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1483rd Conference

Scientific Program

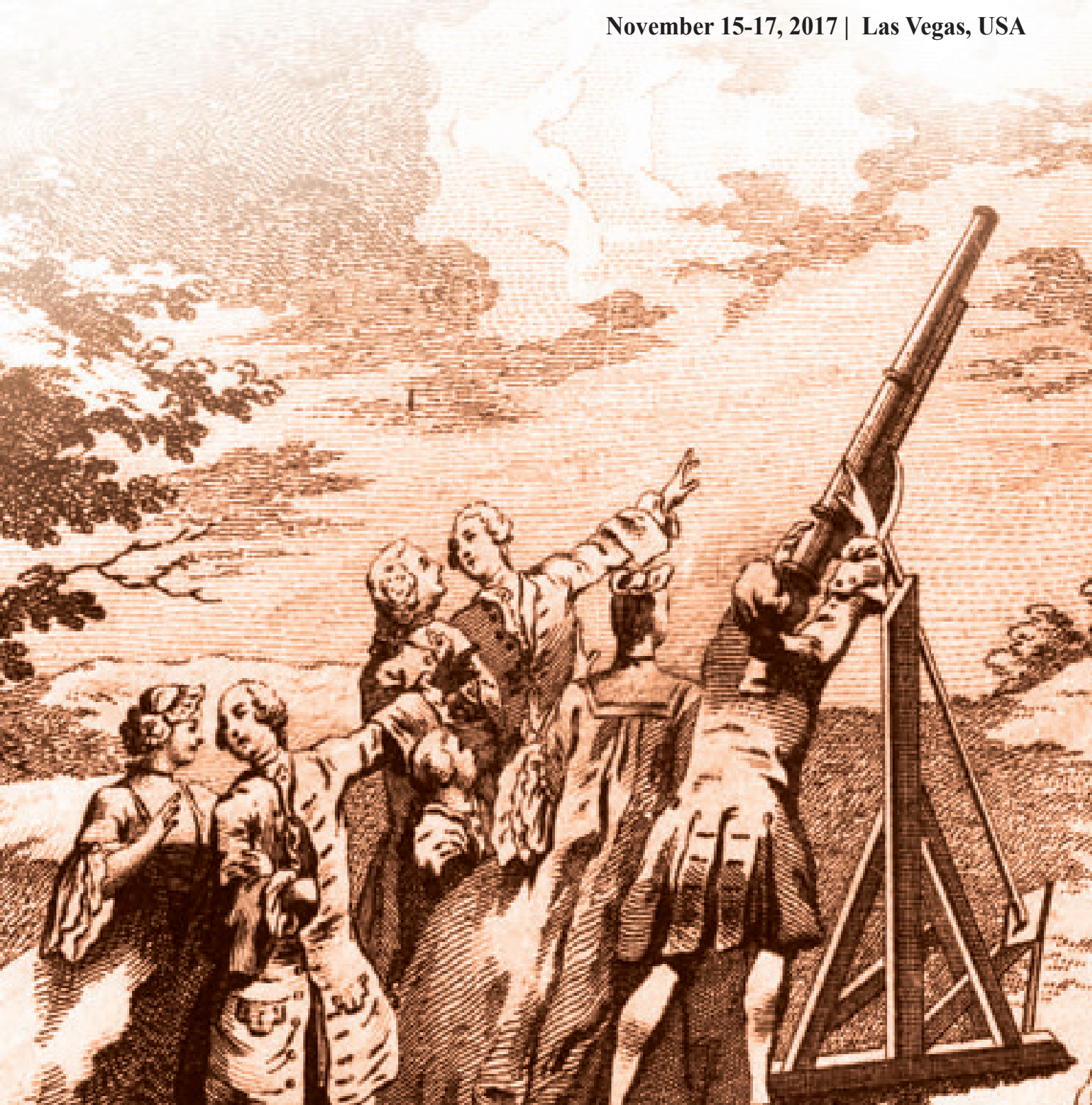
Exhibitor



Proceedings of
8th International Conference and Exhibition on

LASERS, OPTICS & PHOTONICS

November 15-17, 2017 | Las Vegas, USA



Scientific Program

07:00-08:00 Registrations

Conference Hall: Renaissance II

conference**series**.com 08:00-08:25

Opening Ceremony

Keynote Forum

08:25-08:30 Introduction

08:30-09:00 Title: **Wide band gap III-nitride semiconductor devices**

Ryan McClintock, Northwestern University, USA

09:00-09:30 Title: **New frontiers in monolithic, tunable, mid-infrared lasers**

Steven Slivken, Northwestern University, USA

Workshop on Rock Wars, We can Win with Silicon

Douglas R McCarter, McCarter Machine & Technology Inc., USA

09:30-11:00 Session I

Networking & Refreshment Break 11:00-11:15 @ Pre-Function Space

11:15-12:45 Session II

Group Photo 12:45-13:00

Panel Discussion

Lunch Break 13:00-13:50 @ Renaissance III

Day 1 - November 15, 2017

Conference Hall: Renaissance II

Main Hall Sessions

Sessions:

Applications and Trends in Optics and Photonics | Advancements in Photonics

Session Chair: Vincenzo Spagnolo, Technical University of Bari, Italy

Session Co-chair: Hideyoshi Horimai, Egarim Co. Ltd., Japan

Session Introduction

13:50-14:15 Title: **One mm-thick see-through holographic RGB illumination unit ega-rim**

Hideyoshi Horimai, Egarim Co. Ltd., Japan

14:15-14:40 Title: **Laser power conversion efficiencies exceeding 60%, featuring strong photon recycling, in ultra-thin GaAs n/p junctions based on high-photovoltage vertical epitaxial heterostructure architectures**

Simon Fafard, Université de Sherbrooke, Canada

14:40-15:05 Title: **Signal's envelope analysis by the mathematical statistics methods as a new approach to accurate measuring in optical metrology**

Tatiana Yakovleva, Russian Academy of Sciences, Russia

15:05-15:30 Title: **Time tagged time resolved single photon counting technique for quantum astronomy applications**

Amur Margaryan, A I Alikhanyan National Science Laboratory, Armenia

15:30-15:55 Title: **Holographic window for solar power generation system**

Toshihiro Kasezawa, Egarim Co. Ltd., Japan

Networking & Refreshment Break 15:55-16:10 @ Pre-Function Space

16:10-16:35 Title: **New developments in quartz enhanced photoacoustic sensors exploiting custom quartz tuning forks**

Vincenzo Spagnolo, Technical University of Bari, Italy

16:35-17:00 Title: **Site-controlled quantum dots and their integration in photonic crystal nanocavities**

Giorgio Pettinari, IFN-CNR, Italy

17:00-17:25 Title: **Transition metal oxide thin film-applications**

K V Madhuri, VFSTR University, India

17:25-17:50 **Title: Split-and-delay units for soft and hard x-ray free-electron lasers**
Sebastian Roling, University of Münster, Germany

Panel Discussion

Day 1 - Breakout November 15, 2017

Conference Hall: Paramount Room

Breakout Sessions

Sessions:

Nanophotonics and Biophotonics

Session Chair: Xiaoting Jia, Virginia Tech, USA

Session Co-chair: Takashige Omatsu, Chiba University, Japan

Session Introduction

13:50-14:15 **Title: Broadband non-linear THz spectroscopy using gas plasma THz source**
Masashi Yamaguchi, Rensselaer Polytechnic Institute, USA

14:15-14:40 **Title: Bridging nano and macro: Multimaterial multifunctional fibers**
Xiaoting Jia, Virginia Tech, USA

14:40-15:05 **Title: Optical parametric vortex lasers**
Takashige Omatsu, Chiba University, Japan

15:05-15:30 **Title: PLGA nanocomposites loaded with verteporfin and gold nanoparticles for enhanced photodynamic therapy on cancer cells**
Wei Deng, Macquarie University, Australia

15:30-15:55 **Title: Nano-patterned hyperbolic metamaterials for high-frequency nanowire quantum dots single photon source**
Feiliang Chen, Microsystem and Terahertz Research Center, China

Networking & Refreshment Break 15:55-16:10 @ Pre-Function Space

16:10-16:35 **Title: Surface plasmon polaritons in nanostructured metamaterials**
Tatjana Gric, Vilnius Gediminas Technical University, Lithuania

16:35-17:00 **Title: Ytterbium and bismuth clusters impact on silica-based light guides optical and luminescence performances**
Evgeny Savelyev, Kotel'nikov Institute of Radio-Engineering and Electronics-RAS, Russia

17:00-17:25 **Title: Photon crystal-supported surface electromagnetic waves: A tool to study dynamics of receptor-ligand interactions with living bacteria and cells and to launch ultralong propagating surface plasmons**
S K Sekatskii, Laboratoire de Physique de la Matière Vivante, Switzerland

17:25-17:50 **Title: Laser aided shunt removals to improve conversion efficiency in high-efficiency silicon solar cells**
Ngwe Zin, University of Central Florida, USA

Panel Discussion

Day 2 November 16, 2017

Conference Hall: The Five Spot Room

Main Hall Sessions

Keynote Forum

08:30-09:00 **Title: Optical to electrical power conversion devices with the highest efficiency ever (Eff > 60%) based on the vertical epitaxial heterostructure architecture (VHESA) design**
Simon Fafard, Broadcom, USA

09:00-09:30 **Title: Quantum laser interactions with select silicate specimens**
Michelle R Stem, Complete Consulting Services, USA

09:30-10:00 **Title: The CAOS smart camera—empowering automotive and surveillance imaging**
Nabeel A Riza, University College Cork, Ireland

Session:

Optoelectronics

Session Chair: A G Unil Perera, Georgia State University, USA

Session Co-chair: Kenji Murakami, Shizuoka University, Japan

Session Introduction

10:00-10:25 Title: **Heterojunction detectors for multi-band detection with wavelength threshold extension mechanism**
A G Unil Perera, Georgia State University, USA

10:25-10:50 Title: **Transparent and conductive materials for opto-electronic applications**
Bellet Daniel, University of Grenoble, France

Panel Discussion**Networking & Refreshment Break 10:50-11:05 @ Pre-Function Space**

11:05-11:30 Title: **Fabrication of nanowires-based devices grown with controlled orientation**
Kaddour Lekhal, Nagoya University, Japan

11:30-11:55 Title: **High precision fast line detection of alignment and coupling for optoelectronic devices**
Yu Zheng, Central South University, China

11:55-12:20 Title: **In situ and ex situ optical characterization of nitride semiconductor crystal for advanced optical and power electronic devices**
S Nitta, Nagoya University, Japan

12:20-12:45 Title: **Defect reduction of GaN nano rods on hetero-substrates: Behaviors of basal stacking faults**

Si-Young Bae, Nagoya University, Japan

12:45-13:10 Title: **Synthesis and characterization of organic mechanoluminescent materials**
Kenji Murakami, Shizuoka University, Japan

Lunch Break 13:10-14:00 @ Renaissance III**Poster Presentations 13:45-14:45 @ Pre-Function Space****Poster Judges:**

Amur Margaryan, A I Alikhanyan National Science Laboratory, Armenia

Jiaren Liu, National Research Council, Canada

OP1 Title: **Acetylene sensor based on the tunable laser spectroscopy method and the correlation spectroscopy principle**

Guzman-Chavez A D, Universidad de Guanajuato, Mexico

OP2 Title: **The effects of two stages GaN growth with different V/III ratios during 3D-2D transition**
Ismail Altuntas, Cumhuriyet University, Turkey

OP3 Title: **DNA as a catalyst in photoinduced processes and nanoscale resonance nonradiative electron excitation energy transfer**

Tamar G Giorgadze, Ivane Javakhishvili Tbilisi State University, Georgia

OP4 Title: **Influence of laser energy on the electron temperature of a laser-induced Mg plasma**
Emmanuel Asamoah, Jiangsu University, China

OP5 Title: **Graphene quantum dots loaded macrophages mediated drug delivery for imaging guided photodynamic therapy**

Yong-kyu Lee, Korea National University of Transportation, Korea

OP6 Title: **Synthesis and characterization of fluorescence MoS₂ dots for biomedical applications**
Ikjun Yeon, Korea National University of Transportation, Korea

OP7 Title: **White graphene quantum dots surface coated with MnO₂ nanosheet for dual imaging guided photothermal therapy**

Joon Hwang, Korea National University of Transportation, Korea

Session:**Optoelectronics**

Session Chair: Devki N Talwar, Indiana University of Pennsylvania, USA

Session Co-chair: Juan Carlos Rendón-Angeles, Centro de Investigación y de Estudios Avanzados del IPN CINVESTAV-Salttillo, Mexico

Session Introduction

14:45-15:10 Title: **Spectroscopic phonon and extended x-ray absorption fine structure measurements on 3C-SiC/Si (001) epilayers**

Devki N Talwar, Indiana University of Pennsylvania, USA

- 15:10-15:35** Title: **Insights of the hydrothermal synthesis of scheelite-structured powders in the SrMoO₄-SrWO₄ system: Structure and luminescence characterization**
Juan Carlos Rendón-Angeles, Centro de Investigación y de Estudios Avanzados del IPN CINVESTAV-Salttillo, Mexico
- 15:35-16:00** Title: **MBE growth of InAs nanowires on Si**
Hao-Hsiung Lin, National Taiwan University, Taiwan

Networking & Refreshment Break 16:00-16:15 @ Pre-Function Space

- 16:15-16:40** Title: **Recent progress of AlGaIn-based deep-ultraviolet light-emitting diodes**
Masafumi Jo, RIKEN Brain Science Institute, Japan
- 16:40-17:05** Title: **Extended short wave infrared photodetectors**
Doron Cohen Elias, Soreq NRC, Israel
- 17:05-17:30** Title: **Room-temperature-protonation-driven optoelectronic device with water-gated thin-film-transistor structure**
Takayoshi Katase, Tokyo Institute of Technology, Japan
- 17:30-17:55** Title: **Hydride vapor phase epitaxy growth of III-V nanostructures for high performance devices**
Geoffrey Avit, Université Clermont Auvergne, France

Panel Discussion

Day 2 November 16, 2017

Conference Hall: Paramount Room

Breakout Sessions

Keynote Forum

- 08:30-09:00** Title: **Antimicrobial blue light inactivation of pathogenic microbes: State of the art**
Tianhong Dai, Harvard Medical School, USA
- 09:00-09:30** Title: **Combination laser treatment for immature scars**
Yongsoo Lee, Oh and Lee Medical Robot, Inc, South Korea
- 09:30-10:00** Title: **Integrated hybrid plasmonic devices—the role of 2D materials**
Amr S Helmy, Univeristy of Toronto, Canada

Sessions:

Optical Metrology | Surface Enhanced Spectroscopy | Quantum Science and Technology

Session Chair: Kuniharu Ijiri, Hokkaido University, Japan

Session Co-chair: Tatsuo Shiina, Chiba University, Japan

Session Introduction

- 10:00-10:25** Title: **Exciton dynamics and resonant tunneling in coupled quantum dots quantum well tunnel-injection structures**
Branislav Vlahovic, NASA University-Research Center for Aerospace Device, USA
- 10:25-10:50** Title: **Active gap SERS with plasmonic nanostructures on hydrogels for the sensitive detection of biomacromolecules**
Kuniharu Ijiri, Hokkaido University, Japan

Networking & Refreshment Break 10:50-11:05 @ Pre-Function Space

- 11:05-11:30** Title: **Non-diffractive beam in random media**
Tatsuo Shiina, Chiba University, Japan
- 11:30-11:55** Title: **LED's for horticulture: Novel insights in plant cultivation**
Giedre Samuoliene, Lithuanian Research Centre for Agriculture and Forestry, Lithuania
- 11:55-12:20** Title: **Parity detection achieving Heisenberg limit in an SU(1,1) interferometer with coherent and squeezed vacuum input states**
Dong Li, Microsystem and Terahertz Research Center, China
- 12:20-12:45** Title: **Probing two dimensional (2D) semiconductors by employing nonlinear optical microspectroscopy**
Mohammad Mokim, University of Rhode Island, USA
- 12:45-13:10** Title: **Intensification of boron isotopes separation by the laser field manipulation within the method of isotopes separation by selective condensation retardation in overcooled gas flow**
Konstantin Lyakhov, Jeju National University, South Korea

Session:**Laser Systems****Session Chair:** Yanbo Bai, Coherent Inc., USA**Session Co-chair:** Nasser Peyghambarian, NP Photonics, Inc., USA**Session Introduction**

- 14:00-14:25** Title: **Characterization of optically pumped semiconductor lasers in pulsed mode**
Yanbo Bai, Coherent Inc., USA
- 14:25-14:50** Title: **Novel sources and resonators for high-resolution molecular spectroscopy in the mid infrared**
Simone Borri, CNR-INO Istituto Nazionale di Ottica, Italy
- 14:50-15:15** Title: **Hall coefficient sign reversal in metamaterials**
Ramesh G Mani, Georgia State University, USA
- 15:15-15:40** Title: **Liquid phase growth of GaSe crystal for highly efficient THz wave generation**
Yohei Sato, Tohoku University, Japan

Networking & Refreshment Break 15:40-15:55 @ Pre-Function Space

- 15:55-16:20** Title: **Integrated terahertz photonics and optoelectronics**
Qi Jie Wang, Nanyang Technological University, Singapore
- 16:20-16:45** Title: ***In vivo* physiological imaging of biological tissues based on diffuse reflectance spectroscopy with an RGB camera**
Izumi Nishidate, Tokyo University of Agriculture and Technology, Japan
- 16:45-17:10** Title: **Fiber-based sources spanning UV to Mid-IR**
Nasser Peyghambarian, NP Photonics, Inc., USA
- 17:10-17:35** Title: **High quality nitride materials (AlN and AlGaN) on Si and sapphire substrates and UV-LED applications**
Ilkay Demir, Cumhuriyet University, Turkey

Panel Discussion**Day 3 November 17, 2017****Conference Hall: The Five Spot Room****Main Hall Sessions****Session:****Optical Communications and Networking | Fiber Laser Technology****Session Chair:** Dongsun Seo, Myongji University, Korea**Session Co-chair:** Taiji Sakamoto, NTT Access Network Service Systems Laboratories, Japan**Session Introduction**

- 08:30-08:55** Title: **Technique of optical frequency comb generation from a bismuth-based harmonically mode-locked fiber laser**
Yutaka Fukuchi, Tokyo University of Science, Japan
- 08:55-09:20** Title: **Randomly-coupled multi-core fiber for long-haul optical MIMO transmission system**
Taiji Sakamoto, NTT Access Network Service Systems Laboratories, Japan
- 09:20-09:45** Title: **Phase noise analysis of InAs quantum-dot mode-locked semiconductor lasers**
Jiaren Liu, National Research Council, Canada
- 09:45-10:10** Title: **CFO compensation method for coherent optical OFDM system by electro-optic feedback**
Sang-Rok Moon, Electronics and Telecommunications Research Institute, South Korea
- 10:10-10:35** Title: **The influence of constant-envelope signals in coherent-detection optical OFDM systems**
Jair Adriano Lima Silva, Federal University of Espirito Santo, Brazil

Networking & Refreshment Break 10:35-10:50 @ Pre Function Space

- 10:50-11:15** Title: **A MAC layer protocol for a bandwidth scalable OFDMA PON architecture**
Reginaldo Barbosa Nunes, Federal Institute of Espirito Santo, Brazil
- 11:15-11:40** Title: **Optimization of optical modulation formats for high-speed short-reach connection**
Jianjun Yu, Fudan University, China

11:40-12:05 Title: **Improvement of optical transmission capacity by data compression and amplitude/phase/frequency 3-dimensional modulation**
Dongsun Seo, Myongji University, Korea

Session:

Technologies in Lasers, Optics and Photonics

Session Chair: Jesse A Frantz, US Naval Research Laboratory, USA

Session Co-chair: Eugene S Smotkin, Northeastern University, USA

Session Introduction

12:05-12:30 Title: **Anti-reflection surface structures on optics as an alternative to thin film anti-reflection coatings**

Jesse A Frantz, US Naval Research Laboratory, USA

12:30-12:55 Title: **A perspective on quasi-confocal operando Raman microspectroscopy of laminated polymer composite materials**

Eugene S Smotkin, Northeastern University, USA

Lunch Break 12:55-13:45 @ Renaissance III

13:45-14:10 Title: **Photo-induced flows relevant to laser-based droplet manipulations**

Takahiro Tsukahara, Tokyo University of Science, Japan

14:10-14:35 Title: **Fourier-Bessel electromagnetic mode solver (and its inversion)**

Robert Claude Gauthier, Carleton University, Canada

14:35-15:00 Title: **Glass optics replication in a digitalized production environment**

Holger Kreilkamp, Fraunhofer-Institute for Production Technology, Germany

15:00-15:25 Title: **PILOT optical alignment**

Baptiste MOT, IRAP, France

Networking & Refreshment Break 15:25-15:40 @ Pre-Function Space

15:40-16:05 Title: **Laser technology to guide rainfall to a particular region**

T K Subramaniam, Sri Sairam Engineering College, India

16:05-16:30 Title: **Quartz-enhanced photoacoustic spectroscopy with electrical co-excitation**

Ulrike Willer, Clausthal University of Technology, Germany

16:30-16:55 Title: **Advanced IR glass and fiber technology**

S S Bayya, Naval Research Laboratory, USA

Panel Discussion

Day 3 November 17, 2017

Conference Hall: Paramount Room

Breakout Sessions

Sessions:

Optical Physics | Optics and Lasers in Medicine

Session Chair: A Seteikin, Amur State University, Russia

Session Co-chair: Albrecht Lindinger, Freie Universität Berlin, Germany

Session Introduction

08:30-08:55 Title: **Simulation of thermal reaction of biological tissues to laser-induced fluorescence and photodynamic therapy**

A Seteikin, Amur State University, Russia

08:55-09:20 Title: **High brightness photonic crystal semiconductor lasers**

Cunzhu Tong, Chinese Academy of Sciences, China

09:20-09:45 Title: **Robotic Irradiation of Medical Lasers**

Yongsoo Lee, Oh and Lee Medical Robot, Inc, South Korea

09:45-10:10 Title: **Simple way of optical manipulation of particles/cells in microfluidic systems**

Masahiro Motosuke, Tokyo University of Science, Japan

10:10-10:35 Title: **Fluorescence anisotropy excitation by polarization-shaped laser pulses after transmission through a kagome fiber**

Albrecht Lindinger, Freie Universität Berlin, Germany

Networking & Refreshment Break 10:35-10:50 @ Pre Function Space

10:50-11:15 Title: **Wavefront propagation simulations for a hard x-ray split-and-delay unit at the European XFEL**

Victor Kärcher, University of Münster, Germany

11:15-11:40 Title: **Development of high-operating long wave HGCDTE devices at army research laboratory**

Priyalal Stephen Wijewarnasuriya, US Army Research Laboratory, USA

YRF Session:

Session Chair: Masashi Yamaguchi, Rensselaer Polytechnic Institute, USA

Session Co-chair: Bellet Daniel, University of Grenoble, France

Session Introduction

11:40-11:55 Title: **W-band signal propagation in a WDM-over-OCDMA system**

Morad Khosravi Eghbal, University of Texas at San Antonio, USA

11:55-12:10 Title: **Growth and characterization of homoepitaxial m-plane GaN on native bulk GaN substrates: Prospects of next-generation electronic devices**

Ousmane I Barry, Nagoya University, Japan

12:10-12:25 Title: **Nonlinearity compensation using optical phase conjugation in optical fiber transmission systems**

Mohammad A Z Al-Khateeb, Aston University, England

12:25-12:40 Title: **Quantum plasmonics with nitrogen-vacancy centers in diamond**

Simeon Bogdanov, Purdue University, USA

12:40-12:55 Title: **Automatized optical quality assessment of photovoltaic modules**

Johannes Hepp, Bavarian Center for Applied Energy Research, Germany

Lunch Break 12:55-13:45 @ Renaissance III

13:45-14:00 Title: **Surface modification of PET film via a large area atmospheric pressure plasma: An optical analysis of the plasma and surface characterization of the polymer film**

Farzad Rezaei, North Carolina State University, USA

14:00-14:15 Title: **Diagnostics of laser remelting of thermally sprayed coatings using an infrared camera**

Marek Vostřák, University of West Bohemia, Czech Republic

14:15-14:30 Title: **Band alignment in organic light emitting diodes – on the track of thickness dependent onset voltage shifts**

Maybritt Kuehn, Technische Universität Darmstadt, Germany

14:30-14:45 Title: **The welding modes in Laser-arc hybrid lap welding of dissimilar metals**

Hongyang Wang, Dalian University of Technology, China

14:45-15:00 Title: **Mapping surface plasmon polaritons by near-infrared dual-probe scanning near-field optical microscope**

Najmeh Abbasirad, Friedrich Schiller University Jena, Germany

15:00-15:15 Title: **FTIR laboratory measurement of O I spectra in 0.77–12.5 μm spectral range**

Zanozina Ekaterina, J Heyrovsky Institute of Physical Chemistry, Czech Republic

15:15-15:30 Title: **On-chip integrated a 3D-CMOS Si photodetector array with a fiber couplers platform for remote optical fiber monitoring**

Iman Sabri Alirezaei, Otto-von-Guericke University of Magdeburg, Germany

15:30-15:45 Title: **Intracellular pH detection of Brachionus plicatilis with pMBA pH nanosensor**

Nadiah Aldaleeli, Swansea University, UK

15:45-16:00 Title: **The MOCVD overgrowth studies of III-Nitride on Bragg grating for distributed feedback lasers**

Junze Li, Microsystem and Terahertz Research Center, China

Video Presentation

16:00-16:15 Title: **The Effects of Laser Characteristics on Energy Generation in Particles on a Surface**

Wei Peng-Sheng, National Sun Yat-Sen University, Taiwan

Panel Discussion

Networking & Refreshment Break 16:15-16:30 @ Pre-Function Space

Awards & Closing Ceremony