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I. FOCUS ON THE DIFFERENT SESSIONS

COLOR	SCIENTIFIC SESSION
	1. Diffuse Optical Imaging
	2. Light Propagation in Tissues, Modelling & Optical phantoms
	3. Image-guided therapy, Lasers & PDT for treatment and diagnosis
	4. Optical Microscopy & Laser-cell-tissue interactions
	5. Multimodal & Multispectral approaches
	6. Nano-biophotonics for cancer
	7. OCT, Elastography, Photoacoustic, Polarization Imaging
	8. Microwave & Terahertz applications in biology and medicine
	9. Microcirculation imaging, Laser Speckle Contrast Imaging
	10. Machine Learning, Bioinformatics, Image and signal processing
	11. Clinical transfer applied to Cancer treatment and diagnosis
	12. Biophotonics devices for personalized diagnostics & Wearables
	13. Lasers in dermatology – Photodermatology

INDICATION REGARDING THE FORMAT OF THE PRESENTATIONS

F: face-fo-face presentation

R: remotely presentation

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II. OVERVIEW SCIENTIFIC SESSIONS LALS 2022

Overview scientific sessions LALS 2022

Friday April 1st, 2022

Schedule		ROOM 1		ROOM 2	
8:00	0:10	Welcome			
8:10	0:45	Plenary - Elena Zagaynova (40')			
8:55		**Session 11: Clinical transfer applied to Cancer Treatment and Diagnosis**		8:55 **Session 9: Microcirculation imaging, Laser Speckle Contrast Imaging**	
	0:15	Invited 1 - Walsh	P	0:25 Keynote - Steenbergen	P
	0:15	Invited 2 - Maklygina	D	0:15 Invited 1 - Humeau-Heurtier	D
	0:15	Invited 3 - Sroka	D	0:15 Invited 2 - Nilsson	D
	0:15	Regular talk 1 - Piot	P	0:15 Invited 3 - Strömberg	P
	0:15	Regular talk 2 - Ziskind	D	*Total S9 1:10*	
	Total S11 1:15				
10:10	0:20	Coffee Break		10:05 00:20 Coffee Break	
10:30		**Session 2: Light Propagation in Tissues, Modelling & optical phantoms**		10:25 **Session 7 part 1/2: OCT, Elastography, Photoacoustic, Polarization Imaging**	
	0:25	Keynote - Zhu	D	0:25 Keynote 1 - Elson	D
	0:15	Invited 1 - Bykov	P	0:15 Invited 1 - Zalevsky	P
	0:15	Invited 2 - Oliveira	D	0:15 Invited 2 - Zaitsev	D
	0:15	Regular talk 1 - Shafirstein	P	0:15 Invited 3 - Meglinski	P
	0:15	Regular talk 2 - Meglinski	P	0:15 Regular talk 1 - Larin	P
	0:15	Regular talk 3 - Oakley	P	0:15 Regular talk 2 - Larina	P
	Total S2 1:40			0:15 Regular talk 3- Ogien	P
				Total S7-1 1:55	
12:10	0:50	Lunch			
13:00	0:45	Plenary - Jürgen Popp (40')			
13:45		**Session 10: Machine Learning, Bioinformatics, Image and signal Processing**		13:45 **Session 7: OCT, Elastography, Photoacoustic, Polarization Imaging**	
	0:25	Keynote - Ozcan	D	0:25 Keynote 2 - Ramella-Roman	P
	0:15	Invited 1 - Kistenev	D	0:15 Invited 4 - Xue	D
	0:15	Invited 2 - Benezeth	P	0:15 Invited 5 - Novikova	P
	0:15	Invited 3 - Mangeat	P	0:15 Invited 6 - Rafailov	P
	0:15	Regular talk 1 - Brunel	D	0:15 Regular talk 4 - Gomes	P
	0:15	Regular talk 2 - Phan	D	0:15 Regular talk 5 - Asslanaj	P
	0:15	Regular talk 3 - Chizari	P	*Total S7-2 1:40*	
	0:15	Regular talk 4 - Boutegrabet	P	15:25 00:20 Coffee Break	
	Total S10 2:10			15:45 **Session 4: Optical Microscopy & Laser-cell-tissue interactions**	
15:55	0:20	Coffee Break		0:25 Keynote - Qu	D
16:15		**Session 3: Image-guided therapy, Lasers & PDT for treatment and diagnosis**		0:15 Invited 1 - Shirshin	D
	0:25	Keynote - Rück	P	0:15 Invited 2 - Schneckenburger	D
	0:15	Invited 1 - Ryabova	D	0:15 Invited 3 - Priezzhev	D
	0:15	Invited 2 - Neubauer	P	0:15 Invited 4 - Wagner	P
	0:15	Invited 3 - Shafirtsein	P	0:15 Invited 5 - Claus	P
				Invited 6 - Leproux	D
	0:15	Invited 4 - Liu	D	0:15 Regular talk 1 - Darvin	P
	0:15	Invited 5 - Berg	D	0:15 Regular talk 2 - Zvetkova	D
	0:15	Invited 6 - Pogue	P	0:15 Regular talk 3 - Yastrebova	P
	0:15	Regular talk 1 - Gries (M. Barberi)	P	0:15 Regular talk 4 - Semenova	P
	0:15	Regular talk 2 - Ruhm	D	0:15 Regular talk 5 - Tkaczyk	?
	Total S3 2:25			*Total S4 2:55*	
18:40	2:30	Welcome party			
21:10					

Saturday April 2nd, 2022

8:00	0:15	Welcome			
8:15	0:45	Plenary - Sergio Fantini (40')			
9:00		**Session 1: Diffuse Optical Imaging**		9:00 **Session 8: Microwave and terahertz applications in biology and medicine**	
	0:25	Keynote - Pogue	P	0:25 Keynote - Son	D
	0:15	Invited 1 - Dehghani	P	0:15 Invited 1 - Mounaix	P
	0:15	Invited 2 - Pifferi	D	0:15 Invited 2 - Shkurinov	P
	0:15	Invited 3 - Gorpas	P	0:15 Invited 3 - Zaytsev	D
10:10	0:30	Coffee Break			
10:40	0:15	Invited 4 - Kinle	D	0:15 Invited 4 - Peng	D
	0:15	Invited 5 - Conde	P	0:15 Invited 5 - Gallot	P
	0:15	Regular talk 1 - Di Sieno	D	0:15 Invited 6 - Cherkasova	P
	0:15	Regular talk 2 - Rowley	D	0:15 Regular talk 1 - Mankova	D
	0:15	Regular talk 3 - Bentley	P	0:15 Regular talk 2 - Logofatu	D
	Total S10 2:25			*Total S8 2:25*	
11:55	1:05	Lunch			
13:00	1:00	Poster session + Industrials			
14:00		**Session 6: Nano-biophotonics for cancer**		14:00 **Session 5: Multimodal and Multispectral approaches**	
	0:15	Invited 1 - Cheng	P	0:15 Invited 1 - Savelieva	D
	0:15	Invited 2 - Pominova	D	0:15 Invited 2 - Castaneda Aphan	P
	0:15	Invited 3 - Ghosh	D	0:15 Invited 3 - Sterenborg	P
	0:15	Invited 4 - Genina	D	0:15 Invited 4 - Tunnell	D
	0:15	Invited 5 - Ryabchikov	D	0:15 Regular talk 1 - Contreras	D
	0:15	Invited 6 - Makarov	D	0:15 Regular talk 2 - Zezell	P
	0:15	Invited 7 - Lugovtsov	D	*Total S5 1:30*	
	0:15	Regular talk 1 - Maklygina	D		
	Total S6 2:00			15:30 0:30 Coffee Break	
16:00	0:30	Coffee Break		16:00 **Session 13: Lasers in dermatology - Photodermatology**	
16:30		**Session 12: Biophotonics devices for personalized diagnostics and wearables**		0:25 Keynote - Pena	P
	0:15	Invited 1 - Darvin	P	0:15 Invited 1 - Will	P
	0:15	Invited 2 - Shin	D	0:15 Invited 2 - Laubach	P
	0:15	Invited 3 - Shcheslavskiy	P	0:15 Invited 3 - Koenig	?
	0:15	Regular talk 1 - Hammer	P	0:15 Regular talk 1 - Zezell	P
	Total S12 1:00			*Total S13 1:25*	
17:30	0:30	Awards + end conference speech			
18:00					

F: face-fo-face presentation | R: remotely presentation

III. DETAILS OF EACH SESSION

LALS 2022: PLENARY LECTURES

PL PLENARY LECTURES → Schedule of these two days of conference

Schedule	About the speakers	
Friday April 1st **Auditorium 1** **8:10 AM - 8:50 AM** R	40’	**Plenary talk topic: «FLIM metabolic imaging from cells to patients»** Elena Zagaynova, *Rector, Director of the Institute of Biomedical Technologies, Privolzhsky Research Medical University*
Friday April 1st **Auditorium 1** **1:00 PM - 1:40 PM** F	40’	**Plenary talk topic: «Photonics for medical diagnosis and therapy».** Jürgen Popp, *Scientific Director of the Leibniz Institute of Photonic Technology Jena, Germany, Recipient of the 2016 Pittsburgh Spectroscopy Award,* *Fellow of the American Institute for Medical and Biological Engineering (AIMBE) and of the International Society for Optical Engineering (SPIE), Editor-in-Chief of the Journal of Biophotonics*

Saturday April 2nd **Auditorium 1** **8:15 AM - 8:55 AM** R	40’	**Plenary talk topic: «Quantitative studies of cerebral hemodynamics with near-infrared spectroscopy»** Sergio Fantini, *Professor, Department of Biomedical Engineering, Tufts University, Medford, MA, USA.* *Fellow of the International Society for Optical Engineering (SPIE), of the Optical Society of America (OSA) and of the the American Institute for Medical and Biological Engineeeing (AIMBE)*

S1 KEYNOTES, INVITED SPEAKER REGULAR TALK → SESSION 1: Diffuse Optical Imaging

CHAIRS: ***Sylvain Gioux**, Université de Strasbourg, France (**coordinator**)*

***Zeev Zalevsky**, Bar-Ilan University, Israel **Turgut Durduran**, Institute of Photonic Sciences ICFO Barcelona, Spain, **Hamid Dehghani**, University of Birmingham, UK, **Adam Gibson**, University College London, UK, **Ori Katz**, Hebrew University of Jerusalem, Israel, **Brian Pogue**, Dartmouth College, USA, **Demetri Psaltis**, EPFL, Switzerland, **Paula Taroni**, Politechnico di Milano, Italy*

AUDITORIUM 1

S.1 – part 1	**Saturday April 2nd (9:00 AM – 10:10 AM)** **Chairmen: Sylvain Gioux, Brian Pogue**	
Keynote F	25’	**Imaging Medicine with Diffuse Optical Systems** Brian W. Pogue *Department of Medical Physics, University of Wisconsin-Madison, USA* *Thayer School of Engineering at Dartmouth, USA*
Invited 1 F	15’	**Applications of diffuse optics for detection and characterisation of disease** Hamid Dehghani *School of Computer Science, College of Engineering and Physical Sciences, University of Birmingham, UK*
Invited 2 R	15’	**Advancing Clinical Translation in Biophotonics through multi-laboratory initiatives on Performance Assessment and Standardization** Antonio Pifferi[1], Alessandro Torricelli[1], Pranav Lanka[1] and Heidrun Wabnitz[2] *1. Department of Physics, Politecnico di Milano, Italy* *2. Physikalisch-Technische Bundesanstalt (PTB), Berlin, Germany*
Invited 3 F	15’	**Standardization of Intraoperative Fluorescence Molecular Imaging Systems and Data Referencing** Dimitris Gorpas *Institute of Biological and Medical Imaging, Helmholtz Zentrum München, Germany* *Chair of Biological Imaging and TranslaTUM, Technical University of Munich, Germany*

S.1 - part 2	**Saturday April 2nd (10:40 AM – 11:55 AM)** **Chairmen: Sylvain Gioux, Brian Pogue**	
Invited 4 R	15’	**Spatial frequency domain imaging: theory, phantom experiments and applications** Stefan Lohner, Christian Blum, Bülent Demirel, Steffen Nothelfer, Alwin Kienle *Quantitative Imaging and Sensors, Institute of Laser Technologies in Medicine and Metrology at the University of Ulm, Germany*
Invited 5 F	15’	**Machine learning fusion of hyperspectral and OCT imaging for tissue diagnosis and assessment** Olga M. Conde[1,2,3], Arturo Pardo[2,3], Eusebio Real[1,2,3], José A. Gutierrez[2,3], José M. Lopez-Higuera[1,2,3] and Veronica Mieites[1.2] *1. CIBER-BBN – Instituto de Salud Carlos III, Spain* *2. IDIVAL - Valdecilla Biomedical Research Institute, Spain* *3. Photonics Engineering Group, University of Cantabria, Spain*

AUDITORIUM 1

Regular talk 1 R	15’	**The SOLUS system: a multimodal imaging device based on innovative photonic modules to improve the diagnosis of breast cancer** Laura Di Sieno[1], Giulia Maffeis[1], Edoardo Ferocino[1], Alberto Dalla Mora[1], Antonio Pifferi[1], Alberto Tosi[2], Enrico Conca[2], Vincenzo Sesta[2], Andrea Giudice[3], Alessandro Ruggeri[3], Simone Tisa[3], Alexander Flocke[4], Bogdan Rosinski[5], Jean-Marc Dinten[6], Mathieu Perriollat[6], Guillaume Blanquer[6], Jonathan Lavaud[7], Hélène Sportouche[7], Simon Arridge[8], Andrea Farina[9], Pietro Panizza[10], Elena Venturini[10], Peter Gordebeke[11], Pamela Zolda[11] and Paola Taroni[1] *[1]Dipartimento di Fisica, Politecnico di Milano, Italy;* *[2]Dipartimento di Elettronica, Informazione e Bioingegneria, Politecnico di Milano, Italy;* *[3]Micro Photon Devices Srl, Italy;* *[4]iC-Haus, Germany;* *[5]Vermon SA, France;* *[6]CEA-LETI, France;* *[7]Supersonic Imagine SA, France;* *[8]Department of Computer Science, University College London, UK;* *[9]Istituto di Fotonica e Nanotecnologie, Consiglio Nazionale delle Ricerche, Italy;* *[10]Breast Imaging Unit, Scientific Institute (IRCCS) Ospedale S. Raffaele, Italy;* *[11]European Institute for Biomedical Imaging Research, Austria*
Regular talk 2 R	15’	**Development of a cost-effective optical imaging system for monitoring of Rheumatoid Arthritis** George Rowley, Daniel Lighter and Hamid Dehghani *School of Computer Science, College of Engineering and Physical Sciences, University of Birmingham, UK*
Regular talk 3 F	15’	**A Cost Effective and Low Footprint Hyperspectral Bioluminescent Tomography System Based on Compressive Sensing** Alexander Bentley[1], Jonathan E. Rowe[1] and Hamid Dehghani[1, 2] *1. School of Computer Science, College of Engineering and Physical Sciences, University of Birmingham, UK*

S2 KEYNOTES, INVITED SPEAKER REGULAR TALK — SESSION 2: Light Propagation in Tissues, Modelling & Optical phantoms

CHAIRS: ***Valery Tuchin**, Saratov State University, Saratov, Russia, **Luis Oliveira**, Polytechnic of Porto - School of Engineering, Porto, Portugal (**coordinators**)*

***Alexey Popov**, VTT Technical Research Centre of Finland, **Walter Blondel**, University of Lorraine, Nancy, France, **Tatiana Novikova**, Ecole polytechnique, Palaiseau, France, **Anne Planat-Chrétien**, CEA-Leti, Grenoble, France, **Gal Shafirstein**, Roswell Park Comprehensive Cancer Center, Buffalo, USA*

AUDITORIUM 1

S.2	**Friday April 1st (10:30 AM – 12:10 PM)** **Chairman: Luis Olivera**	
Keynote R	25’	**Optical clearing skull window for cortical vascular imaging and controlling** Dan Zhu *Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology*

AUDITORIUM 1

Invited 1 F	15’	**Advanced biotissue phantoms for microcirculation and NIRS studies** Alexander Bykov[1], Alexey Popov[5], Oleksii Sieryi[1], Viktor Dremin[1], Evgenii Zherebtsov[1], Anton Sdobnov[1], Vyacheslav Kalchenko[2] and Igor Meglinski[1,3,] *1. Opto-Electronics and Measurement Techniques Unit, University of Oulu, Finland* *2. Department of Veterinary Resources, Weizmann Institute of Science, Israel* *3. School of Engineering and Applied Science, Aston Institute of Materials Research, Aston University, UK*
Invited 2 R	15’	**Measurement of optical properties of human kidney from the deep-UV to NIR** Isa Carneiro[1], Sónia Carvalho[1], Rui Enrique[1.2], Ana Rita Botelho[3], Hugo Silva[4], Inês Martins[4], Luís Oliveira[3.4] and Valery Tuchin[5.6.7] *1. Department of Pathology and Cancer Biology and Epigenetics Group-Research Centre, Portuguese Oncology Institute of Porto, Portugal* *2. Department of Pathology and Molecular Immunology, Porto University – Institute of Biomedical Sciences Abel Salazar, Portugal* *3. Physics Department, Polytechnic of Porto – School of Engineering, Portugal* *4. Centre of Innovation in Engineering and Industrial Technology, Polytechnic Institute of Porto, Portugal* *5. Interdisciplinary Laboratory of Biophotonics, Tomsk State University, Russia* *6. Laboratory of Laser Diagnostics of Technical and Living Systems, Institute of Precision Mechanics and Control of the Russian Academy of Sciences, Russia* *7. Research-Educational Institute of Optics and Biophotonics, Saratov State University, Russia*
Regular talk 1 F	15’	**Dosie Finite Element and Monte Carlo Simulations are in Close Agreement with Measurements of Light Propagation in Tissue Mimicking Phantoms** Gal Shafirstein[1], Sydney Grant[1], Emily Oakley[1], David Bellnier[1], Lindsey Carlsen[1], Gene Parilov[2], Karl Beeson[2] and Mary Potasek[2] *1. Photodynamic Therapy Center, Roswell Park Comprehensive Cancer Center, NY, USA* *2. Simphotek Inc., NJ, USA*
Regular talk 2 F	15’	**Sensing Freshness of Meat with Visible and Near-Infrared Spectroscopy** Alexey Popov, Motahareh Peyvasteh, Alexander Bykov and Igor Meglinski *Opto-Electronics and Measurement Techniques Research Unit, University of Oulu, Oulu, Finland*

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S3 KEYNOTES, INVITED SPEAKER REGULAR TALK | SESSION 3: Image-guided therapy, Lasers & PDT for treatment and diagnosis

CHAIRS: ***Elena Zagaynova**, Privolzhsky research medical University, Nizhny Novgorod, Russia (**coordinator**)*

***Georges Wagnières**, EPFL, Lausanne, Switzerland, **Céline Frochot**, University of Lorraine, Nancy, France, **Christine Vever-Bizet**, Université Pierre et Marie Curie, France, **Serge Mordon**, University of Lille, France*

AUDITORIUM 1

S.3	Friday April 1st (4:15PM – 6:40 PM) Chairman: Alex Vitkin	
Keynote F	25’	**Metabolic NADH/FAD/FMN FLIM and oxygen PLIM in theranostic procedures** Angelika Rück *1. Confocal and multiphoton microscopy, medical faculty, University Ulm, Germany*
Invited 1 R	15’	**The Use of Fluorescence Lifetime Imaging Microscopy to Assess the Interaction of Photosensitizers with Tumor Tissues** Anastasia Ryabova, Igor Romanishkin, Aleksey Skobeltsin, Daria Pominova and Victor Loschenov *Prokhorov General Physics Institute of the Russian Academy of Sciences, Russia*
Invited 2 F	15’	**Fiber-based spectrally and time-resolved mapping of tissues** V. Shcheslavskiy[1,2], J. Lagarto[3], H. Studier[1], F. Pavone[3], W. Becker[1], and R. Cicchi[3] *1. Becker&Hickl GmbH, Germany* *2. Privolzhsky Research Medical University, Russia* *3. National Institute of Optics, National Research Council (INO-CNR), Italy*
Invited 3 F	15’	**Treatment Planning for Interstitial Phototherapies of Locally Advanced Cancers** Gal Shafirstein[1], Emily Oakley[1], Sandra Sexton[2], Leslie Curtin[2] and Jonathan Lovell[3] *[1] Photodynamic Therapy Center at the Department of Cell Stress Biology, Roswell Park Comprehensive Cancer Center, USA* *[2]Laboratory Animals Shared Resources, Roswell Park Comprehensive Cancer Center, USA* *[3]Department of Biomedical Engineering, University at Buffalo, USA*
Invited 4 R	15’	**Rewiring signaling pathway in engineered cells through optogenetic strategy for cancer and thrombolysis therapy** Xiaolong Liu *Mengchao Hepatobiliary Hospital of Fujian Medical University, Fuzhou, P.R.China*
Invited 5 R	15’	**Photochemical internalization (PCI) as an intracellular drug delivery technology for treatment of solid tumors** Kristian Berg *Department of Radiation Biology, Institute for Cancer Research, Comprehensive Cancer Center, Oslo University Hospital - Radium Hospital, Oslo, Norway*
Invited 6 F	15’	**Optical Systems for Photodynamic & Radiation Therapy Dosimetry** Brian W. Pogue *Department of Medical Physics, University of Wisconsin-Madison, USA* *Thayer School of Engineering at Dartmouth, USA*
Regular talk 1 F	15’	**Multifunctional AGuIX® theranostic nanoparticles for vascular-targeted interstitial photodynamic therapy of glioblastoma** Mickaël Gries[1], Noémie Thomas-Jasniewski[1] Joël Daouk[1], Muriel Barberi-Heyob[1], François Lux[4], Paul Rocchi[4], Céline Frochot[2], Samir Acherar[3] and Olivier Tillement[4] *1. Université de Lorraine, CNRS, CRAN, Vandoeuvre-lès-Nancy, France* *2. Université de Lorraine, CNRS, LRGP, Nancy, France* *3. Université de Lorraine, CNRS, LCPM, Nancy, France* *4. Université Lyon, CNRS, ILM, Lyon, France*

AUDITORIUM 1

Regular talk 2 R	15’	**Optical Tissue Phantoms for 2-Photon Fluorescence Lifetime Imaging Systems** Adrian Rühm[1], Christian Freymüller[1], Nico Imberger[1], Sviatlana Kalinina[2], Angelika Rück[2] and Ronald Sroka[1] *1. LIFE-Zentrum, Urologische Klinik und Poliklinik, Klinikum der Universität München, Germany* *2. Core Facility für konfokale und Multiphotonen Mikroskopie, Universität Ulm, Germany*

S4 KEYNOTES, INVITED SPEAKER REGULAR TALK — SESSION 4: Optical Microscopy & Laser-cell-tissue interactions

CHAIRS: ***Hideaki Kano**, University of Tsukuba, Japan (**coordinator**)*

***Evgeny Shirshin**, M. V. Lomonosov State University, Moscow, Russia, **Andrei Lugovtsov**, M. V. Lomonosov State University, Moscow, Russia, **Dominique Dumas**, University of Lorraine, Nancy, France, **Karsten Koenig**, Saarland University, Germany, **Herbert Schneckenburger**, Aalen University, Germany, **Alexander Priezzhev**, M. V. Lomonosov State University, Moscow, Russia*

AUDITORIUM 2

S.4	**Friday April 1st (4:00 PM – 6:40 PM)** **Chairmen: Alexander Priezzhev, Evegeny Shirshin**
Keynote R	25’	**Multi-focal microscopy based on adaptive optics for super-resolution imaging in deep tissues** Junle Qu, Luwei Wang, Wei Zhang, Shuai Ye, Wei Yan, Zhigang Yang, Danying Lin, Liwei Liu, Jun Song and Bin Yu *Center for Biomedical Photonics & College of Physics and Optoelectronic Engineering, Shenzhen University, China*
Invited 1 R	15’	**Label-free molecular imaging: investigation of photophysical processes and applications for biomedical diagnostics** Evgeny Shirshin *Department of Physics, Moscow State University, Russia*
Invited 2 R	15’	**Deep View Microscopy of Cells and Tissues** Herbert Schneckenburger and Verena Richter *Institute of Applied Research, Aalen University, Germany*
Invited 3 R	15’	**Laser Applications in Hemorheologic Research** Alexander Priezzhev, Andrei Lugovtsov, Alexey Semenov, and Sergey Nikitin *Physics Department and International Laser Center of M.V. Lomonosov Moscow State University, Moscow, Russia*
Invited 4 F	15’	**Red Blood Cells Aggregation: A holographical optical tweezers approach** Christian Wagner *Experimentalphysik, University of Saarland, Germany*
Invited 5 F	15’	**3D spectral measurement systems for the investigation of biomedical objects** Daniel Claus, Michael Zint and Karl Stock *Institut für Lasertechnologien in der Medizin und Messtechnik, Germany*

AUDITORIUM 2

Invited 6 R	15’	**Recent advances in cell and tissue imaging by multiplex CARS microspectroscopy** Philippe Leproux[1], Damien Boildieu[1,2], Zakaniaina Rajaofara[1,3], David Helbert[2], Amandine Magnaudeix[3], Eric Champion[3], Philippe Carré[2] and Hideaki Kano[4] *[1]XLIM, UMR CNRS 7252, University of Limoges, France* *[2]XLIM, UMR CNRS 7252, University of Poitiers, France* *[3]IRCER, UMR CNRS 7315, University of Limoges, France* *[4]Department of Chemistry, Faculty of Science, Kyushu University, Japan*
Regular talk 1 F	15’	**Two-photon excited fluorescence lifetime imaging for non-invasive in vivo visualization of mast cells in the human skin** Maxim Darvin[1], Marius Kröger[1], Jörg Scheffel[1], Viktor Nikolaev[2], Evgeny Shirshin[3], Frank Siebenhaar[1], Johannes Schleusener[1], Marcus Maurer and Jürgen Lademann[1] *1. Department of Dermatology, Venerology and Allergology, Charité – Universitätsmedizin Berlin, corporate member of Freie Universität Berlin, Humboldt-Universität zu Berlin, and Berlin Institute of Health, Germany* *2. Faculty of Physics, Tomsk State University, Russia* 3. Faculty of Physics, Lomonosov Moscow State University, Russia
Regular talk 2 R	15’	**The phenomenon of natural (proper) fluorescence of calcified dermal layers in amphibia (150 years history)** Elissaveta Zvetkova *Bulgarian Society of Biorheology, Sofia, Bulgaria*
Regular talk 3 F	15’	**Scanning flow cytometry for detection Red Blood Cells influence on atherosclerotic plaque** Ekaterina Iastrebova[1,2], Andrei Chernyshev[1] and Valeri Maltsev[1] *1. Cytometry and Biokinetics laboratory, Institute of Chemical Kinetics and Combustion SB RAS, Russia* *2. Physics, Novosibirsk State University, Russia*
Regular talk 4 F	15’	**Monitoring of PDT-induced cells death dynamics using digital holographic and time-resolved fluorescence microscopy** Irina Semenova *1. Ioffe Institute, Russia*
Regular talk 5 ?	15’	**High resolution / large FOV imaging strategies for in-vivo pathology** Tomasz Tkaczyk[1,2], John Gawedzinski[1] and Hamin Jeon[1] *1. Department of Bioengineering, Rice University, USA* *2. Department of Electrical and Computer Engineering, Rice University, USA*

S5 KEYNOTES, INVITED SPEAKER REGULAR TALK | SESSION 5: Multimodal & Multispectral approaches

CHAIRS: ***Dan Zhu***, *Huazhong University of Science and Technology, Wuhan, China,* ***Walter Blondel***, *University of Lorraine, Nancy, France (**coordinators**)*

Ekaterina Borisova, *Bulgarian Academy of Sciences, Sofia, Bulgaria,* ***Elena Zagaynova***, *Privolzhsky research medical University, Nizhny Novgorod, Russia,* ***Dick Sterenborg***, *Netherlands Cancer Institute and Amsterdam University Medical Center, Amsterdam, The Netherlands,* ***Irving Bigio***, *Boston University, USA*

AUDITORIUM 2

S.5	Saturday April 2nd (2:00 PM – 3:30 PM) Chairmen: Dick Sterenborg, Irving Bigio	
Invited 1 R	15’	**Multi-modal techniques of optical spectroscopy for in vivo demarcation of intracranial tumors** Tatiana Savelieva[1,2], Pavel Grachev[1], Anastasia Ryabova[1,2], Igor Romanishkin[1], Lenara Bikmukhametova[2], Galina Pavlova[3], Alexandra Kosyrkova[4], Sergey Goryajnov[4], Vladimir Okhlopkov[4], Alexander Potapov[4] and Victor Loschenov[1,2] *1. Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia* *2. National Research Nuclear University MEPhI, Moscow, Russia* *3. Institute of Gene Biology of the Russian Academy of Sciences, Moscow, Russia* *4. N.N. Burdenko National Medical Research Center of Neurosurgery, Moscow, Russia*
Invited 2 F	15’	**Multimodal Imaging for Skin Ulcers** Benjamin Castaneda[1] and Sylvie Treuillet[2] *1. Laboratorio de Imágenes Médicas, Departamento de Ingeniería, Pontificia Universidad Católica del Perú, Perú* *2. Laboratoire PRISME, Université d’Orleans, France*
Invited 3 F	15’	**Diffuse reflection spectroscopy and imaging for assessment of resection margins during cancer surgery** Dick Sterenborg *Department of Surgical Oncology, Netherlands Cancer Institute and Department of Biomedical Engineering and Physics, Amsterdam University Medical Centre, Amsterdam, the Netherlands*
Invited 4 R	15’	**Raman spectroscopy for surgical guidance of skin cancer resections** James Tunnell and Xu Feng *Biomedical Engineering, University of Texas at Austin, USA*
Regular talk 1 R	15’	**Analytical design of a multimode optical imaging based on structured illumination and CARS technique** Kevin Contreras[1] and Dominique Dumas[2] *1. University of Lorraine, IMOPA 7365 CNRS, France* *2. UMS 2008 IBSLOr, France*
Regular talk 2 F	15’	**Q-switched Nd:YAG laser on dental enamel with photoabsorber: a confocal Raman pilot study** Pedro Castro[1], Daisa Pereira[1], Patricia Ana[2], Christiano Matos[3] and Denise Zezell[1] *1. Center for Lasers and Applications – Nuclear and Energy Research Institute, Brazil* *2. Engineering Modelling and Applied Social Sciences Center - Federal University of ABC, Brazil* *3. MackGraphe – Graphene and Nanomaterials Research Center, Mackenzie Presbyterian University, Brazil*

S6 KEYNOTES, INVITED SPEAKER REGULAR TALK | SESSION 6: Nano-biophotonics for cancer

***Alexey Popov**, VTT Technical Research Centre of Finland, **Muriel Barberi-Heyob**, University of Lorraine, France, **Victor Zadkov**, M. V. Lomonosov State University, Moscow, Russia*

AUDITORIUM 1

S.6	Saturday April 2nd (2:00 PM – 4:00 PM) Chairmen: Victor Loschenov, Muriel Barberi-Heyob	
Invited 1 F	15’	**A 3D Co-cultured model for evaluation of nanoparticle facilitated drug delivery** Chia-Liang Cheng, Chia-Chi Chang and Yu-Chung Lin *Department of Physics, National Dong Hwa University, Taiwan*
Invited 2 R	15’	**Upconversion nanoparticles as multifunctional biomarkers and biosensors** Daria Pominova, Vera Proydakova, Igor Romanishkin, Sergei Kuznetsov and Anastasia Ryabova *Prokhorov General Physics Institute of the Russian Academy of Sciences, Russia*
Invited 3 R	15’	**Probing nano scale tissue multifractal anisotropy for precancer detection** Nirmalya Ghosh *1. Department of Physical Sciences, IISER Kolkata, India*
Invited 4 R	15’	**Advanced Approaches to Skin *In Vivo* Optical Clearing** Elina A. Genina[1,2], Vadim D. Genin[1,2], Ekaterina A. Kolesnikova[1], Sergey M. Zaytsev[1], Yury I. Surkov[1,2], Isabella A. Serebryakova[1,2], Valery V. Tuchin[1,2,3] *1. Saratov State University, Russia* *2. Tomsk State University, Russia* *3. Institute of Precision Mechanics and Control RAS, Russia*
Invited 5 R	15’	**Ultrapure Laser-Synthesized Single- and Multi-Component Nanoparticles for Biomedical Applications** Yury V. Ryabchikov, Miroslava Flimelová *HiLASE Centre, Institute of Physics of the Czech Academy of Sciences, Czech Republic*
Invited 6 R	15’	**Aluminum phthalocyanine crystalline nanoparticles spectral properties and the possibility of their use in biophotonics** Vladimir Makarov, Anastasia Ryabova, Darya Pominova, Igor Romanishkin and Victor Loschenov *Prokhorov General Physics Institute of the Russian Academy of Sciences, Russia*
Invited 7 R	15’	**Evaluation by Laser-optic Techniques of Nanoparticles Safety for Theranostic Applications: Interaction with Blood Components and Effect on Blood Microrheology** Andrei Lugovtsov[1], Arseniy Kapkov[2], Alexey Popov[3], Anastasiya Maslyanitsina[2], Petr Ermolinskiy[2], Anton Neznanov[2], Irina Kadanova[2] and Alexander Priezzhev[1] *1. International Laser Center, M.V. Lomonosov Moscow State University, Russia* *2. Physics Department, M.V. Lomonosov Moscow State University, Russia* *3. Department of Information Technology and Electrical Engineering, University of Oulu*

AUDITORIUM 1

Regular talk R	15’	**Comparative analysis of the indocyanine green intracellular distribution in the molecular form and nanoform on the various tumor models *in vitro* and *in vivo.*** Dina Farrakhova[1], Yulia Maklygina[1], Igor Romanishkin[1], Dmitry Yakovlev[2], Anastasia Ryabova[1,3], Ilya Yakavets[4], Anna Plyutinskaya[5], Tatyana Karmakova[5], Andrey Pankratov[5], Lina Bezdetnaya[4] and Victor Loschenov[1, 3] *1. Prokhorov General Physics Institute of the Russsian Academy of Science, Organisation, Country* *2. Shemyakin and Ovchinnikov Institute of Bioorganic Chemistry of the Russian Academy of Sciences, Moscow, Russia* *3. National Research Nuclear University “MEPhI”, Russia* *4. Institut de Cancérologie de Lorraine, France* *5. Centre de Recherche en Automatique de Nancy (CRAN), Université de Lorraine, France* *6. Belarus State University, Belarus* *7. National Medical Research Radiological Centre of the Ministry of Health of the Russian Federation, Moscow, Russia*

S7 KEYNOTES, INVITED SPEAKER REGULAR TALK — SESSION 7: OCT, Elastography, Photoacoustic, Polarization Imaging

CHAIRS: ***Zeev Zalevsky**, Bar-Ilan University, Israel (**coordinator**)*

***Anabela Da Silva**, Institut Fresnel, France, **Igor Meglinski**, University of Oulu, Finland, **Ma Hui**, Tsinghua University, China, **Tatiana Novikova**, Ecole polytechnique, Palaiseau, France, **Jessica Ramella-Roman;** Florida International University, Miami, USA, **Arnaud Dubois**, Institut d'Optique Graduate School, Palaiseau, France, **Emmanuel Bossy**, Physics Interdisciplinary Laboratory, France, **Amos Danieli**, Faculty of Engineering, Bar Ilan University, Israel*

AUDITORIUM 2

S.7 - part 1	**Friday April 1st (10:25 AM – 12:05 PM) Chairman: Igor Meglinski**	
Keynote 1 F	25’	**Polarization-resolved endoscopic surgical imaging** Daniel S. Elson *DHamlyn Centre for Robotic Surgery, Department of Surgery and Cancer, Imperial College London, UK*
Invited 1 F	15’	**Super-resolved, direct and localized photoacoustic sensing configuration** Zeev Zalevsky *Faculty of Engineering and the Nanotechnology center, Bar Ilan University, Israel*
Invited 2 R	15’	**OCE-Study of Slow Processes in Cartilaginous Samples: Mechanical Relaxations after Later-Assisted Reshaping and Osmotic Phenomena Accompanying Optical Clearing** Vladimir Zaitsev *1. Institute of Applied Physics, Russian Academy of Sciences, Russia*
Invited 3 F	15’	**Optical Angular Momentum in Tissue Diagnosis** Igor Meglinski *School of Engineering and Applied Science, Aston Institute of Materials Research, Aston University, UK*
Regular talk 1 F	15’	**Optical Elastography – an Emerging Techniques to Assess Ocular Health** Kirill V. Larin *Department of Biomedical Engineering, University of Houston, USA*

Regular talk 2 F	15’	**Live optical imaging and manipulation of cardiodynamics in mouse embryos for biomechanical analysis** Irina V. Larina *Department of Molecular Physiology and Biophysics, Baylor College of Medicine, USA*
Regular talk 3 F	15’	**Line-field confocal optical coherence tomography: a new tool for three-dimensional imaging of human skin in vivo at cellular resolution** Jonas Ogien[1], Olivier Levecq[1], Hicham Azimani[1], Maxime Cazalas[1], David Siret[1], Anaïs Barut[1] and Arnaud Dubois[1,2] *1. DAMAE Medical, France* *2. Charles Fabry Laboratory, Institut d’Optique Graduate school, Paris-Saclay University, France*

S.7 - part 2	**Friday April 1st(1:45 PM – 3:40 PM)** **Chairman: Kirill Larin**	
Keynote 2 F	25’	**Image polarimetry, clinical and pre-clinical directions** Jessica Ramella-Roman *1. Biomedical Engineering Department, Florida International University, USA* *2. Herberth Wertheim School of Medicine, Florida International University, USA*
Invited 4 R	15’	**Dispersion-mediated conjugate suppression for ultrahigh speed optical computing OCT imaging** Ping Xue *Department of Physics, Tsinghua University, China*
Invited 5 F	15’	**Mueller polarimetry for brain tissue studies** Tatiana Novikova[1], Johannes Goldberg[2], Ekkehard Hewer[3], Enikö Kövari[4], Hee Ryung Lee[1], Hachem Mohammed Mezouar[1], Michael Murek[2], Angelo Pierangelo[1], Andreas Raabe[2], Omar Rodriguez-Nunez[1], Philippe Schuch[2] and Irena Zubak[2] *1. LPICM, CNRS, Ecole polytechnique, Institut Polytechnique de Paris, France* *2. Department of Neurosurgery, Inselspital, Bern University Hospital, University of Bern, Switzerland* *3. Department of Pathology, Lausanne University Hospital, Lausanne, Switzerland* *4. Department of Mental Health and Psychiatry, University Hospitals of Geneva, Switzerland*
Invited 6 F	15’	**Novel compact laser sources for biomedical photonics applications** Edik U. Rafailov *Optoelectronics and Biomedical Photonics Group, Aston Institute of Photonic Technologies, Aston University, Birmingham, UK*
Regular talk 3 F	15’	**Line-field confocal optical coherence tomography: a new tool for three-dimensional imaging of human skin in vivo at cellular resolution** Jonas Ogien[1], Olivier Levecq[1], Hicham Azimani[1], Maxime Cazalas[1], David Siret[1], Anaïs Barut[1] and Arnaud Dubois[1,2] *1. DAMAE Medical, France* *2. Charles Fabry Laboratory, Institut d’Optique Graduate school, Paris-Saclay University, France*
Regular talk 4 F	15’	**Application of Photoacoustic Tomography Technique for Dental Caries Diagnosis: Influence of Laser Wavelength** Anderson Gomes[1], Evair Silva[2], Érica Miranda[1], Avishek Das[1] and Cláudia Mota[3] *1. Department of Physics, Universidade Federal de Pernambuco, Brazil* *2. Graduate Program in Dentistry, Universidade Federal de Pernambuco, Brazil* *3. Faculty of Dentistry, Centro Universitário Tabosa de Almeida, Brazil*

AUDITORIUM 2

Regular talk 5 F	15’	**Optical properties reconstruction method for Quantitative Photoacoustic Tomography** Fatmir Asllanaj[1], Ahmad Addoum[2], Walter Blondel[3] and Marine Amouroux[3] *1. Université de Lorraine, CNRS-LEMTA, France* *2. Université de Lyon, IP2I, France* *3. Université de Lorraine, CNRS-CRAN, France*

S8 KEYNOTES, INVITED SPEAKER REGULAR TALK — SESSION 8: Microwave and Terahertz applications in biology and medicine

CHAIRS: ***Alexander Shkurinov**, M. V. Lomonosov State University, Russia (**coordinator**)*

***Kirill Zaytsev,** Prokhorov General Physics Institute of Russian Academy of Sciences, Moscow, Russia, **Olga Cherkasova**, Institute of Laser Physics of SB RAS, Novosibirsk, Russia, **Irina Dolganova**, Bauman Moscow State Technical University, Moscow, Russia, **Daria Tuchina**, Saratov State University, Saratov, Russia*

S.8 - part 1	**Saturday April 2nd (9:00 AM – 10:10 AM)** **Chairman: Alexander Shkurinov**	
Keynote 1 R	25’	**Manipulation of Biological Molecules and Cells using Terahertz Radiation for Potential Cancer Treatment** Joo-Hiuk Son *1. Department of Physics, University of Seoul, Republic of Korea*
Invited 1 F	15’	**Tissue malignancy assessment by terahertz refractive index thresholding for breast cancer demarcation** Q. Cassar[1], P. Hillger[3], J. Grzyb[3], U. Pfeiffer[3], G. MacGrogan[2], J.P. Guillet[1], T. Zimmer[1] and P. Mounaix[1] *1. University of Bordeaux, IMS UMR CNRS 5218, Talence, France* *2. Department of Pathology, Bergonié Institute, Bordeaux, France* *3. University of Wuppertal, Institute for High-Frequency, and Communication Technology, Wuppertal, Germany*
Invited 2 F	15’	**Terahertz radiation emission of liquid metal droplets** A.V.Balakin[1], O.G.Kosareva[1], I.A. Kotelnikov[2,3], N.A. Kuzechkin[2,4], B.V.Lakatosh[5], V.V.Medvedev[5], A.B.Savelev[1], P.M.Solyankin[4], I.P.Tsygvintsev[6], A.P.Shkurinov[1] *1. Faculty of Physics and International Laser Center, Lomonosov Moscow State University, Moscow Russia - 2. Budker Institute of Nuclear Physics, Novosibirsk, Russia* *3. Novosibirsk State University, Novosibirsk, Russia* *4. ILIT RAS, Branch of the FSRC ”Crystallography and Photonics”, RAS, Shatura, Moscow Region, Russia* *5. Institute for Spectroscopy, RAS, Troitsk, Moscow, Russia* *6. Keldysh Institute of Applied Mathematics, Moscow Russia*
Invited 3 R	15’	**THz imaging of soft biological tissues with the spatial resolution beyond the Abbe limit** Kirill I. Zaytsev[1,2], Nikita V. Chernomyrdin[1,2], Gleb M. Katyba[2,3], Irina N. Dolganova[2,3] and Vladimir N. Kurlov[3] *1. Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia* *2. Bauman Moscow State Technical University, Moscow, Russia* *3. Institute of Solid State Physics of the Russian Academy of Sciences, Chernogolovka, Russia*

AUDITORIUM 2

AUDITORIUM 2

S.8 - part 2	Saturday April 2nd (10:40 AM – 11:55 AM) Chairman: Guilhem Gallot	
Invited 4 R	15’	**Application of Terahertz Precision Spectrum in Biophotonics** Yan Peng, Xu Wu, Chenjun Shi and Yiming Zhu *Terahertz Technology Innovation Research Institute, University of Shanghai for Science and Technology, China*
Invited 5 F	15’	**Probing living cells permeabilization dynamics by terahertz attenuated total reflectance.** Guilhem Gallot *Laboratoire d'Optique et Biosciences, Ecole Polytechnique IP Paris, CNRS, INSERM, Palaiseau, France*
Invited 6 F	15’	**Cellular Effects of Terahertz Radiation** Olga Cherkasova[1,2], Danil SERDYUKOV[1] and Sergey PELTEK[3] *1. Institute of Laser Physics, Siberian Branch, Russian Academy of Sciences, Russia* *2. Novosibirsk State Technical University, Russia* *3. The Federal Research Center Institute of Cytology and Genetics, Siberian Branch, Russian Academy of Sciences, Russia*
Regular talk 1 R	15’	**Laser Raman and FTIR spectroscopic study of the elements of structural hierarchy of protein molecules** Nikolay Brandt[1], Anna Mankova[1], Andrey Chikishev[2] and Irina Shpachenko[1] *1. Faculty of physics, Lomonosov Moscow State University, Russia* *2. International Laser Center, Lomonosov Moscow State University, Russia*
Regular talk 2 R	15’	**Investigation of microorganisms using THz hyperspectroscopy – correlation to colorimetric imaging** Petre-Catalin Logofătu[1], Cristian Udrea[1], Iuliana Urzică[1], Ioan Ardelean[2], Ioana Moga[3] and Mihail Pascu[1] *1. Laser Department, National Institute for Laser, Plasma and Radiation Physics, Romania* *2. Microbiology Department, Bucharest Biology Institute, Romania* *3. DFR Systems SRL, Romania*

S9 KEYNOTES, INVITED SPEAKER REGULAR TALK — SESSION 9: Microcirculation imaging, Laser Speckle Contrast Imaging

CHAIRS: ***Irina Larina**, Baylor College of medicine, Houston, USA (**coordinator**)*

***Valery Tuchin**, Saratov State University, Saratov, Russia, **Dan Zhu**, Huazhong University of Science and Technology, Wuhan, China, **Anne Humeau-Heurtier**, Université d’Angers, France*

AUDITORIUM 2

S.9	Friday April 1st (9:20 AM – 10:05 AM) Chairwomen: Irina Larina, Anne Humeau-Heurtier	
Keynote F	25’	**Movement artefacts in handheld laser speckle contrast imaging** Ata Chizari[1], Tom Knop[1], Beril Sirmacek[2], Ferdi Van Der Heijden[2] and Wiendelt Steenbergen[1] *1. Biomedical Photonic Imaging, Techmed Centre, University of Twente, The Netherlands* *2. Robotics and Mechatronics, Techmed Centre, University of Twente, The Netherlands*

AUDITORIUM 2

Invited 1 R	15’	**Texture Analysis of Biomedical Data: a Powerful Mean to Extract Physiological Information but, are Laser Speckle Contrast Data Eligible?** Anne Humeau-Heurtier *LARIS, Laboratoire Angevin de Recherche en Ingénierie des Systèmes, Univ Angers, France*
Invited 2 R	15’	**Polarisation Spectroscopy Imaging for mapping skin microcirculation** Gert Nilsson *Wheelsbridge AB, Linkoping, Sweden*
Invited 3 F	15’	**Microcirculation perfusion assessment using multi-exposure laser speckle contrast imaging** Tomas Strömberg *Department of Biomedical Engineering, Linköping University, Sweden*

S10 KEYNOTES, INVITED SPEAKER REGULAR TALK — SESSION 10: Machine Learning, Bioinformatics, Image and signal processing

CHAIRS: ***Christian Daul**, University of Lorraine, France (**coordinator**)*

***Yuri Kistenev**, Tomsk University, Russia, **July Galeano**, Instituto Tecnológico Metropolitano. Medellín, Colombia, **Franck Marzani**, Université de Bourgogne, France, **Walter Blondel**, University of Lorraine, France*

AUDITORIUM 1

S.10	**Friday April 1st (1:45 PM – 3:55 PM)** **Chairmen: Christian Daul, Franck Marzani**	
Keynote 1 R	25’	**Deep Learning-enabled Computational Microscopy and Sensing** Aydogan Ozcan *UCLA, USA*
Invited 1 R	15’	**Medical applications of laser molecular imaging and machine learning** Yury Kistenev[1], Alexey Borisov[1], Anastasya Knyazkova[1,2], Viktor NIKOLAEV[1,2], Vladimir Prischepa[1], Viktor Skiba[1] and Denis Vrazhnov[1,2] *1. Laboratory of biophotonics, Tomsk State University, Russia,* *2. Institute of atmospheric optics SB RAS, Russia*
Invited 2 F	15’	**Automated detection of stomach lesions by endoscopic imaging: comparison of NBI and multispectral imaging** Alexandre Krebs[1], Yannick Benezeth[1], Dominique Lamarque[2] and Franck Marzani[1] *1. IMVIA, Univ. Bourgogne Franche Comté, France* *2. Univ. Versailles St-Quentin-en-Yvelines - hôpital Ambroise Paré, France*
Invited 3 F	15’	**Random Illumination Microscopy (RIM): nanoscopy in living tissues** Thomas Mangeat[1], Simon Labouesse[2,3], Emmanuel Martin[4], Renaud Poincloux[5], Magali Suzanne[4], Xiabo Wang[4], Roland Leborgne6, Mathieu Pinot[6], Marc Allain[3], Jérome Idier[7] and Anne Sentenac[3] *1. CBI, CNRS, Toulouse, France* *2. Department of Electrical, Computer, and Energy Engineering, University of Colorado, USA* *3. Institut Fresnel, CNRS, Marseille, France - 4. LBCMCP, CNRS, Toulouse, France* *5. IPBS,CNRS,Toulouse, France - 6. CNRS MR 6290, Rennes, France* *7. École Centrale de Nantes, Nantes, France*
Regular talk 1 R	15’	**Toward automated machine learning in spectral analysis: genetic algorithm for optimal pre-processing and regression of vibrational spectra** Benjamin Brunel, Fatima Alsamad and Olivier Piot *BioSpecT Unit, EA 7506, University of Reims Champagne-Ardenne, France*

AUDITORIUM 1

Regular talk 2 R	15'	**Visualization of extended epithelial tissue surfaces using dense optical flow and structure from motion** Tan-Binh Phan[1], Dinh-Hoan Trinh[1], Dominique Lamarque[2], Walter Blondel[1], Marine Amouroux[1], Didier Wolf[1] and Christian Daul[1] *1. Centre de Recherche en Automatique de Nancy (UMR 7039 Université de Lorraine and CNRS), Vandoeuvre-Lès-Nancy, France* *2. AP-HP Hôpital Ambroise Paré, Boulogne-Billancourt, France*
Regular talk 3 F	15'	**An exploration of movement artefacts in a handheld laser speckle contrast imaging** Ata Chizari[1], Tom Knop[1], Beril Sirmacek[2], Ferdi van der Heijden[2] and Wiendelt Steenbergen[1] *1. Biomedical Photonic Imaging, Technical Medical Centre, University of Twente, The Netherlands* *2. Robotics and Mechatronics, University of Twente, The Netherlands*
Regular talk 4 F	15'	**Automatic Identification of Paraffin Pixels on FTIR Images Acquired on FFPE Human colon cancer Samples** Warda Boutegrabet[1, 2], Dominique Guenot[1], Olivier Bouche[2, 3], Camille Boulagnon-Rombi[4, 5], Aude Marchal Bressenot[2, 5], Olivier Piot[2] and Cyril Gobinet[2] *1. INSERM U1113, Fundamental and Applied Research in Cancer Research Interface (IRFAC),* *2. EA7506, Translational Bio Spectroscopy (BioSpecT),* *3. Heterogastroenterology and digestive oncology service, Reims University Hospital,* *4. CNRS UMR 7369, Extracellular Matrix and Cellular Dynamics (MEDyC)* *5. Pathology laboratory, Reims University Hospital.*

S11 KEYNOTES, INVITED SPEAKER REGULAR TALK — SESSION 11: Clinical transfer applied to Cancer treatment and diagnosis

CHAIRS: ***Ekaterina Borisova**, Bulgarian Academy of Sciences, Sofia, Bulgaria (**coordinator**)*

***Marine Amouroux**, University of Lorraine, Nancy France, **Geneviève Bourg-Heckly**, Université Pierre et Marie Curie, France, **Elena Zagaynova**, Privolzhsky research medical University, Nizhny Novgorod, Russia*

AUDITORIUM 1

S.11	**Friday April 1st (8:55 AM – 10:10 AM)** **Chairwoman: Ekaterina Borisova**	
Invited 1 F	15'	**Quantification of tumor heterogeneity via autofluorescence lifetime imaging** Alex J. Walsh *Department of Biomedical Engineering, Texas A&M University, USA*
Invited 2 R	15'	**New spectral-fluorescent methods for the deep brain tumors theranostics** Yulia Maklygina[1], Igor Romanishkin[1], Alexei Skobelsin[1],Victor Loschenov[1,2] and Tatiana Savelieva [1,2] *1. Prokhorov General Physics Institute of the Russsian Academy of Science, Russia* *2. National Research Nuclear University "MEPhI", Russia*
Invited 3 R	15'	**Techniques for Photodiagnosis and Photodynamic in Neurosurgery** Ronald Sroka, Christian Heckl, Niklas Markwardt, Herbert Stepp and Adrian Rühm *Laser-Forschungslabor in LIFE-Center at Department of Urology, Hospital of University Munich, Germany*
Regular talk 1 F	15'	**Diagnostic potential of mid-infrared spectral imaging on tissue sections: application to the scoring of tumour aggressiveness of lung carcinomas** Olivier Piot *BioSpecT Unit, EA 7506, University of Reims Champagne-Ardenne, Reims, France.*

AUDITORIUM 1

Regular talk 2 R	15’	**In-Vivo Real-Time Molecular Diagnosis of Tumors Using Remote IR Resonant Laser Ablation** Philippe Saudemont[1], Jusal Quanico[1], Anna Baud[1], Benoit Fatou [1], Dominique Tierny[3], Michel Salzet[1], Isabelle Fournier[1], Cristian Focsa[2] and Michael Ziskind[2] *1. Laboratoire Protéomique,Réponse Inflammatoire et Spectrométrie de Masse, Université de Lille, France* *2. Oncovet Clinical Research, France* *3. Laboratoire de Physique des Lasers, Atomes et Molécules, Université de Lille, France*

S12 KEYNOTES, INVITED SPEAKER REGULAR TALK — SESSION 12: Biophotonics devices for personalized diagnostics & Wearables

CHAIR: ***Evgeny Shirshin**, M. V. Lomonosov State University, Moscow, Russia (**coordinator**)*

AUDITORIUM 1

S.12	**Sunday April 5th (9:20 AM – 11:15 PM)** **Chairmen: Evgeny Shirshin, Viacheslav Artyushenko**	
Invited 1 F	15’	**Non-invasive in vivo assessment of antioxidant status of human skin using spectroscopic methods** Maxim Darvin, Martina Meinke and Jürgen Lademann *Department of Dermatology, Venerology and Allergology, Charité – Universitätsmedizin Berlin, corporate member of Freie Universität Berlin, Humboldt-Universität zu Berlin, and Berlin Institute of Health, Germany*
Invited 2 R	15’	**Early detection of diabetic chronic kidney disease using microfluidic-based biophotonics** Sehyun Shin *School of Mechanical Engineering and Anam/Guro Hospital, Korea University, Seoul, Republic of Korea*
Invited 3 F	15’	**Macroscopic FLIM&PLIM: towards clinical translation.** Vladislav Shcheslavskiy[1,2], Maria Lukina[2], Igor Medyanik[2], Elena Zagaynova[2], Wolfgang Becker[1] and Marina Shirmanova[2] *1. Becker&Hickl GmbH, Germany* *2. Privolzhsky Research Medical University, Russia*
Regular talk 1 F	15’	**Ophthalmic Fluorescence Lifetime and Spectral Imaging for Age-Related Macular Degeneration – from Clinics to Histology and Back** Martin Hammer and Rowena Schultz *Department of Ophthalmology, University Hospital Jena, Germany*

S13 KEYNOTES, INVITED SPEAKER REGULAR TALK

SESSION 13: Lasers in dermatology - Photodermatology

CHAIRS: ***Karsten Koenig***, *Saarland University, Germany,* ***François Will***, *Dermatologist, Laser Center Nord Alsace-Haguenau and Laser Center Strasbourg Rhin-Strasbourg, Vice-President French Laser Group,France (**coordinators**)*

Ekaterina Borisova, *Bulgarian Academy of Sciences, Sofia, Bulgaria,* ***Marine Amouroux***, *University of Lorraine, Nancy France*

AUDITORIUM 2

S.13	Saturday April 2nd (11:00 AM – 12:35 PM) Chairmen: Marine Amouroux, François Will	
Keynote F	25’	**Multiphoton FLIM imaging in cosmetics research** Ana-Maria Pena[1], Thérèse Baldeweck[1], Sébastien Brizion[1], Edouard Raynaud[1], Blandine Ngo[1], Géraldine Rolland[1], Thomas Bornschlögl[1] and Emmanuelle Tancrède-Bohin[1,2] *1. L’Oréal Research and Innovation, France* *2. Service de Dermatologie, Hôpital Saint-Louis, France*
Invited 1 F	15’	**Basal cell carcinoma: Which laser for which BCC?** François Will *Centre laser Strasbourg Rhin, France - Centre laser Nord Alsace, France*
Invited 2 F	15’	**Real anti-aging using laser medicine** Hans Laubach *Laser MD Center, Strasbourg, France, University Hospital, Geneva, Switzerland*
Invited 3 ?	15’	**Multiphoton Tomography (MPT) Applications in Dermatology** Karsten Koenig[1,2], Ana Bastista[2], Hans Georg Breunig[1.2] and Aisada Koenig[1,2] *1. JenLab GmbH, Germany* *2. Department of Biophotonics and Laser Technology, Saarland University, Saarbruecken, Germany*
Regular talk 1 F	15’	**FTIR imaging on glass substrates evaluation of histological skin burn injuries specimens treated by femtosecond laser pulses** Denise Zezell[1], Pedro Castro[1], Matheus Del-Valle[1], Carlos Camillo-Silva[1], Ricardo Samad[1], Wagner De Rossi[1] and Moisés Santos[1,2] *1. Center for Lasers and Applications, Nuclear and Energy Research Institute, Brazil* *2. Technology College, Amazonas State University, Brazil*

Last modified on 24 February – 12:20PM

LALS 2022: LIST OF COMMUNICATIONS SELECTED FOR THE POSTER EXHIBITION

S1 POSTER EXHIBITION — SESSION 1: Diffuse Optical Imaging

Session 1 - posters	
S1.P1 R	**System based on large area detector and high throughput electronics: the next generation time-domain diffuse optical instruments** Laura DI SIENO[1], Elisabetta AVANZI[1], Edoardo FEROCINO[1], Anurag BEHERA[1], Davide CONTINI[1], Alessandro TORRICELLI[1,2], Sumeet ROHILLA[3,4], Benedikt KRÄMER[3], Felix KOBERLING[3], Fabio ACERBI[5], Alberto GOLA[5], Antonio PIFFERI[1,2] and Alberto DALLA MORA[1] *[1]Dipartimento di Fisica, Politecnico di Milano, Italy* *[2]Istituto di Fotonica e Nanotecnologie, Consiglio Nazionale delle Ricerche, Italy* *[3]PicoQuant GmbH, Germany* *[4] Charité – Universitätsmedizin Berlin, corporate member of Freie Universität Berlin, Humboldt-Universität zu and Berlin Institute of Health, Department of Internal Medicine/Infectious Diseases and Respiratory Medicine, Germany* *[5] Fondazione Bruno Kessler (FBK), Center for material and microsystems (CMM), Italy*

S2 POSTER EXHIBITION — SESSION 2: Light Propagation in Tissues, Modelling & Optical phantoms

Session 2 - posters	
S2.P1 F	**Development of multimodal approaches for improvement of in vivo optical clearing effect in human skin** Sergey Zaytsev[1,2], Valery Tuchin[1,3,4], Elina Genina[1,3], Walter Blondel[2] and Marine Amouroux[2] *1. Saratov State University, Russia* *2. Université de Lorraine, France* *3. Tomsk State University, Russia* *4. Institute of Precision Mechanics and Control of the RAS, Russia*
S2.P2 R	**Permeability of mice skin for propylene glycol** Daria K. Tuchina[1,2], Natalia A. Shushunova[1], Valery V.Tuchin[1-3] *1. Department of Optics and Biophotonics, Saratov State University, Russia* *2.Interdisciplinary Laboratory of Biophotonics, National Research Tomsk State University, Russia*

S3 POSTER EXHIBITION — SESSION 3: Image-guided therapy, Lasers & PDT for treatment and diagnosis

Session 3 - posters	
S3.P1 R	**Laser-induced fluorescence diagnostics of grain pathogenic microflora** Ekaterina Akhlyustina[1], Anastasia Ryabova[1,2], Daria Pominova[1,2], Pavel Grachev[2], Vladimir Makarov[2] and Bakhyt Kartabaeva[3] *1. National Research Nuclear University MEPhI, Russia* *2. General Physics Institute of the Russian Academy of Sciences, Russia* *3. All-Russian Research Institute of Phytopathology, Russian Agricultural Academy, Russia*

S3.P2 R	**Video and Spectral Fluorescence Diagnosis of Stomach Diseases with 5-ALA** Maxim Loshchenov[1], Vladimir Levkin[2], Nina Kalyagina[2,3], Sergey Kharnas[2] and Kirill Linkov[1] *1. Prokhorov General Physics Institute of the Russian Academy of Sciences, Russian Federation* *2. I.M. Sechenov First Moscow State Medical University (Sechenov University), Russian Federation* *3. National Research Nuclear University MEPhI, Russian Federation*

S4 POSTER EXHIBITION — SESSION 4: Optical Microscopy & Laser-cell-tissue interactions

Session 4 - posters	
S4.P1 R	**Dependence of RBC Aggregation Properties on the Cells Age: *in vitro* Measurements with Laser Tweezers** Petr Ermolinskiy[1], François Yaya[2,3], Andrei Lugovtsov[1,4], Kisung Lee[5], Alexander Priezzhev[1,4] and Christian Wagner[2,6] *1. Faculty of Physics, Lomonosov Moscow State University, Russia* *2. Experimental Physics, Saarland University, Germany* *3. Laboratoire Interdisciplinaire de Physique, UMR 5588 CNRS and University Grenoble–Alpes, France* *4. International Laser Centre, Lomonosov Moscow State University, Russia* *5. Ulsan National Institute of Science and Technology, Institute for Basic Science, Center for Soft and Living Matter, South Korea* *6. Physics and Materials Science Research Unit, University of Luxembourg, Luxembourg*
S4.P2 F	**Cell as a biosensor: real-time analysis of the interphase chromatin using densitometric segmentation technology** Irina Vasilenko[1,2], Nina Shikhina[1], Vladislav Metelin[1,2], Kardashova Ziver[2] and Elena Rusanova[2] *1. Department of Applied Mathematics and Programming, A.N. Kosygin Russian State University, Russian Federation* *2. Research laboratory, M.F. Vladimirsky Moscow Regional Clinical and Research Institute (MONIKI), Russian Federation*
S4.P3 F	**Possibilities of coherent super-resolving interference microscopy in the assessment of platelet hemostasis disorders** Irina Vasilenko[1,2], Vladislav Meteliin[1,2], Pavel Ignatiev[3], Nina Shikhina[1] and Elena Shestero[2] *1. Department of Applied Mathematics and Programming, A.N. Kosygin Russian State University, Russian Federation* *2. Research laboratory, M.F. Vladimirsky Moscow Regional Clinical and Research Institute (MONIKI), Russian Federation* *3. Department of Medical Products and Microscopy, JSC "Production Association "Ural optical-mechanical plant. After E.S. Yalamov", Russian Federation*
S4.P4 F	**Luminescence lifetime imaging to get new insights in cell metabolism and oxygen sensing** Sviatlana Kalinina[1], Bjoern Von Einem[2], Lothar Lilge[3] and Angelika Rück[1] *1. Core Facility Confocal and Multiphoton Microscopy, University of Ulm, Germany* *2. Institute of Neurology, University of Ulm, Germany* *3. University of Toronto, Canada*
S4.P5 R	**CARS as a method for the detection of toxic pollutants: the case of phthalates on Danio renio's larva** Dominique Dumas[1,2], Eric Battaglia[3], Segbegnon R. Yedji[3], Carole Cossu-Leguille[3], Alexandre Specht[4] and Lucrèce Ebersold[1,2] *1. University of Lorraine, IMOPA 7365 CNRS, France.* *2. University of Lorraine, UMS 2008 IBSLOr, France.* *3. University of Lorraine, LIEC UMR 7360 CNRS, France.* *4. University of Strasbourg, CAMB 7199 CNRS, France.*

S4.P6 R	**Optical control of calcium dynamics in single floating platelets using photolabile compounds.** Darya V. Spiryova[1], Ezhena S. Starodubtseva[1], Alexei Yu. Vorob'ev[1,2] and Alexander E. Moskalensky[1,3] *1. Novosibirsk State University, Novosibirsk, Russia;* *2. N.N. Vorozhtsov Novosibirsk Institute of Organic Chemistry SB RAS, Novosibirsk, Russia;* *3. Voevodsky Institute of Chemical Kinetics and Combustion SB RAS, Novosibirsk, Russia;*

S5 POSTER EXHIBITION — SESSION 5: Multimodal & Multispectral approaches

Session 5 - posters	
S5.P1 F	**Compact device for time resolved spectroscopy measurements** Vanesa Lukinsone[1], Anna Maslobojeva[1], Maris Kuzminskis[1], Mindaugas Tamošiūnas[1], Uldis Rubins[1], Ilona Kuzmina[1] and Janis Spigulis[1]. *1. Biophotonics Laboratory, Institute of Atomic Physics and Spectroscopy, University of Latvia, Raina Blvd19, Riga, LV-1050, Latvia*
S5.P2	**Field integral hyperspectral snapshot imaging for in-vivo diagnostics** Tomasz Tkaczyk[1,2] *1. Department of Bioengineering, Rice University, USA* *2. Department of Electrical and Computer Engineering, Rice University, USA*

S6 POSTER EXHIBITION — SESSION 6: Nano-biophotonics for cancer

Session 6 - posters	
S6.P1 F	**Effects Of Upconversion Particles On Human Kidney Carcinoma Cells A498** Yanina[1,2], Navolokin[3], Polukonova[3], Mylnikov[3], Kochubey[1,2] and Tuchin[1,2,4] *1. Saratov State University, Russia;* *2. Tomsk State University, Russia* *3. Saratov State Medical University, 410012 Saratov, Russia* *4. Institute of Precision Mechanics and Control of the RAS, Saratov, Russia*

S7 POSTER EXHIBITION — SESSION 7: OCT, Elastography, Photoacoustic, Polarization Imaging

Session 7 - posters	
S7.P1 F	**Evaluation of Calcified Mitral Valves After Er,Cr:YSGG Irradiation Using Optical Coherence Tomography** Matheus Del-Valle[1], Marcelo Carvalho[2], Moises Santos[1,3], Nathali Pinto[2], Fabio Jatene[2], Pablo Pomerantzeff[2], Carlos Brandão[2] and Denise Zezell[1] *1. Center for Lasers and Applications, Nuclear and Energy Research Institute, Brazil* *2. Heart Institute, University of São Paulo Medical School, Brazil* *3. Technology College, Amazonas State University, Brazil*

S7.P2 F	**Microstructure and blood supply in intestinal ischemia according to OCT: can an advanced technology increase the accuracy of intraoperative diagnosis?** Elena Kiseleva[1], Maxim Ryabkov[2,3], Mikhail Baleev[3], Evgenia Bederina[2], Marina Sirotkina[1], Elena Zagaynova[1] and Natalia Gladkova[1] *1. Research Institute of Experimental Oncology and Biomedical Technologies, Privolzhsky Research Medical University, Russia* *2. University Clinic, Privolzhsky Research Medical University, Russia3* *3. City clinical hospital № 30, Russia*
S7.P3 F	**Line-field confocal optical coherence tomography using an immersion Mirau interferometer** Weikai Xue[1], Olivier Levecq[2], Jonas Ogien[2] and Arnaud Dubois[1] *1. Paris-Saclay University, Institut d'Optique Graduate school, CNRS, Charles Fabry Laboratory, France* *2. DAMAE Medical, France*
S7.P4 F	**Multimodal optical imaging combining optical coherence tomography and Brillouin microscopy to study murine neural tube** Yogeshwari S. Ambekar[1], Manmohan Singh[1], Alexander W. Schill[1], Jitao Zhang[2], Christian Zevallos[1], Behzad Khajavi[1], Salavat R. Aglyamov[3], Richard H. Finnell[4], Giuliano Scarcelli[5], and Kirill V. Larin[1,6] *1. Department of Biomedical Engineering, University of Houston, Houston, TX, USA* *2. Department of Biomedical Engineering, Wayne State University, Detroit, USA* *3. Department of Mechanical Engineering, University of Houston, Houston, TX, USA* *4. Departments of Molecular and Cell Biology, Molecular and Human Genetics, and Medicine, Baylor College of Medicine, Houston, TX, USA* *5. Fischell Department of Bioengineering, University of Maryland, College Park, MD, USA* *6. Department of Molecular Physiology and Biophysics, Baylor College of Medicine, Houston, TX, USA*

S8 POSTER EXHIBITION — SESSION 8: Microwave and Terahertz applications in biology and medicine

Session 8 - posters	
S8.P1 R	**Laser Raman spectroscopy of enzymatic reactions** Nikolay Brandt[1], Andrey Chikishev[2], Anna Mankova[1] and Irina Shpachenko[1] *1. Physics Department, Lomonosov Moscow State University, Russia* *2. International Laser Center, Lomonosov Moscow State University, Russia*
S8.P2 R	**Impact of the bound water on the THz response of Cancer Blood Serum** Maria Konnikova[1,2], Maxim Nazarov[3], Taisiya Heinz[1,2], Olga Cherkasova[2,4], Alexander Shkurinov[1,2] *1. Department of Physics, Moscow State University, Russia* *2. Institute for Problems of Laser and Information Technologies of the Russian Academy of Sciences, Branch of Federal Scientific Research Center Crystallography and Photonics, Russia* *3. National Research Centre Kurchatov Institute, Russia* *4. Institute of Laser Physics, Siberian Branch, Russian Academy of Sciences, Russia*

S10 POSTER EXHIBITION — SESSION 10: Machine Learning, Bioinformatics, Image and signal processing

Session 10 - posters	
S10.P1 R	**Cellular health detection using Machine Learning and hyperspectral NIR** Ben Mellors[1], Abigail Spear[2], Christopher Howle And Hamid Dehghani[3] *1. Physical Sciences for Health Doctoral Training Centre, University of Birmingham, UK* *2. Defence Science and Technology Laboratory, UK* *3. School of Computer Science, University of Birmingham, UK*

S12 POSTER EXHIBITION — SESSION 12: Biophotonics devices for personalized diagnostics & Wearables

Session 12 - posters	
S12.P1 F	**Coherent fluctuation nephelometry in clinical microbiology** Alexander Gur'ev[1,2], Victoria Schelkova[2], Elena Rusanova[2], Irina Vasilenko[2, 3] and Alexey Volkov[1] *1. Medtechnopark Ltd, Russian Federation* *2. Scientific-reserch laboratory, Moscow Regional Research and Clinical Institute (MONIKI), Russian Federation* *3. Department of Applied Mathematics and Programming, A.N. Kosygin Russian State University, Russian Federation*
S12.P2 F	**Observation of calcium metabolism in Jurkat cells using photolabile analogs of arachidonic acid** Daria Litunenko[1], Sergei Sokolovski[2], Alexey Vorob'ev[1] and Alexander Moskalensky[1] *1. Laboratory of Optics and Dynamics of Biological Systems, Novosibirsk State University, Russian Federation* *2. Optoelectronics and Biomedical Photonics Group, Aston University, United Kingdom*