Caterina Credi, LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy) and Univ. degli Studi di Firenze (Italy); Olga Bibikova, art photonics GmbH (Germany); Caterina Dallari, LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy); Bruno Tiribilli, Istituto dei Sistemi Complessi (Italy); Fulvio Ratto, Sonia Centi, Roberto Pini, Istituto di Fisica Applicata "Nello Carrara" (Italy); Viacheslav Artyushenko, art photonics GmbH (Germany); Riccardo Cicchi, LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy) and Istituto Nazionale di Ottica (Italy); Francesco S. Pavone, LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy) and Istituto Nazionale di Ottica (Italy) and Univ. degli Studi di Firenze (Italy) [11075-29]

11:45: **Anticoagulation and hemostasis monitoring during cardiac surgery with a drop of whole blood using a novel optical sensor**, Diane M. Tshikudi, Massachusetts General Hospital (USA) [11075-68]

LUNCH BREAK AND POSTER SESSION - THURSDAY

ROOM: ICM HALL B0 THU 12:00 TO 14:00

Posters will be featured on Monday, Tuesday, and Wednesday. Each day represents a different set of posters. To see which posters are included each day, please see the individual conference programs.

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Locally adaptive optical protection filtering for human eyes, Vasily A. Ezhov, A.M. Prokhorov General Physics Institute of the RAS (Russian Federation) [11075-30]

Comparative study of quantitative methods to determine component concentration for water-free biotissue phantom, Ravshanjon Nazarov, Tianmiao Zhang, Mikhail Khodzitsky, Petr Demchenko, ITMO Univ. (Russian Federation) [11075-31]

Fluorescence spectroscopy as a tool for discriminating Escherichia coli contaminated meat, Mikhail Mekhregin, Igor Meshkovskii, ITMO Univ. (Russian Federation); Lidia Kaftyreva, St. Petersburg Pasteur Institute (Russian Federation); Vladislav Guriev, ITMO Univ. (Russian Federation) [11075-33]

High resolution retinal imaging based on adaptive optics and deep learning, Fei Xiao, Junlei Zhao, Yun Dai, Haoxin Zhao, Institute of Optics and Electronics, Chinese Academy of Sciences (China) [11075-34]

Plasmonic nanomaterials: applications in sensing and highly specific clinical diagnostics, Patricia M. A. Farias, Univ. Federal de Pernambuco (Brazil) and Centro de Tecnologias Estratégicas do Nordeste (Brazil) and Phornano Holding GmbH (Austria); Arnaldo C.D.S. Andrade, Univ. Federal de Pernambuco (Brazil); Olavo D. F. Cardozo, Univ. Federal de Pernambuco (Brazil) and Phornano Holding GmbH (Austria); Andreas Stingl, Phornano Holding GmbH (Austria) [11075-35]

Effect of binocular higher-order aberration correction on accommodative fluctuations using chaos theory analysis, Junlei Zhao, Institute of Optics and Electronics, Chinese Academy of Sciences (China); Fei Xiao, Institute of Optics and Electronics, Chinese Academy of Sciences (China); Yun Dai, Haoxin Zhao, Jian kang, Institute of Optics and Electronics, Chinese Academy of Sciences (China) [11075-36]

Tissue polarimetric study I: In search of reference parameters and depolarizing Mueller matrix model of ex vivo colon samples, Deyan Ivanov, Bulgarian Academy of Sciences (Bulgaria); Ekaterina Borisova, Institute of Electronics, BAS (Bulgaria); Lian Nedelchev, Dimana Nazarova, Institute of Optical Materials and Technologies (Bulgaria); Tzsanislava Genova, Institute of Electronics, BAS (Bulgaria); Razvigor Ossikovski, LPICM, Ecole Polytechnique (France) [11075-37]

Optic Reflex Probes for fluorescent and UV-VIS-NIR spectroscopy based on novel types of multimode fiber optics bundles. (CENI-IOF / FIRE Russian Academy of Science, LLC Optofiber, Moscow), Georgy Danielyan, A.M. Prokhorov General Physics Institute of the RAS (Russian Federation); Ighor Shilov, Aleksander Makovetskii, Aleksandr Zamyatin, Leonid Kochmarev, Kotelnikov Institute of Radio Engineering and Electronics of RAS (Russian Federation); Sergey Savosin, LLC "Optofiber" (Russian Federation) [11075-38]

Solid heterogeneous phantoms for multimodal ultrasound and diffuse optical imaging: an outcome of the SOLUS project for standardization, Laura Di Sieno, Rinaldo Cubeddu, Politecnico di Milano (Italy); Hélène Sportouche, David Savéry, SuperSonic Imagine SA (France); Sanathana Konugolu Venkata Sekar, Politecnico di Milano (Italy); Bogdan Rosinski, Vermon S.A. (France); Andrea Farina, CNR-Istituto di Fotonica e Nanotecnologie (Italy); Edoardo Ferocino, Pranav Lanka, Paola Taroni, Antonio Pifferi, Alberto Dalla Mora, Politecnico di Milano (Italy) [11075-39]

The use of fluorescent sensors in the biomedical application of microwaves, Natalia Haiduk, Andriy Yakunov, Taras Shevchenko National Univ. of Kyiv (Ukraine) [11075-41]

Terahertz spectroscopy of malignant brain gliomas and the perspectives of optical clearing in neurosurgery, Guzel R. Musina, Nikita V. Chernomyrdin, Arsenii A. Gavdush, A.M. Prokhorov General Physics Institute of the RAS (Russian Federation) and Bauman Moscow State Technical Univ. (Russian Federation); Irina N. Dolganova, Bauman Moscow State Technical Univ. (Russian Federation) and Institute of Solid State Physics of the Russian Academy of Sciences (Russian Federation); Kirill M. Malakhov, A.M. Prokhorov General Physics Institute of the RAS (Russian Federation) and Bauman Moscow State Technical Univ. (Russian Federation); Natalya A. Naumova, Bauman Moscow State Technical Univ. (Russian Federation); Valery V. Tuchin, Saratov State Univ. (Russian Federation) and Tomsk State Univ. (Russian Federation) and Institute of Precision Mechanics and Control, RAS (Russian Federation); Kirill I. Zaytsev, A.M. Prokhorov General Physics Institute of the RAS (Russian Federation) and Bauman Moscow State Technical Univ. (Russian Federation) [11075-42]

Research on the signal of neuron firing evoked by near infrared light, Lidong Xing, Nanjing Univ. of Aeronautics and Astronautics (China) [11075-43]

Single blood cell Raman spectroscopy reveals elevated haemoglobin content in poikilocytosis, Suet Man Tsui, Condon Lau, City Univ. of Hong Kong (Hong Kong, China) [11075-44]

Lithium from breast milk of medicated mothers affects the thyroid and kidney functions of infants, Irfan Ahmed, Condon Lau, City Univ. of Hong Kong (Hong Kong, China) [11075-45]

The features measurement of morphology changing of different cells line by atomic force microscopy, Yana V. Tarakanchikova, Univ. of Oulu (Finland); Nadezhda Besedina, Albert Muslimov, Anton Bukatin, St. Petersburg National Research Academic Univ. of the Russian Academy of Sciences (Russian Federation); Dmitry Gorin, Skoltech Ctr. of Photonics & Quantum Materials, Skolkovo Institute of Science and Technology (Russian Federation); Alexey Popov, Igor Meglinski, Univ. of Oulu (Finland) [11075-46]

Comparative analysis of cultivation method for matcha green tea leaves by label-free multimodal microspectroscopy, Ryosuke Shiomi, Tokushima Univ. (Japan) [11075-47]

Laser induced functionalized graphene oxides for both multiphoton imaging and near-infrared photothermal therapy, Seung Won Jun, Chang-Seok Kim, Pusan National Univ. (Korea, Republic of) [11075-48]

Combined Multi-Wavelength Laser Speckle Contrast Imaging and Diffuse Reflectance Imaging for Skin Perfusion Assessment, Anton Y. Sdobnov, Alexander Bykov, Alexey Popov, Univ. of Oulu (Finland); Ilze Lihacova, Alexey Lihachev, Janis Spigulis, Univ. of Latvia (Latvia); Igor Meglinski, Univ. of Oulu (Finland) [11075-49]

Zeolite magnetic nano/micro-particles for adsorption, delivery and release of photodynamic dyes, Vladimir A. Hovhannisyann, National Chiao Tung Univ. (Taiwan); Katarina Sipošova, Andrej Musatov, Zuzana Mitroova, Institute of Experimental Physics SAS (Slovakia); Shean-Jen Chen, National Chiao Tung Univ. (Taiwan) [11075-50]

Hollow gold nanoshells modified with PEG - synthesis and application as photothermal agents, Ilona Grabowska-Jadach, Marcin Drozd, Dominika Kalinowska, Mariusz Pietrzak, Zuzanna Iwon, Elzbieta Malinowska, Zbigniew Brzózka, Artur Dybko, Warsaw Univ. of Technology (Poland) [11075-51]

A fiber based in vitro optical signal diagnosis technique for interspecies transmissibility, Hyun Jin Bang, Seung Rag Lee, Byungyeon Kim, Kiri Lee, Minsuk Lee, Sung Jun Hong, Osong Medical Innovation Foundation (Korea, Republic of); Yong Shin, Asan Medical Institute of Convergence Science and Technology (Korea, Republic of); Byung Jun Park, Osong Medical Innovation Foundation (Korea, Republic of) [11075-52]

Assessing calvarial defect healing with trace element analysis and Raman spectroscopy, Rafay Ahmed, Condon Lau, City Univ. of Hong Kong (Hong Kong, China) [11075-53]

Hybrid technique for characterization of human skin using a combined machine learning and inverse Monte Carlo approach, Nina Verdel, Jovan Tanevski, Sašo Džeroski, Jožef Stefan Institute (Slovenia); Boris Majaron, Jožef Stefan Institute (Slovenia) and Faculty of Mathematics and Physics (Slovenia) [11075-54]

Modular multi-wavelength LED based light source for hyperspectral imaging, Rok Dolenc, Luka Rogelj, Jošt Stergar, Univ. of Ljubljana (Slovenia); Matija Milanic, Univ. of Ljubljana (Slovenia) and Jožef Stefan Institute (Slovenia) [11075-56]

Novel optical technologies for ultrashort pulsed laser surgery, Donald Risbridger, Heriot-Watt Univ. (United Kingdom) [11075-57]

Influence of healthy skin baseline on bruise dynamics parameters as assessed by optical methods, Ana Marín, Univ. of Ljubljana (Slovenia); Nina Verdel, Luka Vidovič, Jožef Stefan Institute (Slovenia); Matija Milančič, Univ. of Ljubljana (Slovenia) and Jožef Stefan Institute (Slovenia); Boris Majaron, Jožef Stefan Institute (Slovenia) and Univ. of Ljubljana (Slovenia) [11075-58]

Automated microorganisms activity detection on the early growth stage using artificial neural networks, Dmitrijs Bliznuks, Riga Technical Univ. (Latvia); Alexey Lihachev, Univ. of Latvia, Institute of Atomic Physics and Spectroscopy (Latvia); Janis Liepins, Univ. of Latvia, Institute of Microbiology and Biotechnology (Latvia); Dilshat Uteshev, C.T.Co. Ltd (Latvia); Yuriy Chizhov, Riga Technical Univ. (Latvia); Andrey Bondarenko, C.T.Co. Ltd (Latvia); Katrina Bolocko, Riga Technical Univ. (Latvia) [11075-60]

Assessment of meat freshness and spoilage detection utilizing visible to near-infrared spectroscopy, Motahareh Peyvasteh, Alexey Popov, Alexander Bykov, Igor Meglinski, Optoelectronics and Measurement Techniques Lab. (Finland) [11075-61]

Influence of silver-core gold-shell nanoparticle parameters on the variation of surface-enhanced Raman spectra, Maciej S. Wróbel, Katarzyna Karpienko, Marcin Marzejon, Filip Sadura, Gdansk Univ. of Technology (Poland); Soumik Siddhanta, Ishan Barman, Johns Hopkins Univ. (USA); Janusz Smulko, Gdansk Univ. of Technology (Poland) [11075-62]

Gold nanoparticles-enhanced gold-silver alloy surface plasmon resonance sensor for the detection of C-reactive protein, Ru-meng Yi, Zhe Zhang, Beijing Jiaotong Univ (China); Chun-xiu Liu, Zhi-mei Qi, Institute of Electronics, Chinese Academy of Sciences (China) [11075-63]

Early diagnostics of ischemia by means of electrocardiographic signals processing using acousto-optic Fourier processors with time integration, Boris V Gurevich, Institute for analytical instrumentaton, RAS (Russian Federation) [11075-64]

Colloidally stable silicon quantum dots as temperature biosensors, Francesco Romano, Università di Bologna (Italy) [11075-65]



CONFERENCE 11076

LOCATION: ROOM 6 "CHARLES TOWNES" HALL A1 GROUND FLOOR

Wednesday–Thursday 26–27 June 2019 • Proceedings of SPIE Vol. 11076

Advances in Microscopic Imaging

Conference Chairs: **Emmanuel Beaupaire**, Ecole Polytechnique (France); **Francesco Saverio Pavone**, LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy)

Program Committee: **Paul J. Campagnola**, Univ. of Wisconsin-Madison (USA); **Laurent Cognet**, Univ. de Bordeaux (France); **Vincent R. Daria**, The Australian National Univ. (Australia); **Valentina Emiliani**, Lab. de neurophysiologie et nouvelles microscopies (France); **Paul M. W. French**, Imperial College London (United Kingdom); **Irene Georgakoudi**, Tufts Univ. (USA); **Rainer Heintzmann**, Leibniz-Institut für Photonische Technologien e.V. (Germany); **Jan Huisken**, Morgridge Institute for Research (Germany); **U. Valentin Nägerl**, Univ. de Bordeaux (France); **Jerome Mertz**, Boston Univ. (USA); **Nozomi Nishimura**, Cornell Univ. (USA); **Dan Oron**, Weizmann Institute of Science (Israel); **Shy Shoham**, NYU Langone Health (Israel); **Peter T. C. So**, Massachusetts Institute of Technology (USA); **Vinod Subramaniam**, Vrije Univ. Amsterdam (Netherlands); **Ivo Vanzetta**, Institut de Neurosciences de la Timone (France); **Alipasha Vaziri**, The Rockefeller Univ. (USA)

WEDNESDAY 26 JUNE

SESSION 1

LOCATION: ROOM 6 "CHARLES TOWNES"
HALL A1 GROUND FLOOR WED 8:30 TO 9:50

Super-Resolution Imaging

Session Chair: **Francesco Saverio Pavone**, LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy)

8:30: **Adaptive Holographic Region of Interest Illumination with Oblique Angles for use in Single Molecule Localization Microscopy** (*Invited Paper*), Alexander Jügler, Jan Becker, Ronny Förster, Leibniz-Institut für Photonische Technologien e.V. (Germany); Rainer Heintzmann, Leibniz-Institut für Photonische Technologien e.V. (Germany) and Institute of Physical Chemistry and Abbe Ctr. of Photonics, Friedrich-Schiller-University Jena (Germany) [11076-1]

8:50: **Robust online image processing for high-throughput super-resolution localization microscopy**, Hongqiang Ma, Univ of Pittsburgh (USA); Jianquan Xu, Yang Liu, Univ. of Pittsburgh (USA) [11076-2]

9:05: **Super resolution polarized imaging of the organization of protein assemblies in cells**, Caio Vaz Rimoli, Institut Fresnel (France); Cesar Augusto Valades Cruz, Institut Curie (France); Valentina Curcio, Manos Mavrikis, Sophie Brasselet, Institut Fresnel (France) [11076-3]

9:20: **Automated multiwell plate STORM: towards open source super-resolved high content analysis**, Frederik Görlitz, Jonathan Lightley, Sunil Kumar, Edwin Garcia, Imperial College London (United Kingdom); Ming Yan, Northwest Institute of Nuclear Technology (China); Riccardo Wysoczanski, Jonathan R. Baker, Peter J. Barnes, Ian Munro, Louise E. Donnelly, Christopher Dunsby, Mark A. A. Neil, Paul M. W. French, Imperial College London (United Kingdom) [11076-4]

9:35: **Advances in microscopic imaging at the nanoscale using soft X-rays and extreme ultraviolet (EUV) from a compact laser plasma light source**, Henryk Fiedorowicz, Przemyslaw Wachulak, Andrzej Bartnik, Wojškowa Akademia Techniczna im. Jaroslawa Dabrowskiego (Poland) [11076-6]

Coffee Break Wed 9:50 to 10:35

SESSION 2

LOCATION: ROOM 6 "CHARLES TOWNES"
HALL A1 GROUND FLOOR WED 10:35 TO 12:15

Neurophotronics

Session Chair: **Hervé Rigneault**, Institut Fresnel (France)

10:35: **Chromatic serial multiphoton microscopy for multicolor imaging of large brain volumes** (*Invited Paper*), Lamiae Abdeladim, Katherine S. Matho, Ecole Polytechnique, CNRS (France); Solène Claveul, Sorbonne Univ. (France); Pierre Mahou, Jean-Marc Sintès, Xavier Solinas, Ecole Polytechnique, CNRS (France); Ignacio Arganda-Carreras, IKERBASQUE, Basque Foundation for Science (Spain); Anatole Chessel, Ecole Polytechnique, CNRS (France); Steve Turney, Jeff W. Lichtman, Harvard Univ. (USA); Alexis-Pierre Bemelmans, CEA-Paris-Saclay (France); Karine Loulier, Sorbonne Univ. (France); Willy Supatto, Ecole Polytechnique, CNRS (France); Jean Livet, Sorbonne Univ. (France); Emmanuel Beaupaire, Ecole Polytechnique, CNRS (France) [11076-7]

10:55: **Label-free imaging of bipolar cell axons in mouse retina by second-harmonic generation** (*Invited Paper*), Hyungsik Lim, Hunter College (USA); Festa Bucinca-Cupallari, The Graduate Ctr., CUNY (USA) [11076-8]

11:15: **Full-optical stimulation and readout of neuronal activity during optogenetically-evoked movements in awake mice**, Francesco Resta, Elena Montagni, Giuseppe de Vito, Alessandro Scaglione, Anna Letizia Allegra Mascaro, Francesco Saverio Pavone, LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy) [11076-9]

11:30: **Myeloarchitecture of the murine neocortex visualized by intrinsic third-harmonic generation**, Hyungsik Lim, Hunter College (USA); Michael Redlich, The Graduate Ctr., CUNY (USA) [11076-10]

11:45: **Three-dimensional analysis of human brain cytoarchitectonics by means of a SWITCH/TDE-combined clearing method**, Irene Costantini, LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy) and CNR-INO (Italy); Giacomo Mazzamuto, Annunziata Laurino, Erica Lazzeri, LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy) and Univ. degli Studi di Firenze (Italy); Andrea Simonetto, Bioretics srl (Italy); Leonardo Sacconi, LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy) and Istituto Nazionale di Ottica, Consiglio Nazionale delle Ricerche (Italy); Matteo Roffilli, Bioretics srl (Italy); Ludovico Silvestri, LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy) and CNR-INO (Italy); Francesco S. Pavone, LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy) and CNR-INO (Italy) and Univ. degli Studi di Firenze (Italy) [11076-11]

12:00: **Deep learning strategies for scalable analysis of large-scale brain imagery**, Giacomo Mazzamuto, Francesco Orsini, LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy); Matteo Roffilli, Bioretics srl (Italy); Paolo Frascioni, Univ. degli Studi di Firenze (Italy); Francesco S. Pavone, Univ. degli Studi di Firenze (Italy) and LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy) and Istituto Nazionale di Ottica (Italy); Ludovico Silvestri, Istituto Nazionale di Ottica (Italy) and LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy) [11076-12]

LUNCH BREAK AND POSTER SESSION-WEDNESDAY

LOCATION: ICM HALL B0 WED 12:15 TO 14:00

Posters will be featured on Monday, Tuesday, and Wednesday. Each day represents a different set of posters. To see which posters are included each day, please see the individual conference programs.

Poster authors: Please set up posters on the morning of your session before or during the morning coffee break. Plan to stand by your poster to discuss it with session attendees on the day of your session. Remove your poster following the poster session concludes as posters left on the boards will be discarded.

Combining TIR and FRET: From Fluorescence Microscopy to a Multi-Well Reader System, Herbert Schneckenburger, Petra Weber, Michael Wagner, Sandra Enderle, Hochschule Aalen - Technik und Wirtschaft (Germany); Julian Weghuber, Peter Lanzerstorfer, Univ. of Applied Sciences Upper Austria (Austria) [11076-49]

Characterising cross-coupling in coherent fibre bundles, Helen E. Parker, Antonios Perperidis, The Univ. of Edinburgh (United Kingdom); Ahmed Karam-Eldaly, Yoann Altmann, Heriot-Watt Univ. (United Kingdom); Kevin Dhaliwal M.D., The Univ. of Edinburgh (United Kingdom); Robert R. Thomson, Stephen McLaughlin, Michael G. Tanner, Heriot-Watt Univ. (United Kingdom) [11076-50]

Piezo-fiber multipattern scanner for endoscopy, Miyase Tekpinar, Onur Ferhanoglu, Ramin Khayatizadeh, Istanbul Technical Univ. (Turkey) [11076-51]

CNN based classification of 5 cell types by diffraction images, Xin-Hua Hu, East Carolina Univ. (USA) [11076-52]

A Spatiotemporal analysis using second harmonic generation reveals enhancement of Type I Collagen polymerization by dermatan sulfate glycosaminoglycans, Keshav Kumar Jha, Purba Sarkar, Rabindra Biswas, Ramray Bhat, Varun Raghunathan, Indian Institute of Science (India) [11076-53]

Extended field-of-view microendoscopy through aberration corrected GRIN lenses, Andrea Sattin, Andrea Antonini, Serena Bovetti, Claudio Moretti, Angelo Forli, Francesca Succol, Istituto Italiano di Tecnologia (Italy); Vijayakumar Rajamanickam, Istituto Italiano di Tecnologia (Italy) and King Abdullah Univ. of Science and Technology (Saudi Arabia); Andrea Bertoncini, King Abdullah Univ. of Science and Technology (Saudi Arabia); Carlo Liberale, Istituto Italiano di Tecnologia (Italy) and King Abdullah Univ. of Science and Technology (Saudi Arabia); Tommaso Fellin, Istituto Italiano di Tecnologia (Italy) [11076-54]

Enhancing interferometric microscopy techniques, Clara Conrad-Billroth, Univ. Wien (Austria); Kareem Elsayad, Vienna Biocenter Core Facilities GmbH (Austria); Thomas Juffmann, Univ. Wien (Austria) [11076-55]

Integration of highly-refractive spheres in microfluidic chips for high-contrast detection of bacteria with low-magnification systems, Daniel Migliozi, Vittorio Viri, Martin Gijs, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [11076-56]

Probing chemosensitivity and energy metabolism in patients-derived colorectal cancer cells, Irina N. Druzhkova, Maria Lukina, Nadezhda Ignatova, Varvara Dudenkova, Marina Shirmanova, Privolzhsky Research Medical Univ. (Russian Federation); Vladimir Zagainov, Nikolay Kiselev, The Volga District Medical Ctr. (Russian Federation); Lubov Shimolina, Elena Zagaynova, Privolzhsky Research Medical Univ. (Russian Federation) [11076-57]

High-speed image reconstruction from aberration using a minimally sampled transmission matrix, Kwanjun Park, Taedong Kong, Hyung-Jin Kim, Beop-Min Kim, Youngwoon Choi, Korea Univ. (Korea, Republic of) [11076-58]

second harmonic generation imaging of cell-extracellular matrix interaction: from a single cell to angiogenesis, Yong Guk Kang, Ji Hun Yang, Korea Univ. (Korea, Republic of); Hwanseok Jang, Yongdoo Park, Korea Univ. College of Medicine (Korea, Republic of); Seok Chung, Beop-Min Kim, Korea Univ. (Korea, Republic of) [11076-59]

Wavelet leader based multifractal analysis of phase contrast images for cervical precancer detection, Gyana Ranjan Sahoo, Shivam Shukla, Asima Pradhan, Indian Institute of Technology Kanpur (India) [11076-60]

Phase transition monitoring in adipose tissue by multiphoton microscope, Irina Yanina, Saratov State Univ. (Russian Federation); Viktor Nikolaev, National Research Tomsk State Univ. (Russian Federation); Vyacheslav Kochubey, Valery Tuchin, Saratov State Univ. (Russian Federation); Yuri Kistenev, National Research Tomsk State Univ. (Russian Federation) [11076-61]

Time encoded chromatic confocal microscopy for wide field 3 D surface profiling, Chang-seok Kim, Hansol Jang, Se Jin Park, Pusan National Univ. (Korea, Republic of) [11076-62]

Simulation approach to optimize fluorescence imaging performance of wide-field temporal-focusing microscopy with tunable wavelength excitation, Fan-Ching Chien, National Central Univ. (Taiwan) [11076-63]

The potential of laser interferometry for a non-invasive assessment of biopolymer film structure and biological properties, Irina Vasilenko M.D., A.N. Kosygin Russian State Univ. (Russian Federation) and M.F. Vladimirovsky Moscow Regional Clinical and Research Institute (MONIKI) (Russian Federation); Nataliya Kil'deeva, A.N.Kosygin Russian State Univ. (Russian Federation); Vladislav Metelin, A.N. Kosygin Russian State Univ. (Russian Federation) and M.F. Vladimirovsky Moscow Regional Clinical and Research Institute (MONIKI) (Russian Federation); Nikita Sazhnev, A.N.Kosygin Russian State Univ. (Russian Federation); Vasilina Zakharova, A.N. Kosygin Russian State Univ. (Russian Federation) [11076-66]

Method for non-invasive hemoglobin oxygen saturation measurement using broadband light source and color filters, Wenze Wu, Finn-Niclas Stapelfeldt, Technische Univ. Braunschweig (Germany); Thomas Weimann, Peter Hinze, Thorsten Dziomba, Bernd Bodermann, Stefanie Kroker, Physikalisches-Bundesanstalt (Germany); Hutomo Suryo Wasisto, Andreas Waag, Technische Univ. Braunschweig (Germany) [11076-67]

Diagnostic decision support tool for anemias based on label-free holographic imaging, Martina Mugnano, Pasquale Memmolo, Lisa Miccio, Francesco Merola, Vittorio Bianco, Consiglio Nazionale delle Ricerche (Italy); Antonella Gambale, Roberta Russo, Immacolata Andolfo, Achille Iolascon, Univ. degli Studi di Napoli Federico II (Italy); Pietro Ferraro, Consiglio Nazionale delle Ricerche (Italy) [11076-68]

Holographic imaging for 3D cells morphology in microfluidic flow, Pasquale Memmolo, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello", CNR (Italy); Massimiliano M. Villone, Univ. degli Studi di Napoli Federico II (Italy); Francesco Merola, Martina Mugnano, Lisa Miccio, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello", CNR (Italy); Pier Luca Maffettone, Univ. degli Studi di Napoli Federico II (Italy); Pietro Ferraro, Istituto di Scienze Applicate e Sistemi Intelligenti "Eduardo Caianiello", CNR (Italy) [11076-69]

Self-reference hyperspectral holographic microscopy of bioobjects in incoherent light, Georgy Sergeevich Kalenkov, Institute of Dynamics of Geospheres (Russian Federation); Sergey Kalenkov, Moscow Polytechnic Univ. (Russian Federation); Alexander Shtanko, Moscow State Univ. of Technology "Stankin" (Russian Federation) [11076-70]

Adaptive fluctuation imaging captures rapid subcellular dynamics, Ida S. Opstad, Florian Ströhl, Sebastián A.A Maldonado, Åsa B. Birgisdottir, Trine Kalstad, Truls Myrmed, Krishna Agarwal, Balpreet S. Ahluwalia, UiT The Arctic Univ. of Norway (Norway) [11076-72]

Digital holographic microscopy in investigation of response of patient-specific cell cultures to photodynamic treatment, Anna Zhikhoreva, Andrey Belashov, Daria Gorbenko, Ioffe Institute (Russian Federation); Natalya Avdonkina, Irina Baldueva, Anna Daniilova, N.N. Petrov National Medical Research Ctr. of Oncology (Russian Federation); Mark Gelfond, N.N. Petrov National Medical Research Center of Oncology (Russian Federation); Tatyana Nekhaeva, N.N. Petrov National Medical Research Ctr. of Oncology (Russian Federation); Irina Semenova, Oleg Vasyutinskii, Ioffe Institute (Russian Federation) [11076-73]

Concept and optical design of the underwater microscope., Dmitry N. Frolov, Olga A. Vinogradova, Alexey D. Frolov, Alexey G. Tabachkov, Labor-Microscopes (Russian Federation) [11076-74]

Real-time visualization of structural and biochemical information using single laser source, UnGyo Kang, Hanyang Univ. (Korea, Republic of); Jiheun Ryu, Massachusetts General Hospital (USA); Joon Woo Song, Jin Won Kim, Korea University Guro Hospital (Korea, Republic of); Hongki Yoo, Korea Advanced Institute of Science and Technology (Korea, Republic of); Bomi Gweon, Hanyang Univ. (Korea, Republic of) [11076-75]

Development of all-optical imaging system for studying cerebral blood flow regulation using optogenetics., Minkyung Kim, Hyun-Joon Shin, Korea Institute of Science and Technology (Korea, Republic of) and Biomedical Engineering, KIST School, UST, Korea University of Science and Technology (Korea, Republic of) [11076-76]

Development of all-optical imaging system for studying cerebral blood flow regulation using optogenetics., Minkyung Kim, Korea Institute of Science and Technology (Korea, Republic of) and Biomedical Engineering, KIST School, UST, Korea University of Science and Technology, Seoul (Korea, Republic of); Hyun-Joon Shin, Korea Institute of Science and Technology (Korea, Republic of) and Biomedical Engineering, KIST School, UST, Korea University of Science and Technology (Korea, Republic of) [11076-78]

Two-photon excited polarized fluorescence in NADH in methanol/water solutions, Ioanna Gorbunova, Nikolai Bezverkhni, Anna Zhikhoreva, Yaroslav Beltukov, Maxim Sasin, Ioffe Institute (Russian Federation); Jesus Rubayo-Soneira, Atomic and Molecular Department, Havana University (Cuba); Oleg Vasyutinskii, Ioffe Institute (Russian Federation) [11076-79]

SESSION 3

**LOCATION: ROOM 6 "CHARLES TOWNES"
HALL A1 GROUND FLOOR WED 14:00 TO 15:30**

Multiphoton Microscopy

Session Chair: **Hyungsik Lim**, Hunter College (USA)

14:00: De-scattering with excitation patterning in temporally-focused microscopy (DEEP-TFM), Dushan N. Wadduwage, Harvard Univ. (USA) and Massachusetts Institute of Technology (USA); Jong K. Park, Peter T. C. So, Massachusetts Institute of Technology (USA) [11076-13]

14:15: Label-free THG imaging of bone tissue microstructure: effect of low gravity on the lacuno-canalicular network, Rachel Genthial, Lab. Interdisciplinaire de Physique (France); Emmanuel Beaurepaire, Marie-Claire Schanne-Klein, Ecole Polytechnique (France); Françoise Peyrin, Cécile Olivier, ESRF - The European Synchrotron (France) and Univ. de Lyon (France); Maude Gerbaix, Laurence Vico, Univ. de Lyon (France); Aurélien Gourrier, Delphine Débarre, CNRS, Lab. Interdisciplinaire de Physique (France) [11076-14]

14:30: Correlative multiphoton microscopy and infrared nanospectroscopy of label-free collagen, Jérémie Mathurin, Lab. de Chimie Physique, Univ. Paris-Sud (France) and CNRS (France) and Univ. Paris-Saclay (France); Gervaise Mosser, Chimie de la Matière Condensée de Paris, Sorbonne Univ., UPMC, CNRS (France) and Collège de France (France) and CNRS (France); Alexandre Dazzi, Lab. de Chimie Physique, Univ. Paris-Sud (France) and CNRS (France) and Univ. Paris-Saclay (France); Ariane Deniset-Besseau, Lab. de Chimie Physique, Univ. Paris-Sud (France) and CNRS (France) and Univ. Paris-Saclay (France); Marie-Claire Schanne-Klein, Lab. d'Optique et Biosciences, Ecole Polytechnique (France) and CNRS (France) and INSERM (France); Gaël Latour, IMNC, Univ. Paris-Sud (France) and CNRS (France) and Univ. Paris-Saclay (France) [11076-15]



CONFERENCE 11076

14:45: **Improved and fast biotissue imaging by temporal focusing widefield multiphoton microscopy with spatially modulated illumination**, Shean-Jen Chen, Chia-Yuan Chang, Chun-Yu Lin, National Chiao Tung Univ. (Taiwan); Vladimir Hovhannisyann, National Chiao Tung Univ (Taiwan). [11076-16]

15:00: **Fiber-Based Sub-Nanosecond Two-Photon Microscopy for Virtual H&E Histology**, Jan Philip Kolb, Matthias Strauch, Medizinisches Laserzentrum Lübeck GmbH (Germany); Daniel Weng, Univ. zu Lübeck (Germany); Hubertus Hakert, Medizinisches Laserzentrum Lübeck GmbH (Germany); Wolfgang Draxinger, Univ. zu Lübeck (Germany); Ralf Brinkmann, Medizinisches Laserzentrum Lübeck GmbH (Germany); Reginald Birngruber, Sebastian 'Nino' Karpf, Robert Huber, Univ. zu Lübeck (Germany). [11076-17]

15:15: **Nonlinear imaging of female breast tissue biopsies**, Evangelia Gavgiotaki, Vassilis Tsafas, Savvas Bovasianos, Foundation for Research and Technology-Hellas (Greece); Sofia Agelaki, Vassilis Georgoulas, Maria Tzardi, Univ. of Crete School of Medicine (Greece); Irene Athanassakis, Univ. of Crete (Greece); George Filippidis, Foundation for Research and Technology-Hellas (Greece). [11076-18]

Coffee Break Wed 15:30 to 16:00

SESSION 4

LOCATION: ROOM 6 "CHARLES TOWNES"
HALL A1 GROUND FLOOR WED 16:00 TO 18:00

Excitation Shaping and Advanced Methods

Session Chair: **Gaël Latour**, Univ. Paris-Sud (France)

16:00: **Compressive endo-microscopy** (*Invited Paper*), Liubov Amitonova, Johannes de Boer, Vrije Univ. Amsterdam (Netherlands). [11076-19]

16:20: **Initializing optimal read-out in LowPHI phase microscopy** (*Invited Paper*), Thomas Juffmann, Univ. Wien (Austria); Sylvain Gigan, Lab. Kastler Brossel (France); Andres de los Rios Sommer, ICFO - Institut de Ciències Fotòniques (Spain); Romain Basalgete, Lab. Kastler Brossel (France); Dante Broduski Maestre Vazquez, Univ. Wien (Austria). [11076-20]

16:40: **Improving quantitative fluorescence imaging with flat field illumination**, Ulrike Fuchs, Anna Möhl, asphericon GmbH (Germany); Kyu Young Han, Ian Khaw, Benjamin Croop, CREOL, The College of Optics and Photonics, Univ. of Central Florida (USA). [11076-21]

16:55: **Compressive Raman imaging** (*Invited Paper*), Camille Scotte, Siddharth Sivankutty, Aix Marseille Univ. (France) and CNRS (France) and Institut Fresnel (France); Hilton DeAguiar, Ecole Normale Supérieure (France) and PSL Research Univ. (France); Randy Bartels, Colorado State Univ. (USA); Hervé Rigneault, Institut Fresnel (France). [11076-22]

17:15: **Light-sheet modulation for increased light-efficiency in a Selective Plane Illumination Microscope**, Chiara Garbellotto, Univ. of Glasgow (United Kingdom). [11076-23]

17:30: **High resolution 3D imaging of primary and secondary tumor spheroids using multicolor multi-angle Light Sheet Fluorescence Microscopy (LSFM)**, Stylianos E. Psychocharakis, Foundation for Research and Technology-Hellas (Greece) and Univ. of Crete (Greece); Evangelos Liapis, Institute of Biological and Medical Imaging, Helmholtz Zentrum München (Germany) and Institute of Electronic Structure & Laser, Foundation for Research and Technology-Hellas (Greece); Athanasios Zacharopoulos, Institute of Electronic Structure & Laser, Foundation for Research and Technology-Hellas (Greece); Mariam-Eleni Oraiopoulou, Institute of Computer Science, Foundation for Research and Technology-Hellas (Greece); Chrysoula Aivalioti, Univ. of Crete (Greece); Vangelis Sakkalis, Institute of Computer Science, Foundation for Research and Technology-Hellas (Greece); Joseph Papamatheakis, Institute of Molecular Biology and Biotechnology, Foundation for Research and Technology-Hellas (Greece); Jorge Ripoll, Univ. Carlos III de Madrid (Spain); Giannis Zacharakis, Institute of Electronic Structure & Laser, Foundation for Research and Technology-Hellas (Greece). [11076-24]

17:45: **Instantaneous isotropic volumetric imaging of fast biological processes**, Robert Prevedel, European Molecular Biology Lab (Germany). [11076-77]

THURSDAY 27 JUNE

SESSION 5

LOCATION: ROOM 6 "CHARLES TOWNES"
HALL A1 GROUND FLOOR THU 8:00 TO 9:30

Quantitative Phase Imaging: Methods

Session Chair: **Gabriel Popescu**, Univ. of Illinois (USA)

8:00: **Quantitative phase imaging with spatially modulated illumination and single pixel microscopy** (*Invited Paper*), Randy A. Bartels, Patrick Stockton, Jeff Field, Robby Stoeke, Colorado State Univ. (USA); Jeff Squier, Colorado School of Mines (USA). [11076-26]

8:30: **Bond-selective Transient Phase Microscopy** (*Invited Paper*), Ji-Xin Cheng, Boston Univ. (USA). [11076-27]

9:00: **Wide field of view self-referencing quantitative phase contrast microscopy based on Lloyd's mirror interferometer** (*Invited Paper*), Mugdha Joglekar, Vismay Trivedi, Swapnil Mahajan, The Maharaja Sayajirao Univ. of Baroda (India); Vani Chhnaival, The Maharaja Sayajirao Univ. of Baroda (India); Giancarlo Pedrini, Univ. Stuttgart (Germany); Rainer Leitgeb, Medizinische Univ. Wien (Austria); Bahram Javid, Univ. of Connecticut (USA); Arun Anand, The Maharaja Sayajirao Univ. of Baroda (India). [11076-29]

SESSION 6

LOCATION: ROOM 6 "CHARLES TOWNES"
HALL A1 GROUND FLOOR THU 9:30 TO 11:00

Quantitative Phase Imaging: Basic Science

Session Chair: **Yang Liu**, Univ. of Pittsburgh (USA)

9:30: **Label-free detection of global morphology changes in confluent cell layers utilizing quantitative phase imaging with digital holographic microscopy** (*Invited Paper*), Björn Kemper, Luisa Pohl, Mathias Kaiser, Eva Döpker, Jürgen Schneckeburger, Steffi Ketelhut, Westfälische Wilhelms-Univ. Münster (Germany). [11076-30]

Coffee Break Thu 10:00 to 10:30

10:30: **Large scale high sensitivity optical diffraction tomography of zebrafish**, Jeroen Kalkman, Jos van Rooij, Technische Univ. Delft (Netherlands). [11076-31]

10:45: **Blood cell - vessel wall interactions probed by Reflection Interference Contrast Microscopy**, Heather S. Davies, CNRS, Lab. Interdisciplinaire de Physique (France); Natalia S. Baranova, Institute of Science and Technology Austria (Austria); Nouha El Amri, CNRS, Lab. Interdisciplinaire de Physique (France); Liliane Coche-Guérente, Univ. Grenoble Alpes (France); Claude Verdier, Lionel Bureau, CNRS, Lab. Interdisciplinaire de Physique (France); Ralf P. Richter, Univ. of Leeds (United Kingdom); Delphine Débarre, CNRS, Lab. Interdisciplinaire de Physique (France). [11076-32]

SESSION 7

LOCATION: ROOM 6 “CHARLES TOWNES”
HALL A1 GROUND FLOOR THU 11:00 TO 13:00

Quantitative Phase Imaging: Computation

Session Chair: **Pietro Ferraro**, Istituto di Scienze Applicate e Sistemi Intelligenti “Eduardo Caianiello” (Italy)

11:00: **Quantitative Phase Microscopy with Artificial Intelligence and Ultrahigh Imaging Speed** (*Invited Paper*), Renjie Zhou, Chinese Univ of Hong Kong (Hong Kong, China) [11076-33]

11:30: **Near-field Fourier Ptychography: super-resolution phase retrieval via speckle illumination** (*Invited Paper*), Guoan Zheng, Univ. of Connecticut (USA) [11076-34]

12:00: **Integrating computational and hardware adaptive optics to image faster and deeper** (*Invited Paper*), Steven G. Adie, Cornell Univ. (USA) [11076-35]

12:30: **Label-free nanoscopy enabled by coherent imaging with photonic waveguides**, Florian Stroehli, UiT The Arctic Univ. of Norway (Norway) and Univ. of Cambridge (United Kingdom); Ida S. Opstad, Jean-Claude Tinguely, Firehun T. Dullo, UiT The Arctic Univ. of Norway (Norway); Clemens F. Kaminski, Univ. of Cambridge (United Kingdom); Balpreet S. Ahluwalia, UiT The Arctic Univ. of Norway (Norway) [11076-36]

12:45: **Deep-Learning for phase unwrapping in Lens-Free imaging**, Lionel Hervé, Cédric Allier, Olivier Cioni, Fabrice Navarro, Mathide Menneteau, Sophie Morales, MINATEC (France) [11076-37]

Lunch Break Thu 13:00 to 14:00

SESSION 8

LOCATION: ROOM 6 “CHARLES TOWNES”
HALL A1 GROUND FLOOR THU 14:00 TO 14:45

Quantitative Phase Imaging: Clinical Applications

Session Chair: **Renjie Zhou**, The Chinese Univ. of Hong Kong (Hong Kong, China)

14:00: **Three-dimensional nanoscale nuclear architecture mapping for improved cancer risk stratification** (*Invited Paper*), Shikhar Uttam, Yang Liu, Univ. of Pittsburgh (USA) [11076-38]

14:30: **Optical biomarkers for detection of malignant tissue using Digital Holographic Microscopy**, Violeta L. Calin, Univ. de Medicina si Farmacie “Carol Davila” din Bucuresti (Romania); Mona Mihalescu, Univ. Politehnica of Bucharest (Romania); Adrian Dumitru, Radu Costea, Oana-Maria Patrascu, Univ. Emergency Hospital Bucharest (Romania); Felix Brehar, George Petrescu, Mihai Lisievici, Bagdasar-Arseni Clinical Emergency Hospital (Romania); Brindus Comanescu, Optoelectronica - 2001 S.A. (Romania); Viorela N. Grigore, Dan Butmalai, Univ. Politehnica of Bucharest (Romania); Tudor Savopol, Mihaela G. Moisescu, Univ. de Medicina si Farmacie “Carol Davila” din Bucuresti (Romania) [11076-39]

SESSION 9

LOCATION: ROOM 6 “CHARLES TOWNES”
HALL A1 GROUND FLOOR THU 14:45 TO 15:45

Polarization-Resolved Imaging

Session Chair: **Thomas Juffmann**, Lab. Kastler Brossel (France)

14:45: **Fast P-THG microscopy for the characterization of biomaterials**, Josephine Morizet, Guillaume Ducourthial, Willy Supatto, Arthur Boutillon, Ecole Polytechnique (France); Renaud Legouis, Institut de Biologie Intégrative de la Cellule (I2BC) (France); Marie-Claire Schanne-Klein, Chiara Stringari, Emmanuel Beaufreire, Ecole Polytechnique (France) [11076-40]

15:00: **Fast polarization imaging in coherent Raman scattering for the observation of lipid order dynamics in real-time**, Matthias Hofer, Naveen Balla, Sophie Brasselet, Institut Fresnel (France) [11076-41]

15:15: **Mueller microscopy of full thickness skin models combined with image segmentation**, Hee Ryung Lee, Lab. de Physique des Interfaces et des Couches Minces, Ecole Polytechnique (France); Florian Kai Groeber-Becker, Fraunhofer-Institut für Silicatsforschung ISC (Germany) and Universitätsklinikum Würzburg (Germany); Christian Lotz, Fraunhofer-Institut für Silicatsforschung ISC (Congo, Republic of the) and Universitätsklinikum Würzburg (Germany); Sofia Dembski, Fraunhofer-Institut für Silicatsforschung ISC (Germany) and Universitätsklinikum Würzburg (Germany); Enric Garcia-Caurel, Razvigor Ossikovski, Tatiana Novikova, Lab. de Physique des Interfaces et des Couches Minces, Ecole Polytechnique (France) [11076-42]

15:30: **Fast Mueller linear polarization modality at the usual rate of a laser scanning microscope**, Sylvain Rivet, Matthieu Dubreuil, Univ. de Bretagne Occidentale (France); Adrian Bradu, Univ. of Kent (United Kingdom); Yann Le Grand, Univ de Bretagne Occidentale (France) [11076-43]

Coffee Break Thu 15:45 to 16:00

SESSION 10

LOCATION: ROOM 6 “CHARLES TOWNES”
HALL A1 GROUND FLOOR THU 16:00 TO 17:15

Advanced Applications

Session Chair: **Emmanuel Beaufreire**, Ecole Polytechnique (France)

16:00: **Investigating Bcl-2 Family Protein-Protein Interactions Using a High-Speed Multiplexing Confocal FLIM Microscope**, Qiyin Fang, Nehad Hirmiz, McMaster Univ. (Canada); Anthony Tsikouras, McMaster Univ (Canada); Elizabeth Osterlund, David W. Andrews, Sunnybrook Research Institute (Canada); Jessica Kun, Morgan Richards, McMaster Univ. (Canada) [11076-44]

16:15: **Multi-target immunofluorescence using spectral FLIM-FRET for separation of undesirable antibody cross-labeling**, Sumeet Rohilla, Charité - Universitätsmedizin Berlin (Germany); Benedikt Kraemer, Felix Koberling, PicoQuant GmbH (Germany); Ingo Gregor, Drittes Physikalisches Institut, Georg-August-Univ. Göttingen (Germany); Andreas C. Hocke, Charité Universitätsmedizin Berlin (Germany) [11076-45]

16:30: **Label-free, scalable and point-of-care imaging platform for rapid analysis of biomarker**, Luc Dümpelmann, Roland Terborg, Josselin Pello, Ilaria Mannelli, ICFO - Institut de Ciències Fotòniques (Spain); Filiz Yesilköy, Alexander Belushkin, Yasaman Jahani, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Nuria Fabri-Faja, Priyanka Dey, Olalla Calvo, Maria Carmen Estévez Alberola, Institut Català de Nanociència i Nanotecnologia (ICN2) (Spain); Anna Fàbrega, Juan González-López, Hospital Univ. Vall d’Hebron (Spain); Laura Lechuga Gómez, Institut Català de Nanociència i Nanotecnologia (ICN2) (Spain); Hatice Altug, Ecole Polytechnique Fédérale de Lausanne (Switzerland); Valerio Pruneri, ICFO - Institut de Ciències Fotòniques (Spain) [11076-46]

16:45: **Detection of Trichomonal Vaginalis through Lensless Optofluidic Microscopy**, Qiyin Fang, Jessica Kun, Marek Smieja, Leyla Soleymani, McMaster Univ. (Canada) [11076-47]

17:00: **Microplastics detection and environmental toxicity testing by multimodal optical metrology**, Álvaro Barroso Peña, Björn Kemper, Steffi Ketelhut, Westfälische Wilhelms-Univ. Münster (Germany); Stefan Graß, Jens Reiber, WESSLING GmbH (Germany); Jürgen Schneckeburger, Westfälische Wilhelms-Univ. Münster (Germany) [11076-48]

CONFERENCE 11077

LOCATION: ROOM 7 “DENNIS GÁBOR” HALL A1 GROUND FLOOR

Monday–Tuesday 24–25 June 2019 • Proceedings of SPIE Vol. 11077

Opto-Acoustic Methods and Applications in Biophotonics

Conference Chairs: **Vasilis Ntziachristos**, Helmholtz Zentrum München GmbH (Germany), Technical Univ. of Munich (Germany); **Roger Zemp**, Univ. of Alberta (Canada)

Program Committee: **Emmanuel Bossy**, Lab. Interdisciplinaire de Physique (France); **Ben T. Cox**, Univ. College London (United Kingdom); **Stanislav Y. Emelianov**, Georgia Tech Research Institute (USA); **Jan Grimm**, Memorial Sloan-Kettering Cancer Ctr. (USA); **Fabian Kiessling**, Uniklinik RWTH Aachen (Germany); **Chulhong Kim**, Pohang Univ. of Science and Technology (Korea, Republic of); **Michael C. Kolios**, Ryerson Univ. (Canada); **Srirang Manohar**, Univ. Twente (Netherlands); **Alexander A. Oraevsky**, TomoWave Labs, Inc. (USA); **Guenther Paltauf**, Karl-Franzens-Univ. Graz (Austria); **Amir Rosenthal**, Technion-Israel Institute of Technology (Israel); **Gijs van Soest**, Erasmus MC (Netherlands); **Lihong V. Wang**, Caltech (USA); **Vladimir P. Zharov**, Univ. of Arkansas for Medical Sciences (USA)

MONDAY 24 JUNE

SESSION 1

LOCATION: ROOM 7 “DENNIS GÁBOR”
HALL A1 GROUND FLOOR MON 8:30 TO 9:15

Clinical Applications I

Session Chairs: **Vasilis Ntziachristos**, Helmholtz Zentrum München GmbH (Germany), Technical Univ. of Munich (Germany); **Roger J. Zemp**, Univ. of Alberta (Canada)

8:30: **To be announced** (*Invited Paper*), Maximilian Waldner, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) [11077-1]

9:00: **Capsule optoacoustic endoscopy for esophageal imaging**, Hailong He, Antonios Stylogiannis, Parastoo Afshari, Tobias Wiedemann, Helmholtz Zentrum München GmbH (Germany); Katja Steiger, Technische Univ. München (Germany); Andreas Buehler, Christian Zakian, Helmholtz Zentrum München GmbH (Germany); Vasilis Ntziachristos, Helmholtz Zentrum München GmbH (Germany) and Technical Univ. of Munich (Germany) [11077-2]

LOCATION: ICM ROOM 1 MON 9:30 TO 11:00

World of Photonics Opening and Plenary

Coffee to Go Mon 11:00 to 11:15

SESSION 2

LOCATION: ROOM 7 “DENNIS GÁBOR”
HALL A1 GROUND FLOOR MON 11:15 TO 12:45

Clinical Applications II

Session Chair: **Daniel Razansky**, ETH Zurich (Switzerland)

11:15: **Monitoring of psoriasis treatment with precision and high sensitivity with raster scan optoacoustic mesoscopy (RSOM)**, Juan Aguirre Sr., Technische Univ. München (Germany); Benedikt Hindelang, Ulf Darsow, Zentrum Allergie und Umwelt (ZAUM), Technische Univ. München (Germany); Kilian Eyerich, Technische Univ. München (Germany); Vasilis Ntziachristos, Helmholtz Zentrum München GmbH (Germany) and Technical Univ. of Munich (Germany) [11077-3]

11:30: **Optoacoustic guidance for stem cell therapy**, Martin J. Leahy, National Univ. of Ireland, Galway (Ireland) [11077-4]

11:45: **Towards in vivo photoacoustic imaging of vulnerable plaques in carotid artery**, Min Wu, Elke A. Vloedgraven, Roy P. M. van Hees, Technische Univ. Eindhoven (Netherlands); Marc R. van Sambeek, Technische Univ. Eindhoven (Netherlands) and Catharina Hospital (Netherlands); Frans N. van de Vosse, Richard G. P. Lopata, Technische Univ. Eindhoven (Netherlands) [11077-5]

12:00: **Photoacoustic and high-frequency ultrasound imaging of systemic sclerosis patients**, Khalid Daoudi, Brigit E. Kersten, Madelon Vonk, Chris L. de Korte, Radboud Univ. Medical Ctr. (Netherlands) [11077-6]

12:15: **Tumor ablation and volumetric optoacoustic monitoring with a short-pulsed laser source**, Vijitha Periyasamy, Helmholtz Center Munich (Germany); Çağla Özsoy, Univ. of Zurich (Switzerland) and Institute for Biomedical Engineering and Department of Information Technology and Electrical Engin (Switzerland); Michael Reiss, Helmholtz Center Munich (Germany); Xosé Luís Deán-Ben, Daniel Razansky, Helmholtz Center Munich (Germany) and Faculty of Medicine and Institute of Pharmacology and Toxicology (Switzerland) and Institute for Biomedical Engineering and Department of Information Technology and Electrical Engin (Switzerland) [11077-7]

12:30: **In situ temperature monitoring with photoacoustics during photothermal therapy and perspectives for glioblastoma treatment monitoring**, Anabela Da Silva, Institut Fresnel (France); Khaled Metwally, Aix-Marseille Univ. (France) and Lab. de Mécanique et d'Acoustique (France); Chiara Bastiancich, Institut de neurophysiopathologie (France); Noé Dumas, Florian Correard, Aix-Marseille Univ. (France); Anthony Novell, CEA/DRF/I2BM/NeuroSpin/UNIRS (France); Florence Chaspoul, Aix-Marseille Univ. (France) and Institut Méditerranéen de Biodiversité et d'Ecologie marine et continentale (France) and Institut de Recherche pour le Développement (France); Gleb Tselikov, Aix-Marseille Univ. (France) and Lab. Lasers, Plasmas et Procédés Photoniques (France); Anton Popov, Ahmed Al-Kattan, Andrei V. Kabashin, Aix-Marseille Univ. (France); Benoît Larrat, Unité d'Imagerie par Résonance Magnétique et de Spectroscopie (France); Diane Braguer, Serge Mensah, Marie-Anne Estève, Nicola Jones, Aix-Marseille Univ. (France) [11077-8]

Lunch Break Mon 12:45 to 14:15

SESSION 3

LOCATION: ROOM 7 “DENNIS GÁBOR”
HALL A1 GROUND FLOOR MON 14:15 TO 15:45

Algorithms and Quantitative Imaging

Session Chairs: **Ben T. Cox**, Univ. College London (United Kingdom); **Antonio Miguel M. Caravaca Aguirre**, Lab. Interdisciplinaire de Physique (France)

14:15: **To be announced** (*Invited Paper*), Ben T. Cox, Univ. College London (United Kingdom) [11077-9]

14:45: **Analysis of different approaches for blood oxygenation determination from multispectral optoacoustic measurements**, Ilya Turchin, Valeria V. Perekatova, Mikhail Kirillin, Daria Kurakina, Anna Orlova, Pavel Subochev, Institute of Applied Physics (Russian Federation) [11077-10]

15:00: **An investigation of the local effect of a limited view geometry in optoacoustic tomography**, Dominik Jüstel, Kaushik B Chowdhury, Helmholtz Zentrum München (Germany) and Technical University of Munich (Germany); Vasilis Ntziachristos, Helmholtz Zentrum München GmbH (Germany) and Technical Univ. of Munich (Germany) [11077-11]

15:15: **Photoacoustic computed tomography for joint reconstruction of initial pressure and sound speed in vivo using a feature coupling method**, Chuangjian Cai, Xuanhao Wang, Kexin Deng, Jianwen Luo, Cheng Ma, Tsinghua University (China) [11077-12]

15:30: **Use of angular distribution of differential photoacoustic cross-section data for estimating source size**, Anuj Kaushik, Deepak Sonker, Ratan K. Saha, Indian Institute of Information Technology, Allahabad (India) [11077-13]

Coffee Break Mon 15:45 to 16:15

SESSION 4

LOCATION: ROOM 7 "DENNIS GÁBOR"
HALL A1 GROUND FLOOR MON 16:15 TO 17:45

Novel Detectors and Systems I

Session Chair: **Amir Rosenthal**, Technion-Israel Institute of Technology (Israel)

16:15: **Microfabricated transparent transducers for photoacoustic imaging**, Roger J. Zemp, Zhenhao Li, Afshin Kashani Ilkhechi, Univ. of Alberta (Canada)[11077-14]

16:30: **Ultrasound point detectors in the silicon photonics platform for optoacoustic imaging**, Rami Shnaiderman, Georg Wissmeyer, Technische Univ. München (Germany); Héctor Estrada, Helmholtz Zentrum München GmbH (Germany); Daniel Razansky, Technische Univ. München (Germany); Qutaiba Mustafa, Helmholtz Zentrum München GmbH (Germany); Vasilis Ntziachristos, Helmholtz Zentrum München GmbH and Technical Univ. of Munich (Germany)[11077-15]

16:45: **Probing the optical readout characteristics of Fabry-Perot ultrasound sensors through realistic modelling**, Peter R. T. Munro, Dylan M. Marques, James A. Guggenheim, Rehman Ansari, Edward Z. Zhang, Paul C. Beard, Univ. College London (United Kingdom)[11077-16]

17:00: **Optical phase shifted pulse interferometry for parallel multi-channel ultrasound detection**, Yoav Hazan, Amir Rosenthal, Technion-Israel Institute of Technology (Israel)[11077-17]

17:15: **Pilot-study: rhodobacter as an optoacoustic in vivo reporters of macrophage activity**, Ina Weidenfeld, Helmholtz Zentrum München (Germany); Lena Peters, Heinrich Heine University Düsseldorf (Germany); Uwe Klemm, Helmholtz Zentrum München (Germany); Karl-Erich Jaeger, Thomas Drepper, Heinrich Heine University Düsseldorf (Germany); Vasilis Ntziachristos, Andre C. C Stiel, Helmholtz Zentrum München (Germany)[11077-18]

17:30: **Multimodal imaging through a multimode fiber**, Antonio Miguel M. Caravaca Aguirre, Univ. Grenoble Alpes (France); Sakshi Singh, Simon Labouesse, Rafael Piestun, Univ. of Colorado Boulder (USA); Emmanuel Bossy, Univ. Grenoble Alpes (France)[11077-19]

TUESDAY 25 JUNE

SESSION 5

LOCATION: ROOM 7 "DENNIS GÁBOR"
HALL A1 GROUND FLOORTUE 8:30 TO 10:00

Novel Detectors and Systems II

Session Chairs: **Robert Nuster**, Karl-Franzens-Univ. Graz (Austria); **Srirang Manohar**, Univ. of Twente (Netherlands)

8:30: **Annular illumination photoacoustic probe for needle guidance in medical interventions**, Srirang Manohar, Francis Kalloor Joseph, Elina Rašcevska, Univ. of Twente (Netherlands)[11077-20]

8:45: **Hybrid optoacoustic and multiphoton microscopy**, Markus Seeger, Technische Univ München (Germany)[11077-21]

9:00: **Developments on using supercontinuum sources for high resolution multi-imaging instruments for biomedical applications**, Gianni Nteroli, Univ. of Kent (United Kingdom); Magalie Bondu, Peter Moselund, NKT Photonics A/S (Denmark); Adrian Podoleanu, Adrian Bradu, Univ. of Kent (United Kingdom)[11077-22]

9:15: **Combined ultrasound and photoacoustic imaging with crossed-electrode relaxor array**, Christopher Ceroici, Univ. of Alberta (Canada); Katherine Latham, Dalhousie Univ. (Canada); Quinn Barber, Univ. of Alberta (Canada); Jeremy Brown, Dalhousie Univ. (Canada); Roger J Zemp, Univ. of Alberta (Canada)[11077-23]

9:30: **Out-of-plane artifact removal in photoacoustic imaging using transducer array displacement**, Ho Nhu Y Nguyen, Wiendelt Steenbergen, Univ. of Twente (Netherlands)[11077-24]

9:45: **Photoacoustic tomography setup using LED illumination**, Jarkko Leskinen, Aki Pulkkinen, Jenni Tick, Tanja Tarvainen, Univ. of Eastern Finland (Finland)[11077-25]

Coffee Break Tue 10:00 to 10:30

SESSION 6

LOCATION: ROOM 7 "DENNIS GÁBOR"
HALL A1 GROUND FLOOR TUE 10:30 TO 11:45

Advances in Optoacoustic Imaging

Session Chairs: **Daniel Razansky**, ETH Zurich (Switzerland); **Jan Laufer**, Martin-Luther-Univ. Halle-Wittenberg (Germany)

10:30: **Three-dimensional tracking of B16 melanocytes in the mouse brain vasculature with optoacoustic tomography**, Xosé Luis Deán-Ben, Helmholtz Zentrum München GmbH (Germany)[11077-27]

10:45: **Optical absorption coherence tomography (OACT) with interferometric quadrature photoacoustic remote sensing (iQ-PARS)**, Matthew T. Martell, Kevan L. Bell, Roger J. Zemp, Univ. of Alberta (Canada)[11077-28]

11:00: **Ultra-fast optical-resolution photoacoustic microscopy**, Jongbeom Kim, Jin Young Kim, Seungwan Jeon, Jin Woo Baik, Seong Hee Cho, Chulhong Kim, Pohang Univ. of Science and Technology (Korea, Republic of)[11077-29]

11:15: **Fiber-based optical resolution photoacoustic microscopy for tissue dichroism probing**, Yingying Zhou, The Hong Kong Polytechnic Univ. (Hong Kong, China); Liu Chao, Lidai Wang, City Univ. of Hong Kong (Hong Kong, China); Puxiang Lai, The Hong Kong Polytechnic Univ. (Hong Kong, China)[11077-30]

11:30: **Fundamentals of photo-control and its use in optoacoustics**, Kanuj Mishra, Juan-Pablo Fuenzalida-Werner, Vasilis Ntziachristos, Andre C. Stiel, Helmholtz Zentrum München (Germany)[11077-31]

LUNCH BREAK AND POSTER SESSION - TUESDAY

ROOM: ICM HALL B0 TUE 12:00 TO 14:00

Posters will be featured on Monday, Tuesday, and Wednesday. Each day represents a different set of posters. To see which posters are included each day, please see the individual conference programs.

Poster authors: Please set up posters on the morning of your session before or during the morning coffee break. Plan to stand by your poster to discuss it with session attendees on the day of your session. Remove your poster following the poster session concludes as posters left on the boards will be discarded.

Optoacoustic angiography of experimental tumors, Anna G. Orlova, Institute of Applied Physics (Russian Federation); Marina Sirotkina, Privolzhsky Research Medical Univ. (Russian Federation); Ekaterina Smolina, Institute of Applied Physics (Russian Federation); Vadim Elagin, Privolzhsky Research Medical Univ. (Russian Federation); Ilya Turchin, Pavel Subochev, Institute of Applied Physics (Russian Federation)[11077-26]

Super-resolved photoacoustic and ultrasound imaging with a sparse array, Sergey Vilov, Guillaume Godefroy, Bastien Arnal, Lab. Interdisciplinaire de Physique (France); Eiel Hojman, The Hebrew Univ. of Jerusalem (Israel); Oren Solomon, Yonina Eldar, Technion-Israel Institute of Technology (Israel); Ori Katz, The Hebrew Univ. of Jerusalem (Israel); Emmanuel Bossy, Lab. Interdisciplinaire de Physique (France)[11077-37]

A robust modified delay-and-sum algorithm for photoacoustic tomography imaging with apodized sensors, Ratan K. Saha, Indian Institute of Information Technology, Allahabad (India)[11077-38]

Pulse interferometry with a free-space Fabry-Pérot for shot-noise-limited detection of ultrasound, Yoav Hazan, Oleg Volodarsky, Amir Rosenthal, Technion-Israel Institute of Technology (Israel)[11077-39]

Photoacoustic assisted device guidance and thermal lesion imaging for radiofrequency ablation, Francis Kalloor Joseph, Srirang Manohar, Univ. of Twente (Netherlands)[11077-40]

CONFERENCE 11077

Laser-induced ultrasound transmitters for 3D photoacoustic and ultrasound tomography, Damien Gasteau, David Thompson, Srirang Manohar, Univ. of Twente (Netherlands) [11077-41]

Analytical optoacoustic spectrometer, Yuanhui Huang, Juan Pablo Fuenzalida Werner, Kanuj Mishra, Paul Vetschera, Andriy Chmyrov, Vasiliis Ntziachristos, Andre C. Stiel, Helmholtz Zentrum München (Germany) [11077-43]

Development of high speed integrated multi-scale photoacoustic microscopy to monitor tumor vascular response to anti-angiogenic therapy, Chengbo Liu, Chen Zhang, Liang Song, Shenzhen Institutes of Advanced Technology (China) [11077-44]

Optoacoustic Tissue Classification for Laser Osteotomes Using Mahalanobis Distances and Support Vector Machine Methods, Herve Nguendon Kenhagho, Yakub Aqib Bayhaqi, Ferda Canbaz, Georg Rauter, Raphael Guzman, Univ. Basel (Switzerland); Tomas Gomez Alvarez-Arenas, Consejo Superior de Investigaciones Científicas (Spain); Philippe Cattin, Azhar Zam, Univ. Basel (Switzerland) [11077-45]

MoOx nanoparticles generated by laser ablation and their potential use in photothermal therapy, Noe Zamora-Romero, Guillermo Aguilar, Univ. of California, Riverside (USA); Miguel Angel Camacho-Lopez, Marco Camacho-Lopez, Univ. Autónoma del Estado de México (Mexico); Santiago Camacho-Lopez, Ctr. de Investigación Científica y de Educación Superior de Ensenada B.C. (Mexico); Alfredo Vilchis-Nestor, Ctr. Conjunto de Investigación en Química Sustentable UAEM-UNAM (Mexico); Victor H. Castrejon-Sanchez, Tecnológico de Estudios Superiores de Jocotitlán (Mexico) [11077-46]

Fundamental study for identification and elimination of reflection artifacts with photoacoustic spectrum, Yuki Nakao, Takeshi Namita, Kengo Kondo, Makoto Yamakawa, Tsuyoshi Shiina, Kyoto Univ. Graduate School & Faculty of Medicine (Japan) [11077-47]

Combined photoacoustic and fluorescence microscopy for the ex vivo investigation of ciliary body anatomy, George J. Tserevelakis, Stella Avtzi, Foundation for Research and Technology-Hellas (Greece); Miltiadis K. Tsilimbaris, Univ. of Crete School of Medicine (Greece); Giannis Zacharakis, Foundation for Research and Technology-Hellas (Greece) [11077-48]

C60@lysozyme: a new optoacoustic contrast agent for non-invasive cancer imaging and photodynamic therapy, Alice Solda, Center for Translational Cancer Research (TranslaTUM) (Germany) [11077-49]

Acoustic resolution photoacoustic microscopy with large area optical ultrasound detection, Robert Nuster, Patrick Rupp, Guenther Paltauf, Karl-Franzens-Univ. Graz (Austria) [11077-50]

Conical through-hole transducer for optoacoustic endoscopy with expanded depth of focus, Zak Ali, Christian Zakian, Vasiliis Ntziachristos, Helmholtz Zentrum Munich (Germany) [11077-51]

Large area all-optical ultrasound imaging using robotic control, Richard J. Colchester, Erwin J. Alles, George Dwyer, Efthymios Maneas, Danail Stoyanov, Adrien E. Desjardins, Univ. College London (United Kingdom) [11077-52]

In-vivo non-invasive sensing of metabolites with a novel optoacoustic spectroscopy, Mirmehdi Seyedebrabimi, helmholtz research center (Germany) and Chair for Biological Imaging, Technische Universitaet Muenchen (Germany); Miguel A. pleitez, Pouyan Mohajerani, Vasiliis Ntziachristos, helmholtz research center (Germany) and Chair for Biological Imaging (Germany) [11077-53]

Model for the description of remote photoacoustic sensing using speckle-analysis, Benjamin Lengenfelder, Martin Hohmann, Florian Klämpfl, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Azhar Zam, Univ. Basel (Switzerland); Manuel Weiß, Stefan J. Rupitsch, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Zeev Zalevsky, Bar-Ilan Univ. (Israel); Michael Schmidt, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) . [11077-54]

Evaluation of arthritis with model rats using photoacoustic imaging system, Kohei Ogawa, Takeshi Namita, Kengo Kondo, Makoto Yamakawa, Tsuyoshi Shiina, Kyoto Univ. (Japan) [11077-55]

Multiphysics simulation approach for photo-acoustics temperature monitoring in rodents head during photothermal therapy, Anabela Da Silva, Institut Fresnel (France); Khaled Metwally, Lab. de Mécanique et d'Acoustique (France) and Aix-Marseille Univ. (France); Antoine Cappart, Serge Mensah, Gaïthan Ndjehoya, Jing Cheng, Aix-Marseille Univ. (France) [11077-56]

Acoustic differentiation of dental soft- and hard tissues using remote speckle-analysis during Er:YAG ablation, Benjamin Lengenfelder, Karen Schwarzkopf, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Nicolai Oetter, Universitätsklinikum Erlangen (Germany); Fanuel Mehari, Eric Eschner, Florian Klämpfl, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Florian Stelzle, Marco Kesting, Universitätsklinikum Erlangen (Germany); Zeev Zalevsky, Bar-Ilan Univ. (Israel); Michael Schmidt, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany) [11077-57]

Intraplaque haemorrhage detection using single-wavelength PAI and singular value decomposition in the carotid artery, Roy P. M. van Hees, Min Wu, Frans N. van de Vosse, Richard G. P. Lopata, Marcel C. M. Rutten, Technische Univ. Eindhoven (Netherlands) [11077-58]

Skin boundary detection in 3D optoacoustic mesoscopy based on dynamic programming, Suhanyaa Nitkunanantharajah, Institute of Biological and Medical Imaging, Helmholtz Zentrum München (Germany) and Chair of Biological Imaging and TranslaTUM, Technische Universität München (Germany); Guillaume Zahnd, Technische Universität München (Germany); Malini Olivo, Lab of Biooptical Imaging, Singapore Bioimaging Consortium, Agency for Science Technology and Research (Singapore); Nassir Navab, Technische Universität München (Germany) and Johns Hopkins Univ. (Germany); Pouyan Mohajerani, Institute of Biological and Medical Imaging, Helmholtz Zentrum München (Germany) and Chair of Biological Imaging and TranslaTUM, Technische Universität München (Germany); Vasiliis Ntziachristos, Helmholtz Zentrum München GmbH (Germany) and Technical Univ. of Munich (Germany) [11077-59]

Interaction of pulsed ultrasound with pulsed light propagation, Maxim N. Cherkashin, Carsten Brenner, Martin R. Hofmann, Ruhr-Univ. Bochum (Germany) [11077-60]

Probing intervertebral discs with photoacoustics, Anabela Da Silva, Institut Fresnel (France); Khaled Metwally, Aix-Marseille Univ. (France); Olivier Boiron, Institut de Recherche sur les Phénomènes Hors Equilibre (France); Valérie Deplano, Solène Prost, Aix-Marseille Univ. (France) [11077-61]

Remote speckle-sensing for improved differentiation between different types of tissues, Benjamin Lengenfelder, Martin Hohmann, Moritz Späth, Florian Klämpfl, Michael Schmidt, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany); Zeev Zalevsky, Bar-Ilan Univ. (Israel); Samuel Funk, Univ. of Idaho (USA); Florian Stelzle, Universitätsklinikum Erlangen (Germany) [11077-62]

Camera-based photoacoustic remote sensing microscopy, Min Choi, Roger J. Zemp, Univ. of Alberta (Canada) [11077-63]

ECBO PLENARY SESSION

LOCATION: ROOM 5 ICM GROUND FLOOR TUE 14:00 TO 15:30

Session Chairs: **I. Alex Vitkin**, Univ. Health Network (Canada);
Ronald Sroka, Laser-Forschungslabor (Germany)

14:00 to 14:05: **Welcome and Introduction**

14:05 to 14:10: **Presentation of the OSA Michael S. Feld
Biophotonics Award**

14:10 to 15:30: **Plenary**

**Photo Medicine, Radiation Medicine and Nano Medicine:
An Emerging Golden Braid**

Brian Wilson, Univ. of Toronto (Canada)

Coffee Break Tue 15:30 to 16:00

SESSION 7

LOCATION: ROOM 7 “DENNIS GÁBOR”
 HALL A1 GROUND FLOOR TUE 16:00 TO 17:30

Microscopy

Session Chairs: **Chulhong Kim**, Pohang Univ. of Science and Technology (Korea, Republic of); **Xosé Luis Deán-Ben**, Helmholtz Zentrum München GmbH (Germany)

16:00: **Recent progresses on photoacoustic microscopy: speed, resolution, and contrast** (*Invited Paper*), Chulhong Kim, Pohang Univ. of Science and Technology (Korea, Republic of) [11077-32]

16:30: **Generation and monitoring of cavitation with an optical resolution photoacoustic microscope**, Guenther Paltauf, Robert Nuster, Karl-Franzens- Univ. Graz (Austria) [11077-33]

16:45: **Dual-wavelength nanosecond pulsed-laser using stimulated Raman scattering for fast functional photoacoustic microscopy**, Sang Min Park, Soon-Woo Cho, Pusan National Univ. (Korea, Republic of); Do Yeon Kim, Korea Research Institute of Standards and Science (Korea, Republic of) and Korea Univ. (Korea, Republic of); Sang-Won Lee, Korea Research Institute of Standards and Science (Korea, Republic of); Chang-Seok Kim, Pusan National Univ. (Korea, Republic of) [11077-34]

17:00: **Looking and listening to molecular vibrations: mid-infrared optoacoustic microscopy for functional label-free biochemical imaging**, Miguel Pleitez, Helmholtz Zentrum München/IBMI (Germany); Asrar Ali Khan, Helmholtz Zentrum München (Germany); Josefine Reber, Andriy Chmyrov, Alice Solda, Markus R. Seeger, Francesca Gasparin, Benedikt Schätz, Helmholtz Zentrum München/IBMI (Germany); Stephan Herzig, Martin Scheideler, Helmholtz Zentrum München (Germany); Vasilis Ntziachristos, Helmholtz Zentrum München/IBMI (Germany) [11077-35]

17:15: **Ultraviolet photoacoustic remote sensing microscopy for label-free non-contact visualization of cell nuclei in tissue samples**, Nathaniel J. Haven, Univ. of Alberta (Canada); Kevan L. Bell, Univ. of Alberta (Canada) and illumiSonics Inc. (Canada); Pradyumna Kedariseti, John D. Lewis, Univ. of Alberta (Canada); Roger J. Zemp, Univ. of Alberta (Canada) and illumiSonics Inc. (Canada) [11077-36]



CONFERENCE 11078

LOCATION: ROOM 11 ICM FIRST FLOOR

Tuesday–Thursday 25–27 June 2019 • Proceedings of SPIE Vol. 11078

Optical Coherence Imaging Techniques and Imaging in Scattering Media

Conference Chairs: **Maciej Wojtkowski**, Polish Academy of Sciences (Poland); **Stephen A. Boppart**, Univ. of Illinois at Urbana-Champaign (USA); **Wang-Yuhl Oh**, KAIST (Korea, Republic of)

Program Committee: **Seok-Hyun Yun**, Wellman Ctr. for Photomedicine (USA); **Peter E. Andersen**, DTU Fotonik (Denmark); **Sylvain Gigan**, Institut Langevin (France); **Adrian G. Podoleanu**, Univ. of Kent (United Kingdom); **Michael Pircher**, Medizinische Univ. Wien (Austria); **James G. Fujimoto**, Massachusetts Institute of Technology (USA); **Robert A. Huber**, Univ. zu Lübeck (Germany); **David D. Sampson**, The Univ. of Western Australia (Australia); **Wonshik Choi**, Korea Univ. (Korea, Republic of); **Yoshiaki Yasuno**, Univ. of Tsukuba (Japan); **Johannes F. de Boer**, Vrije Univ. Amsterdam (Netherlands); **Benjamin J. Vakoc**, Wellman Ctr. for Photomedicine (USA); **Marinko V. Sarunic**, Simon Fraser Univ. (Canada); **Robert J. Zawadzki**, Univ. of California, Davis (USA); **Vivek J. Srinivasan**, Univ. of California, Davis (USA); **Rainer A. Leitgeb**, Medizinische Univ. Wien (Austria)

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MONDAY 24 JUNE

LUNCH BREAK AND POSTER SESSION-MONDAY

LOCATION: ICM HALL B0 MON 12:45 TO 14:15

Posters will be featured on Monday, Tuesday, and Wednesday. Each day represents a different set of posters. To see which posters are included each day, please see the individual conference programs.

Poster authors: Please set up posters on the morning of your session before or during the morning coffee break. Plan to stand by your poster to discuss it with session attendees on the day of your session. Remove your poster following the poster session concludes as posters left on the boards will be discarded.

Evaluating changes in the murine fetal brain vasculature due to prenatal alcohol and cannabinoid exposure using optical coherence tomography, Raksha Raghunathan, Univ. of Houston (USA); Rajesh C. Miranda, Texas A&M Health Science Ctr. (USA); Kirill V. Larin, Univ. of Houston (USA) . . . [11078-48]

TUESDAY 25 JUNE

SESSION 1

LOCATION: ROOM 11 ICM FIRST FLOOR . . . TUE 8:30 TO 10:00

Advances in Optical Coherence Imaging

Session Chair: **Wang-Yuhl Oh**, KAIST (Korea, Republic of)

8:30: **A real-time video-rate 4D MHz-OCT microscope with high definition and low latency virtual reality display**, Wolfgang Draxinger, Institut für Biomedizinische Optik, Univ. zu Lübeck (Germany); Yoko Miura, Univ. zu Lübeck (Germany); Christin Grill, Tom Pfeiffer, Institut für Biomedizinische Optik, Univ. zu Lübeck (Germany); Robert Huber, Institut für Biomedizinische Optik, Univ. zu Lübeck (Germany) . . . [11078-1]

8:45: **Towards improving imaging depth and speed in full-field optical coherence tomography**, Egidijus Aukorius, Patrycja Stremplewski, Maciej Wojtkowski, Institute of Physical Chemistry of the Polish Academy of Sciences (Poland) . . . [11078-2]

9:00: **High speed demodulation in circular ranging optical coherence tomography using a LiNbO3 phase modulator and a stretched pulse active mode-locked frequency comb laser at 1.3 um**, Norman Lippok, Benjamin J. Vakoc, Brett E. Bouma, Wellman Ctr. for Photomedicine (USA) . . . [11078-3]

9:15: **Full-field swept-source optical coherence microscopy with structured illumination: simplified numerical focusing**, Anton A. Grebenyuk, Laurin Ginner, Rainer A. Leitgeb, Medizinische Univ. Wien (Austria) . . . [11078-4]

9:30: **Synthesizing scanning-mode acquisition in full-wave modelling of OCT**, Callum M. Macdonald, Peter R. T. Munro, Univ. College London (United Kingdom) . . . [11078-5]

9:45: **Enhancing sensitivity in off-axis full-field time-domain optical coherence tomography by coherent averaging of multiple acquisitions**, Malte vom Endt, Helge Sudkamp, Medizinisches Laserzentrum Lübeck GmbH (Germany); Dierck Hillmann, Thorlabs GmbH (Germany) and Institut für Biomedizinische Optik, Univ. zu Lübeck (Germany); Michael Münst, Peter Koch, Medizinisches Laserzentrum Lübeck GmbH (Germany); Gereon Hüttmann, Institut für Biomedizinische Optik, Univ. zu Lübeck (Germany) and Medizinisches Laserzentrum Lübeck GmbH (Germany) and Airway Research Ctr. North, Deutsches Zentrum für Lungenforschung e. V. (Germany) . [11078-6]

Coffee Break Tue 10:00 to 10:30

SESSION 2

LOCATION: ROOM 11 ICM FIRST FLOOR . . TUE 10:30 TO 12:00

Scattering and Wavefront Control

Session Chair: **Brett E. Bouma**, Wellman Ctr. for Photomedicine (USA)

10:30: **Imaging in scattering environments using Phasor Field Virtual Waves (Invited Paper)**, Andreas Velten, Univ. of Wisconsin-Madison (USA) . . . [11078-7]

11:00: **Retinal blood flow quantification from optical coherence tomography speckle intensity fluctuations using neural networks**, Boy Braaf, Wellman Ctr. for Photomedicine (USA); Sabine Donner, Heidelberg Engineering GmbH (Germany); Néstor Uribe-Patarroyo, Brett E. Bouma, Benjamin J. Vakoc, Wellman Ctr. for Photomedicine (USA) . . . [11078-8]

11:15: **Spatiotemporal optical coherence (STOC) manipulation suppresses coherent cross-talk and low-order geometrical aberrations in full-field swept-source optical coherence tomography**, Dawid Borycki, Julia Sudyka, Maciej Wojtkowski, Institute of Physical Chemistry of the Polish Academy of Sciences (Poland) . . . [11078-9]

11:30: **Monte-Carlo simulation of the memory effect in random media beyond the diffusion limit**, Anat Levin, Chen Bar, Marina Alterman, Technion-Israel Institute of Technology (Israel); Ioannis Gkioulekas, Carnegie Mellon Univ. (USA) . . . [11078-10]

11:45: **Digital refocusing and aberration compensation in optical coherence tomography with phase-unstable sources**, Sebastián Ruiz-Lopera, René Restrepo, Carlos Cuartas-Vélez, Univ. EAFIT (Colombia); Brett E. Bouma, Wellman Ctr. for Photomedicine (USA) and Massachusetts Institute of Technology (USA); Néstor Uribe-Patarroyo, Wellman Ctr. for Photomedicine (USA) . . . [11078-11]

Lunch Break Tue 12:00 to 14:00

ECBO PLENARY SESSION

LOCATION: ROOM 5 ICM GROUND FLOOR TUE 14:00 TO 15:30

Session Chairs: **I. Alex Vitkin**, Univ. Health Network (Canada); **Ronald Sroka**, Laser-Forschungslabor (Germany)

14:00 to 14:05: **Welcome and Introduction**

14:05 to 14:10: **Presentation of the OSA Michael S. Feld Biophotonics Award**

14:10 to 15:30: **Plenary**

Photo Medicine, Radiation Medicine and Nano Medicine: An Emerging Golden Braid

Brian Wilson, Univ. of Toronto (Canada)

WEDNESDAY 26 JUNE

SESSION 3

LOCATION: ROOM 11 ICM FIRST FLOOR . . . WED 8:30 TO 9:45

New Technology for Medical Instrumentation I

Session Chair: **Robert Alexander Huber**, Ludwig-Maximilians-Univ. München (Germany)

8:30: **Intravascular flow pattern imaging and endoscopic optical coherence elastography enabled by ultrafast phase-sensitive OCT**, Tianshi Wang, Erasmus MC (Netherlands); Tom Pfeiffer, Institut für Biomedizinische Optik, Univ. zu Lübeck (Germany); Wolfgang Wieser, Optores GmbH (Germany); Antonius F. W. van der Steen, Erasmus MC (Netherlands) and Shenzhen Institutes of Advanced Technology (China) and Technische Univ. Delft (Netherlands); Robert Huber, Institut für Biomedizinische Optik, Univ. zu Lübeck (Germany); Gijs van Soest, Erasmus MC (Netherlands) [11078-12]

8:45: **MHz-OCT for low latency virtual reality guided surgery: first wet lab experiments on ex-vivo porcine eye**, Yoko Miura, Wolfgang Draxinger, Christin Grill, Tom Pfeiffer, Salvatore Grisanti, Robert Huber, Univ. zu Lübeck (Germany) [11078-13]

9:00: **A synchronous motorized capsule for shadow-free optical coherence tomography imaging in esophagus**, Antion López-Marín, Geert Springeling, Erasmus MC (Netherlands); Antonius F. W. van der Steen, Erasmus MC (Netherlands) and Shenzhen Institutes of Advanced Technology (China) and Technische Univ. Delft (Netherlands); Brett E. Bouma, Wellman Ctr. for Photomedicine, Harvard Medical School (USA) and Harvard-MIT Health Sciences and Technology (USA) and Massachusetts General Hospital (USA); Robert Huber, Institut für Biomedizinische Optik, Univ. zu Lübeck (Germany); Gijs van Soest, Tianshi Wang, Erasmus MC (Netherlands). [11078-14]

9:15: **Stereo microscope based OCT system capable of subnanometer vibrometry in the middle ear**, Wihan Kim, The Univ. of Southern California (USA); John Oghalai, Brian E. Applegate, The Univ. of Southern California (USA); Sangmin Kim, Texas A&M Univ. (USA) [11078-15]

9:30: **Miniature handheld multi-view optical coherence tomography probe for intraoperative vascular imaging**, Yong Huang, Yingxiong Xie, Chuanchao Wu, Xiaochen Li, Jian Yang, Yongtian Wang, Beijing Institute of Technology (China); Dedi Tong, Shanlin Chen, Beijing Jishuitan Hospital (China); Jin U. Kang, Johns Hopkins Univ. (USA) [11078-16]

Coffee Break Wed 10:00 to 10:30

SESSION 4

LOCATION: ROOM 11 ICM FIRST FLOOR . WED 10:30 TO 12:00

Advances of OCT for Eye Imaging

Session Chair: **Rainer A. Leitgeb**, Medizinische Univ. Wien (Austria)

10:30: **Functional retinal imaging with holographic OCT (Invited Paper)**, Dierck Hillmann, Thorlabs GmbH (Germany) [11078-17]

11:00: **Progress in OCT based functional cellular resolution retinal imaging in mice: application of temporal super averaging**, Robert J. Zawadzki, Pengfei Zhang, Eric B. Miller, Suman K. Manna, Ratheesh K. Meleppat, Marie E. Burns, Edward N. Pugh Jr., Univ of California Davis (USA) [11078-18]

11:15: **Hyperspectral optical coherence tomography: a tool for in vivo visualization of melanin in the retinal pigment epithelium**, Danielle J. Harper, Medizinische Univ. Wien (Austria); Thomas Konegger, Technische Univ. Wien (Austria); Kornelia Schützenberger, Marco Augustin, Medizinische Univ. Wien (Austria); Martin Glösmann, Veterinärmedizinische Univ. Wien (Austria); Antonia Lichtenegger, Pablo Eugui, Christoph K. Hitzenberger, Bernhard Baumann, Medizinische Univ. Wien (Austria) [11078-19]

11:30: **Real time volumetric region of interest tracking for sensorless adaptive optics retinal imaging**, Daniel J. Wahl, Ringo Ng, Joey Huang, Worawee Janpongsri, Marinko V. Sarunic, Simon Fraser Univ. (Canada); Yifan Jian, Oregon Health & Science Univ. (USA) [11078-20]

11:45: **OCT imaging along retinal vessels for assessing their structural composition and hemodynamic properties**, Sylvia Desissaire, Florian Schwarzhans, Florian Beer, Matthias Salas, Stefan Steiner, Georg Fischer, Clemens Vass, Michael Pircher, Christoph K. Hitzenberger, Medizinische Univ. Wien (Austria) [11078-21]

LUNCH BREAK AND POSTER SESSION - WEDNESDAY

ROOM: ICM HALL B0 WED 12:00 TO 14:00

Posters will be featured on Monday, Tuesday, and Wednesday. Each day represents a different set of posters. To see which posters are included each day, please see the individual conference programs.

Poster authors: Please set up posters on the morning of your session before or during the morning coffee break. Plan to stand by your poster to discuss it with session attendees on the day of your session. Remove your poster following the poster session concludes as posters left on the boards will be discarded.

Sensorless adaptive optics optical coherence tomography for two photon excited fluorescence mouse retinal imaging, Daniel J. Wahl, Myeong Jin Ju, Yifan Jian, Marinko V. Sarunic, Simon Fraser Univ. (Canada) [11078-56]

Artificial test eyes for multimodal imaging, Wim de Jong, Tjeerd Russchenberg, Arjen Amelink, TNO (Netherlands); Michael Kempe, Carl Zeiss AG (Germany); Matthias Salas, Rainer A. Leitgeb, Medizinische Univ. Wien (Austria) [11078-57]

Observing dynamic changes in articular cartilage birefringence during compression using polarization-sensitive optical coherence tomography, Matthew Goodwin, Ashvin Thambyah, Frederique Vanholsbeeck, The Univ. of Auckland (New Zealand) [11078-58]

Optical coherence elastography for visualization of spatio-temporal strain dynamics in thermo-mechanical modification of corneal and cartilaginous tissues, Alexander A. Sovetsky, Alexander L. Matveyev, Lev A. Matveev, Institute of Applied Physics (Russian Federation); Olga I. Baum, Federal Research Ctr. "Crystallography and Photonics" (Russian Federation) and Institute of Photonic Technologies (Russian Federation); Vladimir Y. Zaitsev, Institute of Applied Physics (Russian Federation) [11078-59]

Computational phase imaging using spatio-temporal wavefront modulation, Fernando Soldevila, Univ. Jaume I (Spain) [11078-60]

Characteristics of brain tumor with optical coherence tomography, Chia-Heng Wu, Wen Ju Chen, Cihun-Siyong Alex Gong, Meng Tsan Tsai, Chang Gung Univ. (Taiwan) [11078-61]

Visualization of domain walls in Mg doped LiNbO3 crystals, Edmund Koch, Lars Kirsten, Universitätsklinikum Carl Gustav Carus Dresden (Germany); Alexander Haussmann, Institut für Angewandte Physik, TU Dresden (Germany) and Ctr. for Advancing Electronics Dresden (Germany); Christian Schnabel, Jonas Golde, Universitätsklinikum Carl Gustav Carus Dresden (Germany); Lukas Eng, Institut für Angewandte Physik, TU Dresden (Germany) and Ctr. for Advancing Electronics Dresden (Germany) [11078-62]

Improved visualization of decomposing tattoos using optical coherence tomography, Manuel Jorge M. Marques, Jasmine Pomeroy, Robert Green, Chris Deter, Adrian Bradu, Adrian Podoleanu, Univ. of Kent (United Kingdom) [11078-63]

Optical coherence tomography to predict the quality of meat, Abi Thampi, Sam Hitchman, Stephane Coen, Frederique Vanholsbeeck, The Univ. of Auckland (New Zealand) [11078-64]

2D transform-domain Fourier filters for eliminating microscacade noise in en face optical coherence tomography angiography, Jianlong Yang, Liyang Fang, Cixi Institute of BioMedical Engineering, CNITECH (China); Liyang Fang, Cixi Institute of Biomedical Engineering (China); Yan Hu, Yitian Zhao, Cixi Institute of BioMedical Engineering, CNITECH (China); Yalin Zheng, Univ. of Liverpool (United Kingdom); Jiang Liu, Cixi Institute of BioMedical Engineering, CNITECH (China) [11078-65]

Durable 3D test standards from mouse retina for performance testing of high-resolution optical coherence tomography systems, Alvaro Barroso, Peter Heiduschka, Gerburg Nettels-Hackert, Steffi Ketelhut, Björn Kemper, Jürgen Schnekenburger, Westfälische Wilhelms-Univ. Münster (Germany) [11078-66]

Dual-band wavelength-comb-swept laser to extend displacement measurement range, Seongjin Bak, Gyeong Hun Kim, Chang-Seok Kim, Pusan National Univ. (Korea, Republic of) [11078-67]

Automatic determination of anterior and posterior corneal limbi from OCT images based on corneal shape analysis, Marta Skrok, Damian Siedlecki, Wrocław Univ. of Science and Technology (Poland); David Alonso Caneiro, Queensland Univ. of Technology (Australia) [11078-68]

Optical coherence tomography as a tool to visualize biofilm formation over removable prosthesis, Mayra M. Aquino, Univ. Federal de Pernambuco (Brazil); Cláudia C. B. O. Mota, João P. C. L. Santos, Patricia L. A. Nascimento, Ctr. Univ. Tabosa de Almeida (Brazil); Sérgio L. Campello, Anderson S. L. Gomes, Univ. Federal de Pernambuco (Brazil) [11078-69]

OCT

Glioblastoma (GBM) tumor of mouse brain microvasculature studies using OCT and enhancement of cerebrovascular with contrast agents using 800nm and 1300nm OCT system, Mounika Rapolu, Institute of Physical Chemistry of the Polish Academy of Sciences (Poland); Paul Shin, Korea Advanced Institute of Science and Technology (KAIST) (Korea, Republic of); Paulina Niedzwiedzkiuk, Dawid Borycki, Karol Karnowski, Institute of Physical Chemistry of the Polish Academy of Sciences (Poland); Hubert Dolezyczek, Nencki Institute of Experimental Biology, Polish Academy of Sciences (Poland); Monika Malinowska, Grzegorz Wilczynski, Nencki Institute of Experimental Biology (Poland); Wang Yuhl Oh, Korea Advanced Institute of Science and Technology (KAIST) (Korea, Republic of); Maciej Wojtkowski, Institute of Physical Chemistry of the Polish Academy of Sciences (Poland) . . . [11078-70]

Retinal phantom for evaluation of retinal OCT-angiography and fundus angiography, Sang-Won Lee, Korea Research Institute of Standards and Science (Korea, Republic of); Hyunji Lee, Korea Research Institute of Standards and Science (Korea, Republic of) and Univ. of Science and Technology (Korea, Republic of); Nafta M. Samiudin, Korea Research Institute of Standards and Science (Korea, Republic of); Il Doh, Korea Research Institute of Standards and Science (Korea, Republic of) and Univ. of Science and Technology (Korea, Republic of) . . . [11078-71]

Machine learning classifiers for increasing of skin cancer diagnostic precision on OCT-images, Dmitry S. Raupov, Oleg Myakinin, Ivan Bratchenko, Valery Zakharov, Samara Univ. (Russian Federation) . . . [11078-72]

Effect of Nd:YAG laser and aluminum oxide sandblasting preconditioning on lingual enamel: brackets shear bond strength and morphological characterization, Mônica S. Lopes, Univ. Federal de Pernambuco (Brazil); Cláudia C. B. O. Mota, Ctr. Univ. Tabosa de Almeida (Brazil); Daísa L. Pereira, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Marcello M. Amaral, Univ. Brasil (Brazil); Denise M. Zezell, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Anderson S. L. Gomes, Univ. Federal de Pernambuco (Brazil) . . . [11078-73]

Optical coherence tomography-based 3D intraoral scanner, Joo Beom Eom, Anjin Park, Jonghyun Eom, Korea Photonics Technology Institute (Korea, Republic of); Jin-Chul Ahn, Dankook Univ. (Korea, Republic of) . . . [11078-74]

An optical coherence tomography platform for the study of tumor cell colonies, Bo Huei Huang, Chang Gung Univ. (Taiwan) . . . [11078-75]

Spectral Domain OCT using achromatic phase shifter, Pavel A. Shilyagin, Dmitry A. Terpelov, Grigory V. Geikonov, Valentin M. Geikonov, Institute of Applied Physics (Russian Federation) . . . [11078-76]

Phase-optimization wavefront shaping simulations in two-dimensional scattering media based on Maxwell's equations, Felix Ott, Benjamin Krüger, Alwin Kienle, Institut für Lasertechnologien in der Medizin und Messtechnik (Germany) . . . [11078-77]

Maximum length sequence algorithm for wavefront shaping, Oleksandr Danko, Volodymyr Danko, Andrey Kovalenko, Vitalij Kurashov, Taras Shevchenko National Univ. of Kyiv (Ukraine) . . . [11078-78]

Evaluation of optical attenuation coefficient of living kidney using OCT, Weijun Li, Chunfa Wu, Yuhong Fang, Fujian Normal Univ. (China); Junxia Li, Fuzhou General Hospital of Nanjing Military Command (China); Zheng Huang, Univ. of Colorado Denver (USA) . . . [11078-79]

Optical coherence tomography of human brain glioma as a promising tool for intraoperative diagnostics in neurosurgery, Polina V. Aleksandrova, Bauman Moscow State Technical Univ. (Russian Federation); Irina N. Dolganova, Bauman Moscow State Technical Univ. (Russian Federation) and Institute of Solid State Physics (Russian Federation); Nikita Chernomyrdin, Guzel Musina, Bauman Moscow State Technical Univ. (Russian Federation) and A.M. Prokhorov General Physics Institute (Russian Federation); Sheykhlislam Beshplav, Aleksandra Kosyrkova, N.N. Burdenko Neurosurgery Institute (Russian Federation); Igor Reshetov, Sechenov Univ. (Russian Federation); Valery Tuchin, Saratov State Univ. (Russian Federation) and National Research Tomsk State Univ. (Russian Federation) and Institute of Precision Mechanics and Control (Russian Federation); Kirill Zaytsev, A.M. Prokhorov General Physics Institute (Russian Federation) and Bauman Moscow State Technical Univ. (Russian Federation) . . . [11078-80]

Characterization of speckle patterns generated by a semiconductor laser with optical feedback for speckle reduction in retinal imaging instruments, Donatus Halpaap, Jordi Tiana-Alsina, Meritxell Vilaseca, Cristina Masoller, Univ. Politècnica de Catalunya (Spain) . . . [11078-81]

SESSION 5

LOCATION: ROOM 11 ICM FIRST FLOOR . . WED 14:00 TO 15:15

Clinical Applications of Optical Coherence Imaging

Session Chair: **Peter E. Andersen**, DTU Fotonik (Denmark)

14:00: **Multifunctional optical coherence tomography for in vivo imaging of lungs periphery**, Margherita Vaselli, Fabio Feroldi, Joy Willemse, Valentina Davidoiu, Maximilian G. O. Gräfe, Dirc van Iperen, Vrije Univ. Amsterdam (Netherlands); Annika W. M. Goorsenberg, Peter I. Bonta, Jouke T. Annema, Univ. of Amsterdam (Netherlands); Johannes F. de Boer, Vrije Univ. Amsterdam (Netherlands) . . . [11078-22]

14:15: **Optical radiomic signatures derived from OCT images to improve identification of melanoma**, Peter E. Andersen, DTU Fotonik (Denmark); Zahra Turani, Wayne State Univ. (USA) and Sharif Univ. of Technology (Iran, Islamic Republic of); Emad Fatemizadeh, Sharif Univ. of Technology (Iran, Islamic Republic of); Tatiana Blumetti, A.C. Camargo Cancer Ctr. (Brazil); Steven Daveluy, Wayne State Univ. (USA); Ana Flavia Moraes, A.C. Camargo Cancer Ctr. (Brazil); Wei Chen, Karmanos Cancer Institute (USA); Darius Mehregan, Mohammadreza Nasirivanaki, Wayne State Univ. (USA) . . . [11078-23]

14:30: **Assessment of occlusal enamel alterations utilizing depolarization imaging based on PS-OCT**, Jonas Golde, Florian Tetschke, Robin Vosahlo, Julia Walther, Christian Hannig, Edmund Koch, Lars Kirsten, Universitätsklinikum Carl Gustav Carus Dresden (Germany) . . . [11078-24]

14:45: **New approach of staging and grading in bladder cancer with optical coherence tomography and Raman spectroscopy**, Daniela Bovenkamp, Ryan Sentosa, Elisabet Rank, Mikael T. Erkkilä, Fabian Placzek, Jeremias Püls, Rainer A. Leitgeb, Wolfgang Drexler, Nathalie Garstka, Shahrokh F. Shariat, Marco Andreana, Angelika Unterhuber, Medizinische Univ. Wien (Austria); Jürgen Popp, Clara Stiebing, Iwan W. Schie, Leibniz-Institut für Photonische Technologien e.V. (Germany) . . . [11078-25]

15:00: **Optical coherence tomography in otitis media with effusion diagnosing**, Pavel A. Shilyagin, Institute of Applied Physics (Russian Federation); Alexey A. Novozhilov, Timur E. Abubakirov, Institute of Applied Physics (Russian Federation) and The Volga District Medical Ctr. (Russian Federation); Grigory V. Geikonov, Institute of Applied Physics (Russian Federation); Andrey V. Shakhov, Institute of Applied Physics (Russian Federation) and Privolzhsky Research Medical Univ. (Russian Federation); Valentin M. Geikonov, Institute of Applied Physics (Russian Federation) . . . [11078-26]

Coffee Break Wed 15:30 to 16:00

SESSION 6

LOCATION: ROOM 11 ICM FIRST FLOOR . WED 16:00 TO 17:30

Advances in OCT Technology

Session Chair: **Adrian G.H. Podoleanu**, Univ. of Kent (United Kingdom)

16:00: **Zero roll-off retinal MHz-OCT using an FDML-Laser**, Julian Klee, Univ. zu Lübeck (Germany) . . . [11078-27]

16:15: **A nanometer axial resolution X-ray coherence tomography with a broadband SXR radiation emitted from a compact laser plasma double-stream gas-puff target source**, Przemyslaw W. Wachulak, Andrzej S. Bartnik, Antony Jose Arikatt, Henryk Fiedorowicz, Wojskowa Akademia Techniczna im. Jaroslawa Dabrowskiego (Poland) . . . [11078-28]

16:30: **Spectral domain and swept source optical coherence tomography on a photonic integrated circuit at 840nm for ophthalmic application**, Elisabet A. Rank, Medizinische Univ. Wien (Austria); Stefan Nevlacsil, Paul Muellner, Rainer Hainberger, Alejandro Maese-Novo, AIT Austrian Institute of Technology GmbH (Austria); Marcus Duell, Stefan Gloor, EXALOS AG (Switzerland); Matthias Voelker, Fraunhofer-Institut für Integrierte Schaltungen (IIS) (Germany); Gerald Meinhardt, Martin Sagmeister, Jochen Kraft, ams AG (Austria); Padraic Morrissey, Moises Jezzini, Zhiheng Quan, Peter O'Brien, Tyndall National Institute (Ireland); Stefan Richter, Michael Kempe, Carl Zeiss AG (Germany); Dana Seyringer, FH Vorarlberg (Austria); Wolfgang Drexler, Medizinische Univ. Wien (Austria) . . . [11078-29]

16:45: **Artifact-free Quantum Optical Coherence Tomography with joint spectrum detection (JS-Q-OCT)**, Sylwia M. Kolenderska, The Univ. of Auckland (New Zealand); Piotr Kolenderski, Nicolaus Copernicus Univ. (Poland); Frederique Vanholsbeeck, The Univ. of Auckland (New Zealand) . . . [11078-30]

17:00: **840-nm Combined-SLED Source integrated in 14-pin butterfly module with 140-nm bandwidth**, Stefan Gloor, Jean Dahdah, Nikolay Primerov, Tim von Niederhäusern, Marcus Duellk, Christian Velez, EXALOS AG (Switzerland) [11078-31]

17:15: **Automated heterodyne method to characterize semiconductor based akinetic swept laser sources**, Carlos Reyes, Brendan Roycroft, Brian Corbett, Tyndall National Institute, Univ. College Cork (Ireland); Tomasz Piwonski, Tyndall National Institute, Univ. College Cork (Ireland) and Ctr. for Advanced Photonics & Process Analysis, Cork Institute of Technology (Ireland) [11078-22]

THURSDAY 27 JUNE

SESSION 7

LOCATION: ROOM 11 ICM FIRST FLOOR . . . THU 8:30 TO 9:45

New Technology for Medical Instrumentation II

Session Chair: **Robert J. Zawadzki**, Univ. of California, Davis (USA)

8:30: **Towards combined optical coherence tomography and multi-spectral imaging with MHz a-scan rates for endoscopy**, Madita Göb, Tom Pfeiffer, Robert Huber, Univ. zu Lübeck (Germany) [11078-33]

8:45: **Compressional optical coherence elastography for performing histology-like assessment of breast cancers**, Vladimir Y. Zaitsev, Institute of Applied Physics (Russian Federation); Ekaterina V. Gubarkova, Privolzhsky Research Medical Univ. (Russian Federation); Alexander A. Sovetsky, Alexander L. Matveyev, Institute of Applied Physics (Russian Federation); Dmitry A. Vorontsov, Nizhny Novgorod Regional Oncologic Hospital (Russian Federation); Lev A. Matveev, Institute of Applied Physics (Russian Federation); Anton A. Plekhanov, Sergey S. Kuznetsov, Privolzhsky Research Medical Univ. (Russian Federation); Alexey Y. Vorontsov, Nizhny Novgorod Regional Oncologic Hospital (Russian Federation); Natalia D. Gladkova, Privolzhsky Research Medical Univ. (Russian Federation) [11078-34]

9:00: **Dual-beam manually-actuated catheters for wide-field distortion-corrected optical imaging**, Anthony M. D. Lee M.D., Andrea Manjarres, Calum MacAulay, Pierre Lane, BC Cancer Research Ctr. (Canada) [11078-35]

9:15: **4D microscopic optical coherence tomography imaging of ex vivo mucus transport**, Michael Münter, Hinnerk Schulz-Hildebrandt, Gereon Hüttmann, Institut für Biomedizinische Optik, Univ. zu Lübeck (Germany); Mario Pieper, Peter König, Institut für Anatomie, Univ. zu Lübeck (Germany) [11078-36]

9:30: **Depth-resolved attenuation coefficient estimation for skin cancer assessment with optical coherence tomography**, Eusebio Real Pena, Univ. de Cantabria (Spain); Gema Pérez Paredes M.D., Univ. Hospital Marques de Valdecilla (Spain); José M. López Higuera, Olga M. Conde, Univ. de Cantabria (Spain) [11078-37]

Coffee Break Thu 10:00 to 10:30

SESSION 8

LOCATION: ROOM 11 ICM FIRST FLOOR . . THU 10:30 TO 12:00

Polarization, Phase and Signal Processing

Session Chair: **Johannes F. de Boer**, Vrije Univ. Amsterdam (Netherlands)

10:30: **Intravascular polarization sensitive optical coherence tomography with a single input polarization state**, Martin Villiger, Wellman Ctr. for Photomedicine (USA); Qiaozhou Xiong, Nanshuo Wang, Xinyu Liu, Linbo Liu, Nanyang Technological Univ. (Singapore); Brett E. Bouma, Wellman Ctr. for Photomedicine (USA) [11078-38]

10:45: **Precision optimization in phase-sensitive OCT velocimetry**, Maximilian G. O. Gräfe, Vrije Univ. Amsterdam (Netherlands); Maude Gondre, Univ. de Genève (Switzerland); Johannes F. de Boer, Vrije Univ. Amsterdam (Netherlands) [11078-39]

11:00: **Polarization-sensitive optical coherence tomography for imaging of depth-resolved collagen fiber alignment in human oral mucosa**, Julia Walther, Universitätsklinikum Carl Gustav Carus Dresden, TU Dresden (Germany); Qingyun Li, The Univ. of Western Australia (Australia); Martin Villiger, Massachusetts General Hospital, Harvard Medical School (USA); Camile S. Farah, The Univ. of Western Australia (Australia); Edmund Koch, Universitätsklinikum Carl Gustav Carus Dresden, TU Dresden (Germany); Karol Karnowski, The Univ. of Western Australia (Australia); David D. Sampson, Univ. of Surrey (United Kingdom) [11078-40]

11:15: **Simultaneous optical coherence tomography measurements of corneal deformations at two arbitrary meridians**, Karol Karnowski, Institute of Physical Chemistry of the Polish Academy of Sciences (Poland) and The Univ. of Western Australia (Australia); Jędrzej Solarski, Alejandra Consejo, Institute of Physical Chemistry of the Polish Academy of Sciences (Poland); Maciej Wojtkowski, Institute of Physical Chemistry of the Polish Academy of Sciences (Poland) and Institute of Physics, Nicolaus Copernicus Univ. (Poland) [11078-41]

11:30: **Correlation mapping nano-sensitive optical coherence tomography (cm-nsOCT): a novel technique for structural characterization**, Sergey A. Alexandrov, National Univ. of Ireland, Galway (Ireland); Paul M. McNamara, Compact Imaging Ireland Ltd. (Ireland); Gillian Lynch, Cerine Lal, National Univ. of Ireland, Galway (Ireland); Josh Hogan, Compact Imaging, Inc. (USA); Martin Leahy, National Univ. of Ireland, Galway (Ireland) [11078-42]

11:45: **Semantic denoising autoencoders for retinal optical coherence tomography**, Max-Heinrich Laves, Sontje Ihler, Lüder Alexander Kahrs, Tobias Ortmaier, Institut für Mechatronische Systeme, Leibniz Univ. Hannover (Germany) [11078-43]

Lunch/Exhibition Break Thu 12:00 to 14:00

SESSION 9

LOCATION: ROOM 11 ICM FIRST FLOOR . . . THU 14:15 TO 15:30

Brain Imaging

Session Chair: **Maciej Wojtkowski**, Polish Academy of Sciences (Poland)

14:15: **Combined visible light optical coherence microscopy and fluorescence imaging setup to investigate 5-aminolevulinic acid positive glioma samples**, Antonia Lichtenegger, Johanna Gesperger, Medizinische Univ. Wien (Austria); Barbara Kiesel, Allgemeines Krankenhaus der Stadt Wien, Medizinische Univ. Wien (Austria); Danielle J. Harper, Pablo Eugui, Matthias Salas, Marco Augustin, Medizinische Univ. Wien (Austria); Thomas Roetzer, Allgemeines Krankenhaus der Stadt Wien, Medizinische Univ. Wien (Austria); Christoph K. Hitzzenberger, Georg Widhalm, Adelheid Woehrer, Bernhard Baumann, Medizinische Univ. Wien (Austria) [11078-44]

14:30: **High-throughput optical imaging of intact whole murine brains by clearing assisted scattering tomography (CAST)**, Jian Ren, Wellman Ctr for Photomedicine (USA); Heejin Choi, Massachusetts Institute of Technology (USA); Martin Villiger, Wellman Ctr for Photomedicine (USA); Kwanghun Chung, Massachusetts Institute of Technology (USA); Brett Bouma, Wellman Ctr for Photomedicine (USA) [11078-45]

14:45: **Longitudinal investigation of cerebral small vessel disease in mouse model using functional optical coherence tomography**, Paul Shin, KAIST (Korea, Republic of) [11078-46]

15:00: **Longitudinal study on development and regression of the hyaloid, retinal and choroidal vascular networks using optical coherence tomography angiography**, Jang Ryul Park, Yongjoo Kim, KAIST (Korea, Republic of); Hye Kyoung Hong, Se Joon Woo, Kyu Hyung Park, Seoul National Univ. Bundang Hospital (Korea, Republic of); Wang-Yuhl Oh, KAIST (Korea, Republic of) [11078-47]

15:15: **Ex vivo and in vivo imaging of human brain tissue with different OCT systems**, Paul Strenge, Birgit Lange, Medizinisches Laserzentrum Lübeck GmbH (Germany); Christin Grill, Wolfgang Draxinger, Institut für Biomedizinische Optik, Univ. zu Lübeck (Germany); Veit Danicke, Dirk Theisen-Kunde, Medizinisches Laserzentrum Lübeck GmbH (Germany); Matteo M. Bonsanto, Universitätsklinikum Schleswig-Holstein (Germany); Robert Huber, Ralf Brinkmann, Institut für Biomedizinische Optik, Univ. zu Lübeck (Germany) [11078-49]

Coffee Break Thu 15:30 to 16:00

CONFERENCE 11078

SESSION 10

LOCATION: ROOM 11 ICM FIRST FLOOR . . THU 16:00 TO 17:30

Ophthalmic Applications

Session Chair: **Michael Pircher**, Medizinische Univ. Wien (Austria)

16:00: **MHz OCT angiography for 60 degree retinal imaging and microscopic choriocapillaris imaging.** Michael Niederleithner, Laurin Ginner, Matthias Salas, Medizinische Univ. Wien (Austria); Hugang Ren, Muzammil Arain, Rick Williams, Carl Zeiss Meditec, Inc. (USA); Wolfgang Drexler, Rainer A. Leitgeb, Medizinische Univ. Wien (Austria); Tilman Schroll, Carl Zeiss Meditec, Inc. (USA) [11078-50]

16:15: **Adaptive optics optical coherence tomography in clinical settings.** Michael Pircher, Zentrum für Medizinische Physik und Biomedizinische Technik, Medizinische Univ. Wien (Austria); Adrian Reumueller, Medizinische Univ. Wien (Austria); Matthias Salas, Zentrum für Medizinische Physik und Biomedizinische Technik, Medizinische Univ. Wien (Austria); Lorenz Wassermann, Julia Hafner, Ursula Schmidt-Erfurth, Medizinische Univ. Wien (Austria); Wolfgang Drexler, Zentrum für Medizinische Physik und Biomedizinische Technik, Medizinische Univ. Wien (Austria); Andreas Pollreis, Medizinische Univ. Wien (Austria) [11078-51]

16:30: **Non-invasive imaging of the choroidal vasculature with laser Doppler holography.** Leo Puyo, Institut Langevin Ondes et Images (France); Michel Paques, Institut de la Vision (France) and Ctr. d'Investigation Clinique des Quinze-Vingts (France); Mathias Fink, Institut Langevin Ondes et Images (France); Jose Sahel, Institut de la Vision (France) and Ctr. d'Investigation Clinique des Quinze-Vingts (France); Michael Atlan, Institut Langevin Ondes et Images (France) [11078-52]

16:45: **Imaging of healthy and diseased human cornea by wide-field conical scanning polarization sensitive OCT.** Christoph K. Hitzenberger, Florian Beer, Niklas Pircher, Stephan Holzer, Jan Lammer, Bernhard Baumann, Gerald Schmidinger, Michael Pircher, Medizinische Univ. Wien (Austria) [11078-53]

17:00: **Imaging AMD biomarkers with off-axis full-field time-domain OCT.** Peter Koch, Michael Muenst, Moritz Moltmann, Medizinisches Laserzentrum Lübeck GmbH (Germany); Claus von der Burchard, Universitätsklinikum Schleswig-Holstein (Germany); Helge Sudkamp, Dirk Theisen-Kunde, Reginald Birngruber, Medizinisches Laserzentrum Lübeck GmbH (Germany); Johann Roeder, Universitätsklinikum Schleswig-Holstein (Germany); Gereon Hüttmann, Medizinisches Laserzentrum Lübeck GmbH (Germany) [11078-54]

17:15: **Machine learning for optical coherence tomography angiography.** Julian Lo, Morgan Heisler, Arman Athwal, Francis Tran, Marinko V. Sarunic, Simon Fraser Univ. (Canada) [11078-55]

CONFERENCE 11079

LOCATION: ROOM 11 ICM FIRST FLOOR

Sunday–Monday 23–24 June 2019 • Proceedings of SPIE Vol. 11079

Translation of Lasers and Biophotonics Technologies and Procedures: Toward the Clinic

Conference Chairs: **Lothar D. Lilge**, Princess Margaret Hospital (Canada); **Carsten M. Philipp**, Evangelische Elisabeth Klinik (Germany)

Program Committee: **Christian Stephan Betz**, Klinikum der Univ. München (Germany); **Ralf Brinkmann**, Univ. zu Lübeck (Germany); **Santiago Camacho Lopez**, Ctr. de Investigación Científica y de Educación Superior de Ensenada B.C. (Mexico); **Matthias Domke**, FH Vorarlberg (Austria); **Martin Frenz**, Univ. Bern (Switzerland); **Zheng Huang**, Univ. of Colorado Denver (USA); **Hyun Wook Kang**, Pukyong National Univ. (Korea, Republic of); **Mikhail Y. Kirillin**, Institute of Applied Physics (Russian Federation); **Igor Meglinski**, Univ. of Oulu (Finland); **Serge R. Mordon**, INSERM (France); **Angelika C. Rueck**, Univ. Ulm (Germany); **Adrian Rühm**, Laser-Forschungslabor (Germany); **David D. Sampson**, The Univ. of Western Australia (Australia); **Herbert Stepp**, Univ. Hospital Munich (Germany); **Frank Strittmatter**, Univ. Hospital of LMU-Munich (Germany); **Valery V. Tuchin**, Saratov State Univ. (Russian Federation); **Georges Wagnières**, Ecole Polytechnique Fédérale de Lausanne (Switzerland)

SUNDAY 23 JUNE

SESSION 1

LOCATION: ROOM 11 ICM FIRST FLOOR . . . SUN 8:30 TO 10:00

Pulsed Laser and Photothermal Applications I

Session Chair: **Ralf Brinkmann**, Medizinisches Laserzentrum Lübeck GmbH (Germany)

8:30: **Dosimetry for microsecond selective laser trabeculoplasty** (*Invited Paper*), Katharina Bliedner, Eric Seifert, Medizinisches Laserzentrum Lübeck GmbH (Germany); Ralf Brinkmann, Medizinisches Laserzentrum Lübeck GmbH (Germany) and Institut für Biomedizinische Optik, Univ. zu Lübeck (Germany) [11079-1]

9:00: **Optical coherence tomography controlled selective retina therapy with a novel microsecond pulsed laser**, Christian Burri, Berner Fachhochschule Technik und Informatik (Switzerland); Alessa Hutfilz, Medizinisches Laserzentrum Lübeck GmbH (Germany); Lorenz Grimm, Patrik Arnold, Berner Fachhochschule Technik und Informatik (Switzerland); Andreas Ebnetter, Universitätsklinik für Augenheilkunde, Inselspital (Switzerland); Ralf Brinkmann, Dirk Theisen-Kunde, Medizinisches Laserzentrum Lübeck GmbH (Germany); Boris Považay, Christoph Meier, Berner Fachhochschule Technik und Informatik (Switzerland) [11079-2]

9:15: **In vitro and in vivo threshold determination for microsecond laser exposure of retinal pigment epithelium**, Eric Seifert, Medizinisches Laserzentrum Lübeck GmbH (Germany); Svenja Rebecca Sonntag, Universitätsklinikum Schleswig-Holstein (Germany); Philipp Kleingarn, Dirk Theisen-Kunde, Medizinisches Laserzentrum Lübeck GmbH (Germany); Yoko Miura, Klinik für Augenheilkunde, Universitätsklinikum Schleswig-Holstein (Germany) and Institut für Biomedizinische Optik, Univ. zu Lübeck (Germany); Ralf Brinkmann, Medizinisches Laserzentrum Lübeck GmbH (Germany) and Institut für Biomedizinische Optik, Univ. zu Lübeck (Germany) [11079-3]

9:30: **Microshear bond strength enhancement after femtosecond laser ablation of smear layer on sound and eroded dentin**, F. G. Rego-Filho, Univ. Federal de Alagoas (Brazil); P. F. Cassimiro-Silva, L. S. A. Melo, T. J. C. Dias, C. M. S. B. Falcão, G. Q. M. Monteiro, A. S. L. Gomes, Univ. Federal de Pernambuco (Brazil) [11079-4]

9:45: **Biomechanical FEM model of the cornea in femtosecond laser assisted keratoplasty**, Francesca Rossi, Michele Rossi, Roberto Pini, Istituto di Fisica Applicata “Nello Carrara” (Italy); Alex Malandrini, Annalisa Canovetti, U.O. Oculistica Nuovo Ospedale S. Stefano (Italy); Paolo Ferrara, Istituto di BioRobotica, Scuola Superiore Sant’Anna (Italy); Luca Menabuoni, Casa di Cura Villa Donatello S.p.A. (Italy) [11079-5]

Coffee Break Sun 10:00 to 10:30

SESSION 2

LOCATION: ROOM 11 ICM FIRST FLOOR . . . SUN 10:30 TO 12:00

Short Pulse and Photothermal Applications II

Session Chair: **Adrian Ruehm**, Laser-Forschungslabor in LIFE-Centre at Hospital of Univ. Munich (Germany)

10:30: **Ex vivo efficacy demonstration of a laser fenestration system for endovascular abdominal aortic aneurysm repair (EVAR)**, Filippo Micheletti, Istituto di Fisica Applicata “Nello Carrara” (Italy); Roberta Piazza, Sara Condino, Univ. di Pisa (Italy) and EndoCAS (Italy); Giada Magni, Istituto di Fisica Applicata “Nello Carrara” (Italy); Raffaella Nice Berchiolli, Cisanello Univ. Hospital, Univ. di Pisa (Italy); Paolo De Simone, Hepatobiliary Surgery and Liver Transplantation, Univ. di Pisa (Italy); Vincenzo Ferrari, Univ. di Pisa (Italy) and EndoCAS (Italy); Mauro Ferrari, EndoCAS (Italy) and Vascular Surgery Unit (Italy); Francesca Rossi, Istituto di Fisica Applicata “Nello Carrara” (Italy) [11079-6]

10:45: **Noncontact tagging and identification of preimplantation mammalian embryos by means of ultrafast laser microsurgery**, Inna V. Ilina, Joint Institute for High Temperatures (Russian Federation); Yulia V. Khranova, Maxim A. Filatov, M.V. Lomonosov Moscow State Univ. (Russian Federation); Dmitry S. Sitnikov, Joint Institute for High Temperatures (Russian Federation) [11079-7]

11:00: **Investigations on thermography in laser medicine**, Christian Freymüller, Maximilian Eisel, Laser-Forschungslabor (Germany); Stephan Stroebel, FH Vorarlberg (Austria); Adrian Rühm, Ronald Sroka, Laser-Forschungslabor (Germany) [11079-8]

11:15: **A mid-infrared laser features and fat reduction efficacy**, Ji-Young Lee, Suk-Won Oh, Han-Young Ryu, Young-Seok Seo, WONTECH Co., Ltd. (Korea, Republic of) [11079-9]

11:30: **Toward feedback temperature control for retinal laser treatment**, Hossameldin Abbas, Medizinisches Laserzentrum Lübeck GmbH (Germany) and Institut für biomedizinische Optik, Univ. zu Lübeck (Germany); Christopher Kren, Veit Danicke, Medizinisches Laserzentrum Lübeck GmbH (Germany); Christian Herzog, Ralf Brinkmann, Univ. zu Lübeck (Germany) [11079-10]

11:45: **Low-temperature (cavitation) dissection of biological tissues by quasi-continuous laser irradiation**, George I. Zheltov, B.I. Stepanov Institute of Physics (Belarus); Oleg G. Romanov, Belarusian State Univ. (Belarus); Vladimir D. Bourko M.D., Republic Klinical Medical Ctr. (Belarus) . . [11079-11]

Lunch Break Sun 12:00 to 14:00

LOCATION: ROOM 5 ICM
GROUND FLOOR SUN 14:00 TO 15:30

ECBO Hot Topics

Session Chairs: **I. Alex Vitkin**, Univ. Health Network (Canada);
Ronald Sroka, Laser-Forschungslabor (Germany)

Coffee Break Sun 15:30 to 16:00

SESSION 3

LOCATION: ROOM 11 ICM FIRST FLOOR . . SUN 16:00 TO 17:45

Optical Diagnostic Techniques

Session Chair: **Marie Louise Groot**, Vrije Univ. Amsterdam
(Netherlands)

16:00: **Two-channel portable fluorescence meter for risk stratification of cardiovascular diseases**, Vladimir N. Grishanov, Dmitriy V. Kornilin, Samara Univ. (Russian Federation); Petr A. Lebedev, Dmitry E. Kopae, Darya Yu Pimenova, Samara State Medical Univ. (Russian Federation); Valeriy P. Zakharov, Samara Univ. (Russian Federation) [11079-12]

16:15: **Rapid spectrophotometric quantification of urinary porphyrins and porphobilinogen as screening tool for attacks of acute porphyria**, C. Heckl, A. Lang, Laser-Forschungslabor (Germany); M. Vogeser, Klinikum der Univ. München (Germany); T. Stauch, Medizinisches Versorgungszentrum Labor PD Dr. Volkmann und Kollegen GbR (Germany); C. Homann, G. Hennig, R. Sroka, H. Stepp, Laser-Forschungslabor (Germany) [11079-13]

16:30: **An in vivo two photon fluorescence endomicroscopic probe based on a 2-axis electrothermal MEMS mirror**, Hussein Mehdine, Laurent Pinot, Imagerie et Modélisation en Neurobiologie et Cancérologie (France); Li Min, Suzhou Institute of Biomedical Engineering and Technology (China); Françoise Bouvet, Cedric Esnault, Imagerie et Modélisation en Neurobiologie et Cancérologie (France); Huikai Xie, Univ. of Florida (USA); Darine Abi Haidar, Univ. Paris Diderot (France) and Imagerie et Modélisation en Neurobiologie et Cancérologie (France) [11079-14]

16:45: **Clinical translation of Raman-based multimodal spectral histopathology for margin assessment during surgery of basal cell carcinoma**, Radu Boitor, Kenny Kong, The Univ. of Nottingham (United Kingdom); Sandeep Varma, NHS Treatment Ctr., Circle Nottingham Ltd. (United Kingdom); Alexey Koloydenko, Royal Holloway, Univ. of London (United Kingdom); Hywel Williams, Nottingham Univ. Hospitals NHS Trust (United Kingdom); Ioan Nottingher, The Univ. of Nottingham (United Kingdom) [11079-15]

17:00: **Third harmonic generation microscopy with automated image analysis for quantitative assessment of glioma infiltration in human brain tissue**, Marloes Groot, Vrije Univ. Amsterdam (Netherlands) [11079-16]

17:15: **Clinical spectroscopy for biotissues and bioliquids**, Olga Bibikova, art photonics GmbH (Germany) and Research-Educational Institute of Optics and Biophotonic, Saratov National Research State Univ. (Russian Federation); Anastasija Melenteva, Valeria Belikova, Samara State Technical Univ. (Russian Federation); Urszula J. Zabarylo, Charité-Universitätsmedizin (Germany); Thaddäus Hocotz, Charité Universitätsmedizin Berlin (Germany); Iskander Usenov, Tatiana Sakharova, art photonics GmbH (Germany); Georgy Danielyan, A.M. Prokhorov General Physics Institute (Russian Federation); Olaf Minet, Charité Universitätsmedizin Berlin (Germany); Viacheslav Artyushenko, art photonics GmbH (Germany) [11079-17]

17:30: **Bringing third and second harmonic generation microscopy into the clinic for the assessment of fresh lung tissue**, Laura M. van Huizen, Vrije Univ. Amsterdam (Netherlands); Jouke T. Annema, Amsterdam UMC, Vrije Univ. Amsterdam (Netherlands) and Academic Medical Ctr., Vrije Univ. Amsterdam (Netherlands); Pieter Wesseling, Amsterdam UMC, Vrije Univ. Amsterdam (Netherlands); Wim-Jan P. van Boven, Amsterdam UMC, Vrije Univ. Amsterdam (Netherlands) and Academic Medical Ctr., Vrije Univ. Amsterdam (Netherlands); Frank van Mourik, Tritos Diagnostics B.V. (Netherlands); Marloes Groot, Vrije Univ. Amsterdam (Netherlands) [11079-18]

MONDAY 24 JUNE

SESSION 4

LOCATION: ROOM 11 ICM FIRST FLOOR . . . MON 8:30 TO 9:15

PDT Delivery and Monitoring I

Session Chair: **Zheng Huang**, Univ. of Colorado Denver (USA)

8:30: **Optical coherence angiography monitoring of tumor early response to PDT in experimental and clinical studies** (*Invited Paper*), Marina A. Sirotkina, Ekaterina V. Gubarkova, Privolzhsky Research Medical Univ. (Russian Federation); Lev A. Matveev, Vladimir Y. Zaitsev, Alexander A. Moiseev, Institute of Applied Physics (Russian Federation); Felix I. Feldchtein, Elena V. Zagaynova, Privolzhsky Research Medical Univ. (Russian Federation); Alex Vitkin, Univ. of Toronto (Canada) and Univ. Health Network (Canada); Natalia D. Gladkova, Privolzhsky Research Medical Univ. (Russian Federation) [11079-19]

8:45: **Evaluation of singlet oxygen production of a novel chlorin photosensitizer**

, Jian Zou, Jie Jiang, Fujian Normal Univ. (China); Zhen Han, Rui Ding, Guilin Hui-ang Biopharmaceutical Co., Ltd. (China); Zheng Huang, Fujian Normal Univ. (China) [11079-20]

9:00: **Transbronchial light illumination for peripheral lung cancer: a numerical feasibility study**, Lothar D. Lilge, Christopher McFadden, Khaled Ramadan, Univ. Health Network (Canada); Zhangcheng Zheng, Fynn Schwiigelshohn, Vaughn Betz, Univ. of Toronto (Canada); Marcelo Cypel, Univ. Health Network (Canada) [11079-21]

LOCATION: ICM ROOM 1 MON 9:30 TO 11:00

World of Photonics Opening and Plenary

Coffee to Go Mon 11:00 to 11:15

SESSION 5

LOCATION: ROOM 11 ICM FIRST FLOOR . . . MON 11:15 TO 12:30

PDT Delivery and Monitoring II

Session Chairs: **Mikhail Yu. Kirillin**, Institute of Applied Physics of the RAS (Russian Federation); **Lothar D. Lilge**, Princess Margaret Cancer Ctr. (Canada)

11:15: **ALA/PpIX photodiagnosis of stress-induced gastrointestinal primary tumors and metastases in experimental animals**, Ekaterina G. Borisova, Institute of Electronics (Bulgaria); Tsani Slava Genova, Institute of Electronics (Bulgaria); Alexander Khorovodov, Saratov State Univ. (Russian Federation); Ilana Agranovich, Matvey Kanevskiy, Svetlana Konnova, Saratov State Univ. (Russian Federation); Ivan Angelov, Vanya Mantareva, Institute of Organic Chemistry with the Ctr. of Phytochemistry (Bulgaria); Nikita Navolokin, Saratov State Medical Univ. (Russian Federation); Oxana Semyachkina-Glushkovskaya, Saratov State Univ. (Russian Federation) [11079-22]

11:30: **Monitoring of photodynamic therapy with target nanoconstructs by fluorescence and optoacoustic imaging: numerical simulations and phantom study**, Ilya V. Turchin, Mikhail Y. Kirillin, Daria A. Kurakina, Valeria V. Perekatova, Anna G. Orlova, Ekaterina Sergeeva, Vladimir Plehanov, Alexander V. Khilov, Pavel Subochev, Institute of Applied Physics (Russian Federation); Srivalleesha Mallidi, Wellman Ctr. for Photomedicine, Massachusetts General Hospital (USA) and Harvard Medical School (USA); Tayyaba Hasan, Wellman Ctr. for Photomedicine (USA) [11079-23]

11:45: **Individualization of interstitial photodynamic therapy for malignant gliomas**, Maximilian Aumiller, Adrian Rühm, Maximilian Eisel, Christian Freymüller, Herbert Stepp, Laser-Forschungslabor (Germany) and Klinikum der Univ. München (Germany); André Liemert, Alwin Kienle, Institut für Lasertechnologien in der Medizin und Messtechnik (Germany); Ronald Sroka, Laser-Forschungslabor (Germany) and Klinikum der Univ. München (Germany) [11079-25]

SESSION 7

LOCATION: ROOM 11 ICM FIRST FLOOR . . MON 16:15 TO 17:45

Spectroscopy and other Biophotonics Technologies

Session Chair: **Fynn Schwiegelshohn**, Univ. of Toronto (Canada)

16:15: **Fiber optic solutions for intraoperative diagnostics and minimal invasive laser medicine**, Viacheslav Artyushenko, art photonics GmbH (Germany) [11079-34]

16:30: **Femtosecond laser printing of single living human cells**, Jun Zhang, Patrick Byers, Lasercenter University of Applied Sciences Munich (Germany); Christine Frank, Levin Schulte-Spechtel, Lasercenter Univ. of Applied Sciences Munich (Germany); Bastian Hartmann, Center for Applied Tissue Engineering and Regenerative Medicine CANTER (Germany); Julian Siegel, Lasercenter University of Applied Sciences Munich (Germany); Gabriele Marchi, Hochschule für Angewandte Wissenschaften München (Germany); Denitsa Docheva, Klinik und Poliklinik für Unfallchirurgie (Germany); Hauke Clausen-Schaumann, Stefanie Sudhop, Center for Applied Tissue Engineering and Regenerative Medicine CANTER (Germany); Heinz Huber, Lasercenter University of Applied Sciences Munich (Germany) [11079-35]

16:45: **FullMonte: fast Monte-Carlo light simulator**, Fynn Schwiegelshohn, Univ. of Toronto (Canada); Tanner Young-Schultz, Yasmin Afsharnejad, Vaughn Betz, Univ. of Toronto (Canada); Daniel Molenhuis, Univ. of Toronto (Canada) and Princess Margaret Cancer Ctr. (Canada); Lothar D. Lilge, Princess Margaret Cancer Ctr. (Canada) and Univ. of Toronto (Canada) [11079-36]

17:00: **Laser irradiation induces mitochondrial dysfunction in hepatic cells**, Oleg Lunov, Institute of Physics of Materials of the CAS, v.v.i. (Czech Republic); Anna Lynnyk, Institute of Physics of the CAS, v.v.i. (Czech Republic); Barbora Smolková, Mariia Uzhytchak, Institute of Physics of Materials of the CAS, v.v.i. (Czech Republic); Daria Egorova, Andrei Kulikov, ITMO Univ. (Russian Federation); Mariia Lunova, Institute for Clinical and Experimental Medicine (Czech Republic); Šárka Kubinová, Institute of Experimental Medicine (Czech Republic); Alexandr Dejnek, Institute of Physics of the CAS, v.v.i. (Czech Republic) [11079-37]

17:15: **Radiation profile measurement methods for optical light diffusers: comparison of radiation profiles measured in air with emission in human brain phantom**, Stephan Stroebel, FH Vorarlberg (Austria) and Laser-Forschungslabor (Germany) and Laser-Forschungslabor (Germany); Matthias Domke, FH Vorarlberg (Austria); Tilmann Trebst, LifePhotonic GmbH (Germany); Ronald Sroka, Laser-Forschungslabor (Germany) [11079-38]

17:30: **Standardization phantom for intraoperative fluorescence molecular imaging**, Dimitris Gorpas, Helmholtz Zentrum München GmbH (Germany); Maria Anastasopoulou, Maximilian Koch, Helmholtz Zentrum München GmbH (Germany) and Technische Univ. München (Germany); Uwe Klemm, Helmholtz Zentrum München GmbH (Germany); Markus Nieberler, Technische Univ. München (Germany); Vasilis Ntziachristos, Helmholtz Zentrum München GmbH (Germany) and Technical Univ. of Munich (Germany) [11079-39]

TUESDAY 25 JUNE

LUNCH BREAK AND POSTER SESSION - TUESDAY

ROOM: ICM HALL B0 TUE 12:00 TO 14:00

Posters will be featured on Monday, Tuesday, and Wednesday. Each day represents a different set of posters. To see which posters are included each day, please see the individual conference programs.

Poster authors: Please set up posters on the morning of your session before or during the morning coffee break. Plan to stand by your poster to discuss it with session attendees on the day of your session. Remove your poster following the poster session concludes as posters left on the boards will be discarded.

Ceruloplasmin: a potential carrier of photosensitizers for photodynamic therapy of tumors, Anna G. Gyulkhandanyan, Anna A. Zakoyana, Institute of Biochemistry, National Academy of Sciences of Armenia (Armenia); Aram G. Gyulkhandanyan, Molécules Thérapeutiques in Silico (MTi), Univ. Paris Diderot (France) and INSERM (France); Marina V. Parkhots, Boris M. Dzhagarov, B.I. Stepanov Institute of Physics, NAS Belarus (Belarus); Ekaterina N. Lazareva, Valery V. Tuchin, Saratov State Univ. (Russian Federation); Grigor V. Gyulkhandanyana, Institute of Biochemistry, National Academy of Sciences of Armenia (Armenia) [11079-24]

Characterising UV transmission property of red hair using microspectrophotometer, Xiyong Huang, Michael D. Protheroe, Ahmed M. Al-Jumaily, Auckland Univ. of Technology (New Zealand); Sharad P. Paul, The Univ. of Auckland (New Zealand); Andrew N. Chalmers, Xiang Fu, Auckland Univ. of Technology (New Zealand) [11079-40]

12:00: **Red and blue light photodynamic therapy regimes: optical monitoring and histology studies**, Mikhail Y. Kirillin, Institute of Applied Physics (Russian Federation); Maria Shakhova, Institute of Applied Physics (Russian Federation) and Privolzhsky Research Medical Univ. (Russian Federation); Daria A. Kurakina, Aleksandr V. Khilov, Anna G. Orlova, Ekaterina Sergeeva, Institute of Applied Physics (Russian Federation); Alina Meller, Institute of Applied Physics (Russian Federation) and Privolzhsky Research Medical Univ. (Russian Federation); Natalia Orlinskaya, Privolzhsky Research Medical Univ. (Russian Federation); Ilya V. Turchin, Institute of Applied Physics (Russian Federation) [11079-26]

12:15: **Increase and homogenization of the endogenous production of protoporphyrin IX by photobiomodulation**, Jaroslava Joniová, Emmanuel Gerelli, Georges Wagnières, Ecole Polytechnique Fédérale de Lausanne (Switzerland) [11079-27]

Lunch Break Mon 12:30 to 14:15

SESSION 6

LOCATION: ROOM 11 ICM FIRST FLOOR . . MON 14:15 TO 15:45

Photobiomodulation and Photoacoustics

Session Chair: **Lothar D. Lilge**, Princess Margaret Cancer Ctr. (Canada)

14:15: **Blue light induced modulation in the early phase of wound healing**, Francesca Tatini, Giada Magni, Gaetano De Siena, Roberto Pini, Istituto di Fisica Applicata "Nello Carrara" (Italy); Stefano Bacci, Univ. degli Studi di Firenze (Italy); Stefano Gasperini, Medical Advisor SaS (Italy); Francesco Saverio Pavone, LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy); Duccio Rossi Degl'Innocenti, Cristina Tripodi, Domenico Alfieri, Lorenzo Targetti, EmoLED S.r.l. (Italy); Francesca Rossi, Istituto di Fisica Applicata "Nello Carrara" (Italy) [11079-28]

14:30: **Action of He-Ne Laser on wounded human skin fibroblast cells**, Vijendra Prabhu, Satish Bola S. Rao, Krishna Kishore Mahato, Manipal Academy of Higher Education (India) [11079-29]

14:45: **Can photobiomodulation therapy be an alternative to pharmacological therapies in decreasing the progression of skeletal muscle impairments of mdx mice?**, Shaiane da Silva Tomazoni, Univ. Cidade de São Paulo (Brazil); Ernesto Cesar Pinto Leal-Junior, Univ. Nove de Julho (Brazil) [11079-30]

15:00: **A Blue LED light treatment for keloid scars: evidence from in vitro study**, Giada Magni, Istituto di Fisica Applicata "Nello Carrara" (Italy); Federica Cherchi, Elisabetta Coppi, Univ. degli Studi di Firenze (Italy); Marco Fracalvieri M.D., AOU Città della Salute e della Scienza di Torino (Italy); Martina Banchelli, Paolo Matteini, Roberto Pini, Istituto di Fisica Applicata "Nello Carrara" (Italy); Anna Maria Pugliese, Felicita Pedata, Univ. degli Studi di Firenze (Italy); Antongiulio Mangia M.D., AOU Città della Salute e della Scienza di Torino (Italy); Stefano Gasperini, Medical Advisor SaS (Italy); Francesco Saverio Pavone, Univ. degli Studi di Firenze (Italy) and LENS - Lab. Europeo di Spettroscopie Non-Lineari (Italy); Duccio Rossi Degl'Innocenti, Lorenzo Targetti, EmoLED S.r.l. (Italy); Francesca Rossi, Istituto di Fisica Applicata "Nello Carrara" (Italy) [11079-31]

15:15: **Heating and optoacoustic temperature determination of cell cultures**, Nicolas Detrez, Eric Seifert, Ralf Brinkmann, Dirk Theisen-Kunde, Medizinisches Laserzentrum Lübeck GmbH (Germany); Yoko Miura, Univ. zu Lübeck (Germany) [11079-32]

15:30: **Endocardial irrigated catheter for volumetric optoacoustic mapping of radio-frequency ablation**, Cagla Özsoy, Xosé Luis Deán-Ben, Daniel Razansky, ETH Zurich (Switzerland) and Univ. Zürich (Switzerland) . [11079-33]

Coffee Break Mon 15:45 to 16:15

TLB

Debonding of ceramic brackets using line laser system, Woo Jong Do, Byeong Kwon Kim, Sung-Min Kwon, Sungjo Park, Jong Hoon Lee, Institute of Advanced Convergence Technology (Korea, Republic of); Jin-Chul Ahn, Department of Bio-Medical Science and Medical Laser Research Center Korea, Dankook University (Korea, Republic of); Gu-In Jung, Institute of Advanced Convergence Technology (Korea, Republic of) [11079-41]

Near-real time monitoring of bacterial viability using the optrode: a portable fluorimeter, Fang Ou, The Univ. of Auckland (New Zealand) and The Dodd-Walls Ctr. for Photonic and Quantum Technologies (New Zealand); Julia Robertson, The Dodd-Walls Ctr. for Photonic and Quantum Technologies (New Zealand) and The Univ. of Auckland (New Zealand); Cushla McGovern, The Univ. of Auckland (New Zealand) and The Dodd-Walls Ctr. for Photonic and Quantum Technologies (New Zealand); Simon Swift, The Univ. of Auckland (New Zealand); Frédérique Vanholsbeeck, The Univ. of Auckland (New Zealand) and The Dodd-Walls Ctr. for Photonic and Quantum Technologies (New Zealand) [11079-42]

PDT suppository kit made for metronomic-PDT: the elimination of rectum cancer in rabbits, Xiafei Shi, Institute of Biomedical Engineering (China); Qianqian Chen, Institute of Biomedical Engineering, Chinese Academy of Medical Sciences (China); Wendong Jin, Institute of Biomedical Engineering (China); Huijuan Yin, Sun Yat-Sen Univ. (China) [11079-43]

Assessment of age-related skin changes using hyperspectral polarization imaging, Viktor Dremin, Orel State Univ. named after I.S. Turgenev (Russian Federation) and Univ. of Oulu (Finland); Alexander Bykov, Alexey Popov, Evgeny Zherebtsov, Igor V. Meglinski, Univ. of Oulu (Finland) [11079-44]

Quantitative analysis of portwine stainbirthmark color in PDT treatment, Jie Jiang, Weijun Li, Fujian Normal Univ. (China); Yuzhi Wang, Laser Plastic and Aesthetic Ctr., Guangzhou General Hospital of Guangzhou Military Command (China); Kaihua Yuan, Laser Plastic and Aesthetic Ctr. (China); Kui Dong, Fujian Normal Univ. (China); Zheng Huang, Univ. of Colorado Denver (USA) [11079-45]

Spectroscopic discrimination of green tea's impact on teeth at different temperatures, Condon Lau, City Univ. of Hong Kong (Hong Kong, China) [11079-46]

Laser excitation of acoustic pulses in absorbing and scattering tissues: numerical solution of three-dimensional problems, O. G. Romanov, Belarusian State Univ. (Belarus); G. I. Zheltov, B.I. Stepanov Institute of Physics (Belarus) [11079-47]

Optical fine-needle biopsy approach for intraoperative multimodal diagnostics in minimally invasive abdominal surgery, Ksenia Kandurova, Elena V. Potapova, Valerii V. Shupletsov, Igor Kozlov, Evgeniya Seryogina, Orel State Univ. named after I.S. Turgenev (Russian Federation); Viktor Dremin, Evgeny Zherebtsov, Orel State Univ. named after I.S. Turgenev (Russian Federation) and Univ. of Oulu (Finland); Andrian Mamoshin M.D., Orel State Univ. named after I.S. Turgenev (Russian Federation) and Orel Regional Clinical Hospital (Russian Federation); Andrey Dunaev, Orel State Univ. named after I.S. Turgenev (Russian Federation) [11079-48]

Cross-polarization OCT needle probe for combined blood vessels detection and tissue differentiation during stereotactic biopsy of brain tumors, Elena B. Kiseleva, Privilzhsky Research Medical Univ. (Russian Federation); Pavel A. Shilyagin, Vladimir N. Romashov, Institute of Applied Physics (Russian Federation); Yulia V. Korzhimanova, Marina A. Sirotkina, Konstantin S. Yashin, Elena V. Zagaynova, Privilzhsky Research Medical Univ. (Russian Federation); Grigory V. Gelikonov, Institute of Applied Physics (Russian Federation); Natalia D. Gladkova, Privilzhsky Research Medical Univ. (Russian Federation) [11079-49]

Synergistic effects of combination of three wavelengths and different light sources in cytochrome c oxidase activity in intact skeletal muscle of rats, Ernesto Cesar Leal-Junior, Univ. Nove de Julho (Brazil); Shaiane Tomazoni, Univ. Cidade de São Paulo (Brazil) [11079-50]

Near-infrared light therapy for recovery of cerebral hypoperfusion induced by bilateral common carotid artery stenosis in mice, Dong-Jin Lee, Inha Univ. (Korea, Republic of); Ha-Young Jang, Osong Medical Innovation Foundation (Korea, Republic of); Ki-Wook Moon, Chang Healthcare Co., Ltd. (Korea, Republic of); Eun-Joo Lee, A-Ram Yoo, Woo Sung Choi, Osong Medical Innovation Foundation (Korea, Republic of); Chang Kyu Sung, Chang Healthcare Co., Ltd. (Korea, Republic of); Jae Hun Kim, Korea Institute of Science and Technology (Korea, Republic of); DaeYu Kim, Inha Univ. (Korea, Republic of) [11079-51]

A pilot clinical study of 980nm laser fractional treatment of oral mucosa, Elena S. Sergeeva, Saint Petersburg State Univ. (Russian Federation); Ludmila A. Ermolaeva, St. Petersburg State Univ. (Russian Federation); Andrey V. Belikov, ITMO Univ. (Russian Federation); Dmitriy E. Korzhevsky, Federal State Budgetary Scientific Institution "Institute of Experimental Medicine" (Russian Federation) and St. Petersburg State Univ. (Russian Federation); Valeria V. Gusel'nikova, Federal State Budgetary Scientific Institution "Institute of Experimental Medicine" (Russian Federation); Denis Y. Fedotov, Saint Petersburg State Univ. (Russian Federation); Yulia V. Semyashkina, Maria M. Antropova, ITMO Univ. (Russian Federation) [11079-52]

Ex vivo investigation of different μ s laser pulse durations for selective retina therapy (SRT), Alessa Hutfilz, Medizinisches Laserzentrum Lübeck GmbH (Germany) [11079-53]

Dual-wavelength fluorescence localization of chlorin-based photosensitizer, Aleksandr V. Khilov, Daria A. Kurakina, Ilya V. Turchin, Mikhail Y. Kirillin, Institute of Applied Physics (Russian Federation) [11079-54]

Selective damages of tumor vessels by 1060 nm pulsed irradiation, Vladimir V. Klimenko, St. Petersburg Clinical Scientific and Practical Center for Special Types of Medical Care (oncological) (Russian Federation); Anatoliy A. Rusanov, Moscow Regional Research and Clinical Institute "MONIKI" (Russian Federation); Vadim E. Karev, Children's Research Center of Infectious Diseases of the Federal Medical-Biological Agency (Russian Federation); Nikolay A. Knyazev, Institute of Cytology RAS (Russian Federation) and SPb clinical scientific and practical center for special types of medical care (oncological) (Russian Federation); Nikolay A. Verlov, Petersburg Nuclear Physics Institute NRC Kurchatov Institute (Russian Federation) and SPb clinical scientific and practical center for special types of medical care (oncological) (Russian Federation); Alexey A. Bogdanov, ITMO University (Russian Federation) and SPb clinical scientific and practical center for special types of medical care (oncological) (Russian Federation) [11079-55]

Optical methods for differential diagnostics between secondary bladder cancer and late adverse events after pelvic radiation therapy, A. V. Maslennikova M.D., Privilzhsky Research Medical Univ. (Russian Federation) and N.I. Lobachevsky State Univ. of Nizhni Novgorod (Russian Federation); O. S. Streltsova M.D., E. B. Kiseleva, Privilzhsky Research Medical Univ. (Russian Federation); V. V. Dudenkova, Privilzhsky Research Medical Univ. (Russian Federation) and N.I. Lobachevsky State Univ. of Nizhni Novgorod (Russian Federation); K. E. Yunusova M.D., Privilzhsky Research Medical Univ. (Russian Federation); E. A. Tararova M.D., Nizhny Novgorod Regional Oncology Hospital (Russian Federation) [11079-56]

Comparative analysis of single- and dual-wavelength low dose photodynamic therapy regimens, Daria A. Kurakina, Aleksandr V. Khilov, Institute of Applied Physics (Russian Federation); Maria Shakhova, Institute of Applied Physics (Russian Federation) and Privilzhsky Research Medical Univ. (Russian Federation); Natalia Orlinkaya, Privilzhsky Research Medical Univ. (Russian Federation); Mikhail Y. Kirillin, Institute of Applied Physics (Russian Federation) [11079-57]

Solid state versus fiber picosecond infrared lasers applied to two-photon vision tests, Marcin Marzejon, Institute of Physical Chemistry of the Polish Academy of Sciences (Poland) and Gdansk Univ. of Technology (Poland); Katarzyna Komar, Nicolaus Copernicus Univ. (Poland) and Baltic Institute of Technology (Poland); Lukasz Kornaszewski, Institute of Physical Chemistry of the Polish Academy of Sciences (Poland); Maciej Wojtkowski, Institute of Physical Chemistry of the Polish Academy of Sciences (Poland) and Nicolaus Copernicus Univ. (Poland) [11079-58]

Hydrogen peroxide level in tumor cells during cisplatin-induced apoptosis, Anastasiya S. Nerush, Institute of Applied Physics (Russian Federation); Kseniya M. Shchukina, Irina V. Balalaeva, N.I. Lobachevsky State Univ. of Nizhni Novgorod (Russian Federation); Anna G. Orlova, Institute of Applied Physics (Russian Federation) [11079-59]

Simulations for modeling the photothermal response of nerve tissue,
Merve Türker, Serhat Tozburun, Izmir Biomedicine and Genome Ctr.
(Turkey) [11079-60]

Nd:YAG laser on dental enamel in the reduction of artificial caries demineralization, Denise Zezell, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Mateus Silva, Univ. Estadual Paulista “Julio de Mesquita Filho” (Brazil); Pedro A. A. de Castro, Instituto de Pesquisas Energéticas e Nucleares (Brazil); Tania Silva, Sergio Goncalves, Univ. Estadual Paulista “Julio de Mesquita Filho” (Brazil). [11079-61]

Wearable sensor system for multipoint measurements of blood perfusion: pilot studies in patients with diabetes mellitus, Evgeny Zherebtsov, Univ. of Oulu (Finland) and Orel State Univ. named after I.S. Turgenev (Russian Federation); Igor Kozlov, Angelina I. Zherebtsova, Elena Zharkikh, Yulia Loktionova, Orel State Univ. named after I.S. Turgenev (Russian Federation); Ilya Rafailov, Aston Medical Technology Ltd. (United Kingdom); Sergei G. Sokolovski, Aston Univ. (United Kingdom); Victor Sidorov, SPE LAZMA Ltd. (Russian Federation); Andrey Dunaev, Orel State Univ. named after I.S. Turgenev (Russian Federation); Edik Rafailov, Aston Univ. (United Kingdom). [11079-62]

Real-time ultrasound-guided laser energy modulation model for liver laser-induced thermotherapy, Van Nam Tran, Van Gia Truong, Hyun Wook Kang, Pukyong National Univ. (Korea, Republic of) [11079-63]

Analysis of changes in blood flow oscillations under different probe pressure using laser Doppler spectrum decomposition, Igor Kozlov, Orel State Univ. named after I.S. Turgenev (Russian Federation); Evgeny Zherebtsov, Orel State Univ. named after I.S. Turgenev (Russian Federation) and Univ. of Oulu (Finland); Mikhail A. Mezentsev, Valerii V. Shupletsov, Elena V. Potapova, Angelina I. Zherebtsova, Orel State Univ. named after I.S. Turgenev (Russian Federation); Viktor Dremine, Orel State Univ. named after I.S. Turgenev (Russian Federation) and Univ. of Oulu (Finland); Andrey Dunaev, Orel State Univ. named after I.S. Turgenev (Russian Federation); Igor V. Meglinski, Univ. of Oulu (Finland). [11079-64]

The effect of near infrared light irradiation on primary cultured trigeminal ganglion neurons, Heejoo Cho, Seonho Park, Euiheon Chung, Gwangju Institute of Science and Technology (Korea, Republic of) [11079-65]

Influence of Photobiomodulation (PBM) on cell survival in diabetic and hypoxic diabetic wounded fibroblast cells in vitro, Sandy Jere, Nicolette Houreld, Univ of Johannesburg (South Africa) [11079-66]

Multidimensional images processing in electrocardiography using Bragg diffraction technologies, Kirill V Zaichenko, Institute for analytical instrumentation RAS (Russian Federation) and State university of aerospace instrumentation (Russian Federation); Boris S Gurevich, Institute for analytical instrumentation RAS (Russian Federation) and State electro-technical university (Russian Federation) [11079-67]

Distribution between spatial and spectral kinds of information in the microscopy systems which perform multispectral processing of biological objects images, Kirill V Zaichenko, Institute for analytical instrumentation, RAS (Russian Federation) and State university of aerospace instrumentation (Russian Federation) [11079-68]

The study of Focused Ultrasound effect to increase the penetration of light for Photodynamic Therapy of deeper tissue, Seung Hee Han, Univ. Health Network (Canada) and University of Toronto (Canada). [11079-69]

APPLICATION TRACK

Photonics in Surgery 2019

The following presentations highlight cutting edge technologies and their applications in surgery. These presentations will be made in their related conferences as indicated below.

Mueller polarimetric imaging through a rigid endoscope, Arvid Lindberg, Ecole Polytechnique (France), et al. [11073-14]

Conf. 11073: Preclinical and Clinical Optical Diagnostics; Session 3: Novel Technologies in Optical Diagnostics I; Sunday, 17:00

5-ALA induced PpIX fluorescence guided surgery: a clinical study of spectral complexity in healthy tissues and margin boundaries in high and low grade gliomas, Bruno Montcel, Ctr. de Recherche en Acquisition et Traitement d'images pour la Sante (France), et al. [11073-28]

Conf. 11073: Preclinical and Clinical Optical Diagnostics; Session 5: Tissue Characterization and Analysis; Monday, 15:30

Real-time multispectral optical imaging using GPGPU processing, Enagnon Aguénonon, Lab. des sciences de l'Ingénieur, de l'Informatique et de l'Imagerie (France), et al. [11073-30]

Conf. 11073: Preclinical and Clinical Optical Diagnostics; Session 6: Novel Technologies in Optical Diagnostics II; Monday, 16:45

Rapid intraoperative margin assessment by using multi-modal third-harmonic generation and three-photon fluorescence microscopy, Chi-Kuang Sun, National Taiwan Univ. (Taiwan), et al. [11073-32]

Conf. 11073: Preclinical and Clinical Optical Diagnostics; Session 6: Novel Technologies in Optical Diagnostics II; Monday, 17:15

Label-free spectroscopic diagnosis of urothelial carcinoma, Enrico Baria, Istituto Nazionale di Ottica (Italy), et al. [11073-4]

Conf. 11073: Preclinical and Clinical Optical Diagnostics; Session 1: Clinical Applications: Spectroscopy; Sunday, 9:30

Pixel-wise modified Beer-Lambert model for intraoperative functional brain mapping, Charly Caredda, Ctr. de Recherche en Acquisition et Traitement d'images pour la Sante (France), et al. [11073-42]

Conf. 11073: Preclinical and Clinical Optical Diagnostics; Session 8: Computational Analysis and Machine Learning; Tuesday, 11:00

Analysis of in vivo optical coherence tomography images of human peripheral nerves using texture analysis, Martin R. Hofmann, Ruhr-Univ. Bochum (Germany), et al. [11073-44]

Conf. 11073: Preclinical and Clinical Optical Diagnostics; Session 8: Computational Analysis and Machine Learning; Tuesday, 11:30

Discrimination of brain tumours and dysplastic tissues through multimodal fibre-probe spectroscopy, Enrico Baria, Istituto Nazionale di Ottica (Italy), et al. [11073-51]

Conf. 11073: Preclinical and Clinical Optical Diagnostics; Session 9: In Vivo Imaging and Spectroscopy; Tuesday, 17:30

In vivo multimodal fibre-probe spectroscopy for glioblastoma detection in mouse model, Enrico Baria, Istituto Nazionale di Ottica (Italy), et al. [11073-57]

Conf. 11073: Preclinical and Clinical Optical Diagnostics; Lunch Break and Poster Session - Monday; Monday, 12:45

Terahertz time-domain spectroscopy for human gastric cancer diagnosis, Roman Grigorev, ITMO Univ. (Russian Federation), et al. [11073-68]

Conf. 11073: Preclinical and Clinical Optical Diagnostics; Lunch Break and Poster Session - Monday; Monday, 12:45

Real time intraoperative functional brain mapping using a RGB camera, Charly Caredda, Ctr. de Recherche en Acquisition et Traitement d'images pour la Sante (France), et al. [11073-8]

Conf. 11073: Preclinical and Clinical Optical Diagnostics; Session 2: Clinical Applications: Imaging; Sunday, 11:15

Cervical cancer diagnostics with a multispectral Mueller polarimetric colposcope, Junha Park, Ecole Polytechnique (France), et al. [11073-9]

Conf. 11073: Preclinical and Clinical Optical Diagnostics; Session 2: Clinical Applications: Imaging; Sunday, 11:30

Direct and in utero monitoring of fetal cerebral blood flow in the lamb fetus, Giuseppe Lo Presti, ICFO - Institut de Ciències Fotòniques (Spain), et al. [11074-37]

Conf. 11074: Diffuse Optical Spectroscopy and Imaging; Session 6: Cerebral Hemodynamics and Neural Activity II; Monday, 15:30

Deep variational autoencoders for breast cancer tissue modeling and synthesis in SFDI imaging, Arturo Pardo, Univ. de Cantabria (Spain), et al. [11074-50]

Conf. 11074: Diffuse Optical Spectroscopy and Imaging; Session 10: Clinical Application of Diffuse Optics; Tuesday, 16:00

Pilot measurement of the microvascular blood flow of thyroid nodules by diffuse optics, Giuseppe Lo Presti, ICFO - Institut de Ciències Fotòniques (Spain), et al. [11074-55]

Conf. 11074: Diffuse Optical Spectroscopy and Imaging; Session 10: Clinical Application of Diffuse Optics; Tuesday, 17:15

Experimental investigation on the light transmission of textile-based over-cap used in functional near-infrared spectroscopy, Habib Sherkat, OsloMet - Oslo Metropolitan Univ. (Norway), et al. [11074-70]

Conf. 11074: Diffuse Optical Spectroscopy and Imaging; Lunch Break and Poster Session - Monday; Monday, 12:45

Hemodynamic change from menopause animal model using diffuse optical spectroscopy, Hyeryun Jeong, Gwangju Institute of Science and Technology (Korea, Republic of), et al. [11074-82]

Conf. 11074: Diffuse Optical Spectroscopy and Imaging; Lunch Break and Poster Session - Monday; Monday, 12:45

Use of dynamic light scattering for assessing acute pain, Adi Schejter Bar-Noam, Elfi-Tech Ltd. (Israel), et al. [11075-21]

Conf. 11075: Novel Biophotonics Techniques and Applications; Session 5: Sensing, Diagnostics and Therapy I; Thursday, 9:00

Optic Reflex Probes for fluorescent and UV-VIS-NIR spectroscopy based on novel types of multimode fiber optics bundles. (CENI-IOF / FIRE Russian Academy of Science, LLC Optofiber, Moscow), Georgy Danielyan, A.M. Prokhorov General Physics Institute of the RAS (Russian Federation), et al. [11075-38]

Conf. 11075: Novel Biophotonics Techniques and Applications; Lunch Break and Poster Session; Thursday, 12:00

Novel optical technologies for ultrashort pulsed laser surgery, Donald Risbridger, Heriot-Watt Univ. (United Kingdom), et al. [11075-57]

Conf. 11075: Novel Biophotonics Techniques and Applications; Session : Lunch Break and Poster Session; Thursday, 12:00

Improved and fast biotissue imaging by temporal focusing widefield multiphoton microscopy with spatially modulated illumination, Shean-Jen Chen, National Chiao Tung Univ. (Taiwan), et al. [11076-16]

Conf. 11076: Advances in Microscopic Imaging; Session 3: Multiphoton Microscopy; Wednesday, 14:45

Annular illumination photoacoustic probe for needle guidance in medical interventions, Francis Kalloor Joseph, Univ. of Twente (Netherlands), et al. [11077-20]

Conf. 11077: Opto-Acoustic Methods and Applications in Biophotonics; Session 5: Novel Detectors and Systems II; Tuesday, 8:30

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Optoacoustic guidance for stem cell therapy, Martin J. Leahy, National Univ. of Ireland, Galway (Ireland), et al.[11077-4]

Conf. 11077: Opto-Acoustic Methods and Applications in Biophotonics; Session 2: Clinical Applications II; Monday, 11:30

Photoacoustic assisted device guidance and thermal lesion imaging for radiofrequency ablation, Francis Kalloor Joseph, Univ. of Twente (Netherlands), et al.[11077-40]

Conf. 11077: Opto-Acoustic Methods and Applications in Biophotonics; Session PTues: Lunch Break and Poster Session - Tuesday; Tuesday, 12:00

Optoacoustic tissue differentiation using Mahalanobis distances and support vector machine for laser osteotomes, Herve Nguendon Kenhagho, Univ. Basel (Switzerland), et al.[11077-45]

Conf. 11077: Opto-Acoustic Methods and Applications in Biophotonics; Lunch Break and Poster Session - Tuesday; Tuesday, 12:00

Large area all-optical ultrasound imaging using robotic control, Richard J. Colchester, Univ. College London (United Kingdom), et al.[11077-52]

Conf. 11077: Opto-Acoustic Methods and Applications in Biophotonics; Lunch Break and Poster Session - Tuesday; Tuesday, 12:00

Acoustic differentiation of dental soft- and hard tissues using remote speckle-analysis during Er:YAG ablation, Benjamin Lengenfelder, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany), et al.[11077-57]

Conf. 11077: Opto-Acoustic Methods and Applications in Biophotonics; Lunch Break and Poster Session - Tuesday; Tuesday, 12:00

Remote speckle-sensing for improved differentiation between different types of tissues, Martin Hohmann, Friedrich-Alexander-Univ. Erlangen-Nürnberg (Germany), et al.[11077-62]

Conf. 11077: Opto-Acoustic Methods and Applications in Biophotonics; Lunch Break and Poster Session - Tuesday; Tuesday, 12:00

MHz-OCT for low latency virtual reality guided surgery: first wet lab experiments on ex-vivo porcine eye, Yoko Miura, Univ. zu Lübeck (Germany), et al.[11078-13]

Conf. 11078: Optical Coherence Imaging Techniques and Imaging in Scattering Media; Session 3: New Technology for Medical Instrumentation I; Wednesday, 8:45

Multifunctional optical coherence tomography for in vivo imaging of lungs periphery, Margherita Vaselli, Vrije Univ. Amsterdam (Netherlands), et al.[11078-22]

Conf. 11078: Optical Coherence Imaging Techniques and Imaging in Scattering Media; Session 5: Clinical Applications of Optical Coherence Imaging; Wednesday, 14:00

Compressional optical coherence elastography for performing histology-like assessment of breast cancers, Vladimir Y. Zaitsev, Institute of Applied Physics (Russian Federation), et al.[11078-34]

Conf. 11078: Optical Coherence Imaging Techniques and Imaging in Scattering Media; Session 7: New Technology for Medical Instrumentation II; Thursday, 8:45

Ex vivo and in vivo imaging of human brain tissue with different OCT systems, Paul Strenge, Medizinisches Laserzentrum Lübeck GmbH (Germany), et al.[11078-49]

Conf. 11078: Optical Coherence Imaging Techniques and Imaging in Scattering Media; Session 9: Brain Imaging; Thursday, 15:15

Low-temperature (cavitation) dissection of biological tissues by quasi-continuous laser irradiation, George I. Zheltov, B.I. Stepanov Institute of Physics (Belarus), et al.[11079-11]

Conf. 11079: Translation of Lasers and Biophotonics Technologies and Procedures: Toward the Clinic; Session 2: Short Pulse and Photothermal Applications II; Sunday, 11:45

Clinical translation of Raman-based multimodal spectral histopathology for margin assessment during surgery of basal cell carcinoma, Radu Boitor, The Univ. of Nottingham (United Kingdom), et al. 11079-15]

Conf. 11079: Translation of Lasers and Biophotonics Technologies and Procedures: Toward the Clinic; Session 3: Optical Diagnostic Techniques; Sunday, 16:45

Third harmonic generation microscopy with automated image analysis for quantitative assessment of glioma infiltration in human brain tissue, Marloes Groot, Vrije Univ. Amsterdam (Netherlands), et al.[11079-16]

Conf. 11079: Translation of Lasers and Biophotonics Technologies and Procedures: Toward the Clinic; Session 3: Optical Diagnostic Techniques; Sunday, 17:00

Bringing third and second harmonic generation microscopy into the clinic for the assessment of fresh lung tissue, Laura M. van Huizen, Vrije Univ. Amsterdam (Netherlands), et al. 11079-18]

Conf. 11079: Translation of Lasers and Biophotonics Technologies and Procedures: Toward the Clinic; Session 3: Optical Diagnostic Techniques; Sunday, 17:30

Transbronchial light illumination for peripheral lung cancer: a numerical feasibility study, Lothar D. Lilge, Univ. Health Network (Canada), et al.[11079-21]

Conf. 11079: Translation of Lasers and Biophotonics Technologies and Procedures: Toward the Clinic; Session 4: PDT Delivery and Monitoring I; Monday, 9:00

Heating and optoacoustic temperature determination of cell cultures, Nicolas Detrez, Medizinisches Laserzentrum Lübeck GmbH (Germany), et al.[11079-32]

Conf. 11079: Translation of Lasers and Biophotonics Technologies and Procedures: Toward the Clinic; Session 6: Photobiomodulation and Photoacoustic; Monday, 15:15

Fiber optic solutions for intraoperative diagnostics and minimal invasive laser medicine, Viacheslav Artyushenko, art photonics GmbH (Germany), et al.[11079-34]

Conf. 11079: Translation of Lasers and Biophotonics Technologies and Procedures: Toward the Clinic; Session 7: Spectroscopy and other Biophotonics Technologies; Monday, 16:15

Microshear bond strength enhancement after femtosecond laser ablation of smear layer on sound and eroded dentin, F. G. Rego-Filho, Univ. Federal de Alagoas (Brazil), et al.[11079-4]

Conf. 11079: Translation of Lasers and Biophotonics Technologies and Procedures: Toward the Clinic; Session 1: Pulsed Laser and Photothermal Applications I; Sunday, 9:30

Optical fine-needle biopsy approach for intraoperative multimodal diagnostics in minimally invasive abdominal surgery, Ksenia Kandurova, Orel State Univ. named after I.S. Turgenev (Russian Federation), et al.[11079-48]

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Cross-polarization OCT needle probe for combined blood vessels detection and tissue differentiation during stereotactic biopsy of brain tumors, Marina A. Sirotkina, Privozhsky Research Medical Univ. (Russian Federation), et al.[11079-49]

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Biomechanical FEM model of the cornea in femtosecond laser assisted keratoplasty, Francesca Rossi, Istituto di Fisica Applicata "Nello Carrara" (Italy), et al.[11079-5]

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A pilot clinical study of 980nm laser fractional treatment of oral mucosa,
Elena S. Sergeeva, Saint Petersburg State Univ. (Russian Federation),
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**Noncontact tagging and identification of preimplantation mammalian
embryos by means of ultrafast laser microsurgery,** Inna V. Ilina, Joint
Institute for High Temperatures (Russian Federation), et al. [11079-7]

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Investigations on thermography in laser medicine, Christian Freymüller,
Laser-Forschungslabor (Germany), et al. [11079-8]

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GENERAL INFORMATION

Registration

Onsite Registration and Badge Pick-up Hours

ICM Foyer West

Sunday 23 June · 7:30 to 17:30 hrs.

Monday 24 June · 7:30 to 17:00 hrs.

Tuesday 25 June · 8:00 to 17:00 hrs.

Wednesday 26 June · 8:30 to 17:00 hrs.

Thursday 27 June · 8:30 to 16:00 hrs.

Conference Registration

Includes admission to all conference sessions, plenaries, panels, and poster sessions, admission to the Laser World of Photonics Exhibition, Welcome Reception, coffee breaks, and a choice of online proceedings.

Member, Student Member, and Student Pricing

- SPIE and OSA Members receive conference registration discounts. Discounts are applied at the time of registration.
- Student registration rates are available only to undergraduate and graduate students who are enrolled full time and have not yet received their Ph.D. Post-docs may not register as students. A student ID number or proof of student status is required with your registration.

ECBO Cashier

ICM Foyer West

Open during registration hours

Registration Payments

If you are paying by cash or cheque as part of your onsite registration, wish to add a course, workshop, or special event requiring payment, or have questions regarding your registration, visit the SPIE Cashier.

Receipt and Certificate of Attendance

Preregistered attendees who did not receive a receipt or attendees who need a Certificate of Attendance may obtain those from the SPIE Cashier.

Badge Corrections

Badge corrections can be made by the SPIE Cashier. Please have your badge removed from the badge holder and marked with your changes before approaching the counter.

Author / Presenter Information

Speaker Check-In and Preview Station

ICM, First Floor Foyer, and Hall A1

Monday through Thursday

Open during registration hours

All conference rooms have a computer workstation, projector, screen, lapel microphone, and laser pointer. All presenters are strongly encouraged to visit Speaker Check-In at least 2 hours prior to their presentation to preview their files through the SPIE presentation system, or the day before if presenting in first morning session).

European Conferences on Biomedical Optics Poster Sessions

Monday 24 June 2019 · 12:45 to 14:15

Tuesday 25 June 2019 · 12:00 to 14:00

Wednesday 26 June 2019 · 12:00 to 14:00

Thursday 27 June 2019 · 12:00 to 14:00

All symposium attendees are invited to attend the Poster Sessions provided as an opportunity to enjoy networking while reviewing poster papers.

Posters will be featured on Monday, Tuesday, Wednesday and Thursday. Each day represents a different set of posters. To see which posters are included each day, please see the individual conference programs.

Poster authors: Please set up posters on the morning of your session before or during the morning coffee break. Plan to stand by your poster to discuss it with session attendees on the day of your session. Remove your poster following the poster session concludes as posters left on the boards will be discarded.

SPEAKERS ARE NOT ABLE TO PRESENT USING THEIR OWN LAPTOP OR OTHER DEVICE

1. The onsite AV management is handled by Neumann & Müller, the local AV agency tasked by Messe München GmbH. Speakers have been contacted by this agency and are asked to follow the guidelines received by Neumann & Müller.

2. Preview your presentation onsite

All presenters are strongly encouraged to visit Speaker Check-In at least 2 hours prior to their presentation to preview their files through the SPIE presentation system, or the day before if presenting in first morning session).

Onsite Services

Internet Access

ICM Foyer Areas

Complimentary Internet will be available.

Conference App

Download the free SPIE Conference App, available for iPhone and Android phones. Search and browse the programme, special events, participants, exhibitors, and more. <http://spie.org/smartphone-apps>

Business Centre

ICM Foyer

Open during registration hours.

Services include copying and printing options at cost.

Luggage + Coat Check

Foyer West, Level -1 · Open during registration hours

Luggage, package, and coat storage are available against charge. Please note opening hours.

Urgent Message Line

An urgent message line is available during registration hours: +44 29 2089 4747. Attendees should check the message board in the registration area for any messages held for them.

Food and Beverage Services

Coffee Breaks

ICM Foyers, and Hall A1

Complimentary coffee will be served twice daily at the times indicated in the programme. Check individual conference listings for exact times and locations.

Food and Refreshments for Purchase

The ICM has three permanent food-service operations in the foyer area – the ICM Bistro, ICM Bar, and ICM Café where guests can purchase food. There is also the “Am See” Restaurant located on the 1st floor above the registration in Entrance West. In good weather, a beer garden is operated in the courtyard between Halls A and C. There are also a number of bars and restaurants located in the surrounding hotels as well as the “Riem Arkaden” shopping centre on the other side of the underground station “Messestadt West”.

Car Rental

1. Call the Hertz International Reservation Center at 1-800-654-3001 in the USA or your local Hertz Reservations Center to receive a special discount for SPIE. Reservations may also be placed on-line at www.hertz.com. You will receive 15% off qualifying affordable rates at participating locations in Munich, Germany.
2. Be sure to identify yourself as a SPIE attendee. The PC# below must be on your advance reservation to receive this special offer. You must present this coupon at the time of rental in order to receive this discount.
3. This special offer is available for rentals from June 15- July 7, 2019.

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15% OFF

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1. The SPIE discount is available at participating locations in Munich, GE.
2. The 15% Discount applies to rentals on Affordable Rates from June 15- July 7, 2019.
3. Reservations must be made at least 24 hours prior to vehicle pickup, using the PC# on the coupon. No CDP discounts apply.
4. Minimum rental period is 3 days.
5. Offer includes Compact and above both manuals and automatic (includes basic/standard cars - not vans, premium, luxury, collections, etc.).
6. Discount does not apply to taxes, intercity drop charges, insurance or optional services.
7. Certificate has no cash value and may not be combined with any other offer, discount or promotion. Certificate must be presented and surrendered at time of rental.
8. Normal intercity rules and rate restrictions apply.
9. Minimum rental age is 25 (exceptions apply). Hertz standard driver and credit qualifications for the rental location apply. Blackout periods may apply.

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Payment Policy

Registrations must be fully paid before access to the conference is allowed. SPIE accepts VISA, MasterCard, American Express, Discover, Diner's Club, checks and wire transfers. Onsite registrations can also be paid with cash.

SPIE Safe Meeting Policy | Code of Conduct

SPIE is committed to providing a harassment- and discrimination-free experience for everyone at our events, an experience that embraces the richness of diversity where participants may exchange ideas, learn, network, and socialize in the company of colleagues in an environment of mutual respect.

SPIE does not tolerate harassment of event participants, attendees, exhibitors, speakers, volunteers, contractors, service providers, venue staff, or SPIE staff. This Code of Conduct applies to all SPIE meeting-related events, including those sponsored by other organizations but held in conjunction with SPIE events, in public or private facilities.

The SPIE Anti-Harassment Policy may be found at <http://spie.org/policy> (PDF)

The SPIE Code of Conduct may be found at <http://spie.org/conduct> (PDF)

In addition, SPIE Members and authors of SPIE publications must adhere to the SPIE Code of Ethics, found at <http://spie.org/ethics> (PDF)

Reporting of Unethical or Inappropriate Behavior

Onsite at an SPIE meeting, contact any SPIE Staff with concerns or questions for thorough follow-up. If you feel in immediate danger, please dial the local emergency number for police intervention.

SPIE has established a confidential reporting system for staff and all meetings participants to raise concerns about possible unethical or inappropriate behavior within our community. Complaints may be filed by phoning toll-free to +1-888-818-6898 from within the United States and Canada, or online at www.SPIE.ethicspoint.com and may be made anonymously.

Identification Requirement Policy

To verify registered participants and provide a measure of security, SPIE will ask attendees to present a government-issued photo identification at registration to collect registration materials.

Individuals are not allowed to pick up badges for other attendees. Further, attendees may not have some other person participate in their place at any conference-related activity. Such other individuals will be required to register on their own behalf to participate.

Access to Conference Events / Access for Children Younger than 18

All conference technical and networking events require a badge for admission. Registered attendees may bring children with them as long as they have been issued a badge. Registration badges for children under 18 are free and available at the SPIE registration desk onsite. Children under 14 years of age must be accompanied by an adult at all times, and guardians are asked to help maintain a professional, disturbance-free conference environment.

Recording Policy

Conferences, courses, and poster sessions: For copyright reasons, recordings of any kind are prohibited without prior written consent of the presenter or instructor. Attendees may not capture or use materials presented in any meeting/course room or in course notes on display without written permission. Consent forms are available at Speaker Check-In or SPIE Registration. Individuals not complying with this policy will be asked to leave a given session and/or asked to surrender their recording media. Refusal to comply with such requests is grounds for expulsion from the event.

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Personal belongings should not be left unattended in meeting rooms or public areas. Unattended items are subject to removal by security. SPIE is not responsible for items left unattended.

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Smoking, including e-cigarettes, is not permitted.

Agreement to Hold Harmless

Attendee agrees to release and hold harmless SPIE from any and all claims, demands, and causes of action arising out of or relating to your participation in this event.

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If for some unforeseen reason SPIE should have to cancel an event, processed registration fees will be refunded to registrants. Registrants will be responsible for cancellation of travel arrangements or housing reservations and the applicable fees.

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