2nd International Conference on Optics, Photonics and Lasers

Conference Programme

24-26 April 2019
Amsterdam, The Netherlands
Message from Chairman

On behalf of Organizing Committee I would like to welcome you to the 2nd International Conference on Optics, Photonics and Lasers (OPAL' 2019), in Amsterdam, The Netherlands. The 2nd OPAL' 2019 conference is a forum for presentation, discussion, exchange of information and latest research and development results in both theoretical and experimental research in optics and their related fields. It brings together researchers, developers, and practitioners from diverse fields including international scientists and engineers from academia, research institutes, and companies to present and discuss the latest results in the mentioned field. The first OPAL' 2018 conference was held in Barcelona, Spain, 9-11 May 2018.

The conference is organized by the International Frequency Sensor Association (IFSA) – a non-profit professional association, which will celebrate its 20th year anniversary, with media partners Institute of Physics (IOP), UK and in technical cooperation with IFSA Publishing S.L., Spain.

The previous OPAL’ 2018 conference has attracted many researchers and practitioners in the related fields, from around the world including 4 keynote speakers from a distinguished researchers of industry and academia from China, Sweden, UK and USA, and 12 invited speakers who were invited to overview the progress in selected research trends. There were more than 140 submissions, and after review, 84 papers have been selected for presentations (65 oral and 19 posters presentations), submitted by authors from 25 countries (14 European and 11 non-European countries), covering theory, design, device technology and applications.

The OPAL conference is focusing any significant breakthrough and innovation in Optics, Photonics and Lasers, and its applications with broadest concept. During a few, busy, packed and highly charged days, we will cover every important sector within the optics, offering attendees plenty of opportunities for networking and to meet many other researchers within the Optical Community.

We trust that you will find OPAL’ 2019 conference professionally rewarding and stimulating as well as enjoyable. Welcome to OPAL’ 2019!

Prof., Dr. Sergey Y. Yurish
OPAL’ 2019 Conference Chairman

Conference web site:
http://www.opal-conference.com
Registration

The Registration Desk is opened in the Mövenpick Hotel’s Meeting Centre 2 on

- Wednesday, 24 April, from 8:30 to 18:00
- Thursday, 25 April, from 8:30 to 14:30

Language

The official language of the Conference is English. There will be no simultaneous interpretation.

Insurance and Liability

The conference organizers do not accept responsibility for any individual, medical, travel or personal insurance policies as necessary.

Conference Identification Tag

The Organizing Committee request that you wear your identification tag at all times during the conference. Your conference identification tag will serve as your admission to all conference paper presentation sessions.

Coffee/Tea Refreshment

Coffee/tea will be served at the times indicated in the programme.

Special Issue of Sensors & Transducers journal

Selected papers from the conference will be published by IFSA Publishing in a special issue of open access Sensors & Transducers journal (ISSN: 2306-8515, e-ISSN 1726-5479) in both: print and electronic formats. All authors of selected papers will be invited by the editor-in-chief of Sensors & Transducers journal after the conference to submit their extended papers. The publication in Sensors & Transducers will be free of charge for OPAL’ 2019 conference participants. Submission deadline is 10 May 2018. The special issue will be published in June-July 2019.
‘Advances in Optics: Reviews’ Book Series

The limited number of full-page papers published in the Sensors & Transducers journal will be selected by the journal's Editorial Board to extend for book chapters for the ‘Advances in Optics: Reviews’, Vol. 5 Book Series. This open access book will be published in 2020. The first three volumes devoted to optics, photonics and lasers were published in 2018 and have accepted by all Optical Community with a great enthusiasm.

Organizing Committee

Chairman

Prof., Dr. Sergey Y. Yurish (IFSA, Spain)

Advisory Chairmen

Dr. Qiang Wu (Northumbria University, Newcastle Upon Tyne, UK)
Prof., Dr. Mahmoud Daoudi (National Center for Nuclear Sciences and Technologies, Tunisia)

Conference and Publication Manager

Mrs. Tetyana Zakharchenko (IFSA Publishing, S.L., Spain)

Sponsors and Media Partners:

IOP
Institute of Physics

IFSA Publishing
Sensing and Tuning with Optical Microresonators on Chip

Abstract

On chip optical microresonators are compact, robust and can be integrated with micro electro-mechanical components as well as microfluidics. They can efficiently sense acceleration, forces, gases, refractive index of liquids, living cells, and bacteria, as well as tune lasers. During the presentation several sensors and tunable devices based on different types of optical microresonators, such as in-plane Fabry-Perot cavities, whispering gallery mode resonators and 2D photonic crystals will be reported.

Short Biography:

Yves-Alain Peter received the M.Sc. degree in physics and the Dr.Sc. degree from the University of Neuchâtel, Switzerland, in 1994 and 2001, respectively. In 1995, he joined the Department of Medical Radiobiology as a Research Associate at the Paul Scherrer Institute, Switzerland. From 1995 to 2001, he was a Graduate Research Assistant with the Applied Optics Group, Institute of Microtechnology, University of Neuchâtel. From 2001 to 2003, he was a Post-Doctoral Researcher with the Microphotonics Group, Stanford University. From 2003 to 2004, he was a Research and Development Engineer and a Project Leader with the Swiss Center for Electronics and Microtechnology, Switzerland. In 2004, he joined Polytechnique Montréal, Canada, where he is now Professor of Engineering Physics. His current research interests include microphotonics and micro-opto-electro-mechanical systems.
Keynote Speaker 2

Prof. Pierre-Michel Adam
Université de Technologie de Troyes, France

Surface Plasmons in Complex Geometries: Optical Properties and Interactions with Nanoscale Emitters

Abstract

Plasmonics deals with the properties and the control of localized and delocalized surface plasmons at the subwavelength scale. It has highly potential applications for nanoscale ultrafast photonics and for ultrasensitive sensors. Two types of resonances exist, Surface Plasmons Polaritons (SPP) and Localized Surface Plasmons (LSP). Understanding the coupling properties between quantum emitters and surface plasmons resonances and/or nanonantennas is a key step towards realistic applications in the near future. We will present in this paper our latest experimental and theoretical results on the optical properties of different plasmonic systems exhibiting complex resonant modes and applications for the sensitive detection of molecules Surface Enhanced Spectroscopies, such as Surface Enhanced Raman Spectroscopy (SERS) and Surface Enhanced Fluorescence (SEF).

Short Biography:

Pierre-Michel Adam has obtained his PhD in Physics in 1995 (Université de Bourgogne). Title of his PhD is 'Photon Scanning Tunneling Microscope (PSTM) with a polychromatic incoherent light source. Near-field investigation of test samples and surface plasmons'. In January 1995, P.M. Adam has joined the Université de technologie de Troyes as an Assistant Professor and has been appointed Full Professor in February 2003. His fields of research are nano-optics and nano-spectroscopy, linear and non-linear plasmonics, surface-enhanced Raman scattering. He is in charge of the group ‘Nanospectroscopy’ at the Light Nanotechnology Nanomaterials (L2n) laboratory and Vice-President of the scientific council of UTT. He has been also vice-president of a European network, COST action MP1302 ‘Nanospectroscopy’. He is editor in chief of the international peer-reviewed journal “Nanospectroscopy”. He is author/co-author of 102 publications in international journals. He has been the supervisor of 20 PhD thesis.
Listen with Fiber-Optic Distributed Acoustic Sensors

Abstract

Fiber-optic distributed acoustic sensor (DAS) can collect the amplitude, frequency and phase information of vibrations occurring at any section of the optical fiber. It has been extensively researched and has been widely applied in many fields including structural health monitoring, geological exploring and security surveillance. The paper introduces a recently developed DAS system based on time-gated digital optical frequency domain reflectometry, which can overcome drawbacks of DAS based on phase-sensitive optical time domain reflectometry. Sub-meter spatial resolution and long measurement range over 10 km are achieved simultaneously, and the fading problem is solved the rotated vector average methods. With the proposed sensor, sound wave is clearly recorded by the fiber with high fidelity in experiments.

Short Biography:

Dr. Qingwen Liu is a Professor in Department of Electronic Engineering, Shanghai Jiao Tong University, China. He was born in Shandong, China, in 1981. He received the B.S. and M.S. degrees in Opto-electronics from Tianjin University in 2005 and 2007, respectively, and the Ph.D. degree in Electronic Engineering from the University of Tokyo, Japan, in 2012. He joined Shanghai Jiao Tong University in 2013. His research interests include high performance photonics sensors and optical information processing. He has developed a series of pico-strain resolution fiber grating sensor arrays for geophysical researches. Recently he has focused on the high-fidelity fiber-optic distributed acoustic sensors. He has authored or co-authored more than 100 refereed journal and conference papers, and held 20 patents.
Programme at Glance

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¹,²,³ The must attend sessions.

*Amsterdam’s Channels Cruise & Gala Dinner*: The Gala Dinner will take place on an Amsterdam comfort and elegant modern channel cruise boat, to enjoy the heritage-listed canals of the ‘Venice of the North’ in style. Boarding time is 19:45. The departure time is 20:00 at the pear in front of the conference Mövenpick Hotel at and return back approximately at 22:30.
Regular Session 1:
Optical Materials, Characterization, Methods and Techniques

Chairman: Prof. Yves-Alain Peter
Polytechnique Montreal Technological University, Canada

1. Photoluminescence of Rare Earth Ion Doping and Interface Related Electrical Transport Properties of SnO$_2$ Thin Films Based Heterostructures
Luis Vicente De Scalvi, Cristina F. Bueno and Diego H. Machado (Brazil)

2. A Quasi-optic Tool to Study Topological Features of All-dielectric Metamaterials
Vladimir Tuz (China)

Aivars Vembris, Julija Pervenecka, Elmars Zarins, Karina Siltane and Valdis Kokars (Latvia)

4. Tailored Coupling Coefficient within Sub-wavelength Nanostructured Waveguides Arrays: Towards Compact and Efficient Devices
Anne Talneau, Flore Hentinger and Nadia Belabas (France)

5. Electroluminescence Properties of Glass Forming Iridium (III) Complexes
Nataliija Lesina, Kaspars Traskovskis and Aivars Vembris (Latvia)

6. Characterization of Linear Properties of Nonlinear Soft Glasses at Terahertz and Infrared Frequencies
Adam Pacewicz, Bartlomiej Salski, Jerzy Cuper, Marcin Rytel, Pawel Kopyt, Michal Walczakowski, Jaroslaw Cimek and Ryszard Buczynski (Poland)
Regular Session 2:
Physical and Nonlinear Optics

Chairman: Prof. Pierre-Michel Adam
Université de Technologie de Troyes, France

1. Thermo-optic Control of Solitary Light Beams in Nematic Liquid Crystals
   Urszula A. Laudyn, Armando Picardi, Michal Kwasny, Miroslaw A. Karpierz and Gaetano Assanto (Poland, Italy)

2. Enhancement of Modulation Depth in Radio-over-Fiber Links Using Combination of Parametric Amplification and Stimulated Brillouin Scattering With Stokes Wave Feedback
   K. I. Amila Sampath, Yushin Hayashi and Joji Maeda (Japan)

3. Third Harmonic Generation on Silicon Surface Induced by Femtosecond Laser
   Xiaohong Li (China)

4. Modified Theory of Physical Optics and Related Applications
   Müslahit Sarnık and Uğur Yalçın (Turkey)

5. Diffractions of Plane Waves by Systems of Identical 3D Objects
   Do Tan Si (Vietnam)

Poster Session I
1st day (12:30-13:00)

1. Investigation of Shockley-Read-Hall Recombination in Deep-Ultraviolet Light-Emitting Diodes
   Yen-Kuang Kuo, Fang-Ming Chen and Jih-Yuan Chang (Taiwan)

2. Investigation of Photoluminescence and Amplified Spontaneous Emission Properties of Cyanoacetic Acid Derivative (KTB) in Polysulfone (PSU) Amorphous Thin Films
   Julija Pervenecka, Aivars Vembris, Elmars Zarins and Valdis Kokars (Latvia)
3. Study of Nonlinear Optical Properties of Novel Indandion Derivatives
   Arturs Bundulis and Martins Rutkis (Latvia)

4. Optical Properties and Amplified Spontaneous Emission of New Synthesised Glass Forming Pyranyliden Derivatives
   Patricija Paulsone, Elmars Zarins, Kristine Lazdovica, Valdis Kokars and Aivars Vembris (Latvia)

5. Studying the Characterisation of B. plicatilis Using Raman Spectroscopy
   Nadiah Aldaleeli and Peter Dunstan (UK)

6. A Quantum State of Classical and Nonclassical Natures
   Anas Othman (Saudi Arabia)

NOTES:
Day 2
25 April 2019, Thursday

Regular Session 3:
Nano & Micro Optics

**Chairman:** Prof. Qingwen Liu
*Shanghai Jiao Tong University, China*

1. **High-power Limitations of Graphene Nanocoated Optical Taper Saturable Absorbers**
   Meriem Kemel, Paul Mouchel, Georges Semaan, Mohamed Salhi, Marc Le Flohic and François Sanchez *(France)*

2. **Subsurface Silicon Processing by Microsphere Focusing of Ultrafast Infrared Laser**
   Alpan Bek, Firat İdikut, Mona Zolfaghari Borra and Seyedehnasim Esmaeilzad Seyedpour *(Turkey)*

3. **Power Scaling and Mode-hop Suppression of Continuous Wave Single-longitudinal-mode 1342 nm Lasers**
   Li Yuanji, Nie Dandan, Zhao Hao, Feng Jinxia and Zhang Kuanshou *(China)*

Regular Session 4:
Applied Optics and Holography

**Chairman:** Prof. Guo Qi
*South China Normal University, China*

1. **Non-local Similarity Complex Domain Denoising for Hyperspectral Phase Imaging**
   Vladimir Katkovnik, Igor Shevkunov, Daniel Claus, Giancarlo Pedrini and Karen Eguiazarian *(Finland, Germany)*
2. Mechanical Strength Characterization on Fuse Splicing a Silicon Cored Fiber with a Conventional Single Mode Fiber  
Hsu Yung-Lin, Saw Chiang-Ping and Wang Lon  
(Taiwan, Malaysia)

3. Propagation of Electromagnetic Waves in a Waveguide with Space-Time Multi Periodic Filling  
Eduard Gevorkyan (Russia)

Sergey Docnehnko, Oleg Viktorovich and Dmitriy Prokhorov (Russia)

Poster Session II
2nd day (12:30-13:00)

1. To the Problem of High Sensitivity Absorption Measurement in Crystals of Trigonal Symmetry with Time-Resolved Photothermal Common-Path Interferometry  
Ksenia Vlasova, Alexander Makarov, Nikolai Andreev and Alexei Konovalov (Russia)

2. Reconstruction of Digital in-Line Holograms and Suppression of the Twin-image in Gabor Holography  
Yuriy Arapov, Marina Dvornichenko, Vladimir Kamenev and Vitaly Turkin (Russia)

3. Optical Properties of Copper-Containing Borate-Lithium Glass  
Zheneveva Snezhnaia, Pavel Shirshnev, Elena Shirshneva-Vaschenko, Dmitriy Panov, Alexey Romanov and Vladislav Bougrov (Russia)

4. Development of Laser-Based Autofocusing Microscope with High Positioning Accuracy for Transparent Boundaries  
Chien-Sheng Liu and Ruei-Chi Song (Taiwan)

5. In Vivo Speckle Contrast Imaging Constructed by Threshold-Tunable Random Lasers  
Ting-Wei Yeh, Zu-Po Yang, Yung-Chi Yao, Chen-Yu Chang, Meng-Tsan Tsai, Jinn-Kong Sheu and Ya-Ju Lee (Taiwan)
Notes: