UNITED Scientific Group
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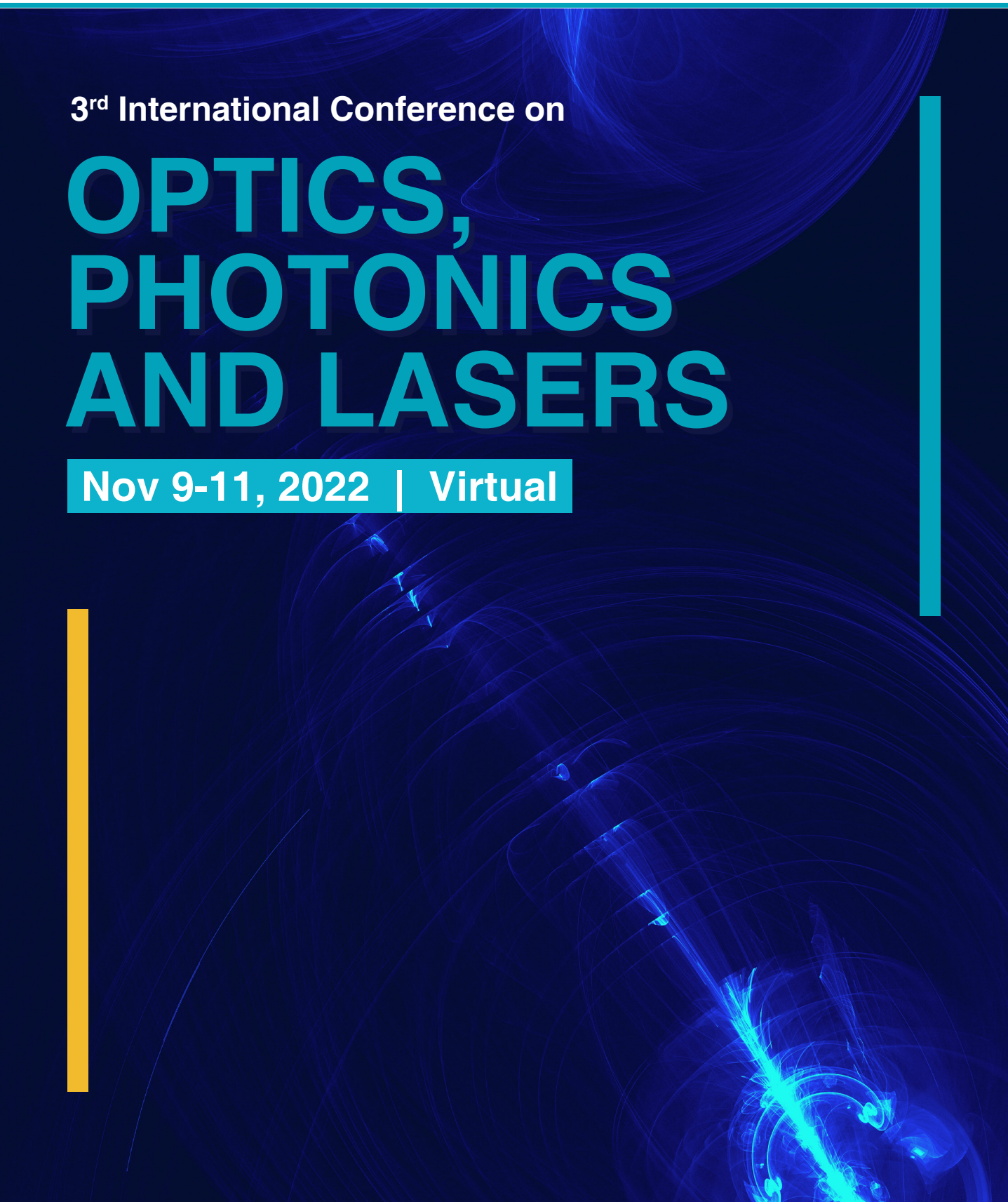
OPL
Optics, Photonics and Lasers
Nov 9-11, 2022 | Virtual

3rd International Conference on

OPTICS, PHOTONICS AND LASERS

Nov 9-11, 2022 | Virtual



DAY 01 — Wednesday, November 09, 2022

Central European Time

Zoom Meeting Link:
https://us06web.zoom.us/j/85107492095?pwd=MVNla1g2Ni8zajM5dFV4S2d5OWFwQT09

Meeting ID: 851 0749 2095
Passcode: 383970

05:50 - 06:00 Welcome & Introduction by
Koji Sugioka, RIKEN Center for Advanced Photonics, Japan

Keynotes Session

Chair: Koji Sugioka, RIKEN Center for Advanced Photonics, Japan

06:00 – 06:30 **Enhanced Interactions of Interlayer Excitons in Free-standing Hetero-Bilayers**
Yuerui Lu, The Australian National University, Australia

06:30 – 07:00 **Attomolar Sensing Using Microfluidic SERS Chip Fabricated by Hybrid Femtosecond Laser 3D Processing**
Koji Sugioka, RIKEN Center for Advanced Photonics, Japan

07:00 – 07:30 **Exploring Two-Dimensional (2D) Materials as Modulators for 2 μm Region Fiber Lasers**
Harith Ahmad, University of Malaya, Malaysia

07:30 – 08:00 **Bio-Inspired Artificial Eyes**
Young Min Song, Gwangju Institute of Science and Technology, Republic of Korea

08:00 – 08:30 **Free Space and Fiber Optical Communications Using OAM Mode-Division Multiplexing**
Yang Yue, Xi'an Jiaotong University, China

08:30 – 08:40 Short Break

Session I - Biomedical Optics and Applications - 1

Chair: Marcus J. Kitchen, Monash University, Australia

Keynote

08:40 – 09:10 **Scan-Free Stimulated Raman Scattering Tomography Enables Sub-Micron Resolution Deeper Tissue Imaging**
Zhiwei Huang, National University of Singapore, Singapore

09:10 – 09:30 **Polarisation Sensitive Optical Coherence Tomography to Unravel the Mechano-Structural Properties of Articular Cartilage**
Frédérique Vanholsbeeck, The University of Auckland, New Zealand

09:30 – 09:50 **Advances in Pre-Clinical Imaging using X-ray Absorption, Phase and Scatter Contrast**
Marcus J. Kitchen, Monash University, Australia

09:50 – 10:10 **Optical DNA Biosensing Methodologies for Clinical Diagnostic Applications**
Ling Ling Tan, Universiti Kebangsaan Malaysia, Malaysia

10:10 – 10:30 **Shortwave Infrared (SWIR) Confocal Fluorescence Microscopy for In Vivo Deeper Tissue Imaging with Single-Photon Superconducting Nanowire Detector**
Fei Xia, École Normale Supérieure – PSL, France

10:30 – 10:50 **Optical Fiber Sensors for Wheelchair Users Monitoring**
Nélia Alberto, Instituto de Telecomunicações, University of Aveiro, Portugal

10:50 – 11:00 Short Break

Session II - Nonlinear Optics and Photonics | Integrated Optics and Nanophotonics

Chair: **Mahmoud S. Rasras**, New York University at Abu Dhabi, United Arab Emirates
Raj K Vinnakota, Troy University, AL, USA

11:00 – 11:20 **Phase-Stable Multi-Terahertz Light Sources and Broadband Time-Domain Spectroscopy in a Yb-Based Regenerative Amplifier**
Natsuki Kanda, The University of Tokyo, Japan

11:20 – 11:40 **Fully Integrated Single-Chip LiDAR for Real Time Imaging**
Changbum Lee, Samsung Electronics, Korea (South)

11:40 – 12:00 **Temporal Dynamics of Transient Nonlinearity in Silicon Nanostructures**
Guan-Jie Huang, National Taiwan University, Taiwan

12:00 – 12:20 **On-Chip Integration of 2D Materials for Active Silicon Photonics Devices**
Mahmoud S. Rasras, New York University at Abu Dhabi, United Arab Emirates

12:20 – 12:40 **Reconfigurable Nonlinear Dielectric Metasurfaces**
Davide Rocco, University of Brescia, Italy

12:40 – 13:00 **Electric-field Induced Second Harmonic generation in SiO2 and TiO2**
Cedrik Meier, University of Paderborn, Germany

13:00 – 13:10 Short Break

13:10 – 13:30 **Nonlinear Photonics of Interband Quantum Cascade Lasers**
Frédéric Grillot, Telecom Paris University, France

13:30 – 13:50 **Dependence of the Polaritons Dispersion and Group Velocity in a 1D Lattice of Micropores with Quantum Dots on Structural Defects Concentration and Homogeneous Deformation**
Kostya Gumennyk, A.A. Galkin Donetsk Institute for Physics and Engineering, Ukraine

13:50 – 14:10 **PN++ Junctions Based Plasmonic Electro-Optic Modulator**
Raj K Vinnakota, Troy University, AL, USA

14:10 – 14:30 **New Techniques for the Analysis of Complex Structured Beams**
Rocio Jauregui, National Autonomous University of Mexico, Mexico

14:30 – 14:50 **Large-Area Fluorescent Optical Antennas for Visible Light and Optical Wireless Communications**
Jacopo Catani, National Institute of Optics - CNR (CNR-INO), Sesto Fiorentino, Italy

14:50 - 15:10 **Twist-Optics in 1D: Moiré Effects in Silicon Photonic Nanowires**
Judson D. Ryckman, Clemson University, SC, USA

15:10 – 15:20 Short Break

Session III - Biomedical Optics and Applications - 2

Keynote

Chair: **Luyao Lu**, George Washington University, Washington, DC, USA

15:20 – 15:50 **Quantitative Optoacoustic Tomography for Preclinical Research and Clinical Applications**
Alexander A Oraevsky, TomoWave Laboratories, Inc., TX, USA

15:50 – 16:10 **Targeted Photodynamic Therapy for the Treatment of Metastatic Melanoma**
Heidi Abrahamse, University of Johannesburg, South Africa

16:10 – 16:30 **Probing Small Distances in Live Cell Imaging**
Herbert Schneckenburger, Aalen University, Germany

16:30 – 16:50 **Soft Optoelectronic Devices for Electrophysiology and Optophysiology**
Luyao Lu, George Washington University, Washington, DC, USA

16:50 – 17:10 **Photoacoustic Remote Sensing Virtual Histology**
Roger James Zemp, University of Alberta, Canada

17:10 - 17:30 **The Radiation Response Measurement of a Single and Multiple Cell Ionization of Neuroblastoma Cells by Infrared Laser Trap**
Horace T. Crogman, California State University, CA, USA

17:30 - 17:40 Short Break

Plenary Session

Chair: Raj K Vinnakota, Troy University, AL, USA

17:40 - 18:20 **Wave Scattering by Many Small Particles, Creating Materials with a Desired Refraction Coefficient and Other Applications**
Alexander G. Ramm, Kansas State University, KS, USA

18:20 - 19:00 **Polaritonic Metasurfaces**
Andrea Alu, City University of New York, NY, USA

End of the Day 1

DAY 02

Thursday, November 10, 2022

Central European Time

Zoom Meeting Link:
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Session IV - Holography and Fiber Devices | 2D Materials | Laser and Fiber Technologies

Chair: Pavani Krishnapuram, University of Aveiro, Portugal

08:00 – 08:20 **New Effects and Applications of the Novel Vector Optical Fields Without Cylindrical Symmetry**
Yue Pan, Qufu Normal University, China

08:20 – 08:40 **Optical Emission and its Tunability of Two-Dimensional InSe and Related Heterostructure**
Yang Li, Harbin Institute of Technology, China

08:40 – 09:00 **Spatial Mode Control Based on Photonic Lantern**
Lu Yao, National University of Defense Technology, China

09:00 – 09:20 **Flattop Beam Shaping Using Hybrid Gratings**
Zhongsheng Zhai, Hubei University of Technology, China

09:20 – 09:40 **The Primeval Optical Evolving Matter: Optical Binding Inside and Outside the Photon Beam**
Roger Bresolí-Obach, KU Leuven, Belgium

09:40 – 10:00 **High-Resolution Single Pixel Imaging with Fourier-Domain Regularization**
Anna Pastuszczak, University of Warsaw, Poland

10:00 – 10:20 **Spectral Light-Sensitive Systems of the Core-Shell Type**
O.V. Tyurin, I.I. Mechnikov Odessa National University, Ukraine

10:20 – 10:30 Short Break

Session V - Novel Development-Optical Materials and Applications

Chair: Anna Pastuszczak, University of Warsaw, Poland

10:30 – 10:50 **Antireflective Coating of Porous Silica without Discrete Interface**
Zuyi Zhang, Future Technology R&D Center, Canon Inc., Japan

10:50 – 11:10 **Liquid Crystal Photoaligning and Photopatterning by Nanosize Azodye Layers: Bright Future**
Vladimir G. Chigrinov, Hong Kong University of Science and Technology, Hong Kong

11:10 – 11:30 **Effects of Different Material and Morphology Coupling Elements on Rolling Fatigue Wear of 20CrMnTi Steel**
Peng Zhang, Jilin University, China

11:30 – 11:50 **Plasmonic Optical Fiber-Based Tactile Sensor for Health Monitoring and Artificial Haptic Perception**
Jingjing Guo, Beihang University, China

11:50 – 12:10 **Optical Thermal Sensing Mechanisms in Rare Earth Activated Aurivilliu's Family Compound**
Pavani Krishnapuram, University of Aveiro, Portugal

PROGRAM

12:10 – 12:30 **Two-Dimensional Perovskites with Alternating Cations in the Interlayer Space for Stable Light-Emitting Diodes**
Bapi Pradhan, KU Leuven, Belgium

12:30 – 12:40 Short Break

Session VI - Multidimensional Applications of Photonics, Optics and Lasers | Optical Design and Instrumentation

Chair: **Bapi Pradhan**, KU Leuven, Belgium
Aaron J. Pung, Space Dynamics Laboratory, UT, USA

12:40 – 13:00 **Detection of Low-Frequency Underwater Sound by Self-Interference of a Reflection Laser Beam**
Yang Miao, Beijing University of Technology, China

13:00 – 13:20 **Research and Application of Digital Image Correlation Measurement Method in Complex Thermo-Mechanical Coupling Deformation Measurement**
Xiang Guo, Northwestern Polytechnical University, China

13:20 – 13:40 **Snapshot Imaging Spectropolarimetry based on RGB Polarization Imaging**
Wenyi Ren, Northwest Agriculture & Forestry University, China

13:40 – 14:00 **Near Field Magneto-Optical Binding**
Manuel I. Marqués, Autonomous University of Madrid, Spain

14:00 – 14:20 **Physical Nature of the Abraham Forces**
Vladimir Torchigin, Russian Academy of Sciences, Russian Federation

14:20 – 14:40 **Experimental Evidence of the Quasi- Universality in the Forward Light Scattering Lobe for the Micrometric Objects**
Marco A. C. Potenza, University of Milan, Italy

14:40 – 14:50 Short Break

14:50 – 15:10 **Experimental Wavefront Reconstruction of a Gaussian Beam Propagating through Optical Turbulence**
Eduardo Fabián Peters Rodríguez, University of Los Andes, Chile

15:10 – 15:30 **Estimating Uncertainty for the Instrument Transfer Function Measurement of 3D Scanners**
Swati Jain, The University of North Carolina at Charlotte, NC, USA

15:30 – 15:50 **Near and Mid-Infrared Optical Anisotropy of ZnGeP2 Crystals**
Gennady Medvedkin, General Molded Glass, CA, USA

15:50 – 16:10 **Multi-Image Generation Via Aperture Stop Exploitation**
Aaron J. Pung, Space Dynamics Laboratory, UT, USA

16:10 – 16:30 **35-W Highly Effective Ytterbium-Erbium-Thulium Tandem All-Fiber 1.94-μm Laser System at 975-nm Diode Pumping**
Alexander Kir'yanov, Centro de Investigaciones en Optica, Mexico

16:30 - 16:50 **Assessment of the Exposure to VIS and IR Incoherent Optical Radiation According to ICNIRP 2013**
Jacek M. Kubica, Central Institute for Labour Protection - National Research Institute, Poland

16:50 - 17:00 Short Break

Keynotes Session

Chair: **Eduardo Fabián Peters Rodríguez**, University of Los Andes, Chile

17:00 - 17:30 **Photovoltaics as Key Pillar of our Future Energy System: Technology, Manufacturing, and Markets**
Eicke R. Weber, Chair, European Solar Manufacturing Council ESMC, Belgium

17:30 – 18:00 **3D Nanophotonic-electronic Integrated Circuits for Future Computing, Networking, and Imaging Systems with Self-Learning Capabilities**
S. J. Ben Yoo, UC Davis, CA, USA

18:00 – 18:30 **Photonics ASICs for Machine Intelligence**
Volker J Sorger, George Washington University, Washington, DC, USA

End of the Day 2

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Session VII - Photonics for Energy and Green Technologies | Metamaterials and Metasurfaces | Optical Fibers and Sensing Technologies

Chair: Alexander W Powell, University of Exeter, United Kingdom

08:00 – 08:20 **Response of Natural Mineral Muscovite to fs Laser Pulse**
Deb Kane, Macquarie University, Australia

08:20 – 08:40 **Metalens Enabled High-Resolution Terahertz Holographic Images**
Li Li, Harbin Engineering University, China

08:40 – 09:00 **Active Phase-Change Metagrating for Amplitude-Only Modulation Based on VO2**
Sun-Je Kim, Myongji University, Korea (South)

09:00 – 09:20 **Nanostructures and Metasurfaces for Light Management in Solar Cells**
Braulio Garcia-Camara, Carlos III University of Madrid, Spain

09:20 – 09:40 **Broadband High-Efficiency Achromatic Meta-Device Based on Phase and Dispersion Independently Controlled Metasurface**
Wenye Ji, Delft University of Technology, Netherlands

09:40 – 10:00 **3D Printed Metaparticle Scatterers Based on the Platonic Solids**
Alexander W Powell, University of Exeter, United Kingdom

10:00 – 10:20 **Fiber-Membrane Composite Devices for Acoustic Sensing**
Wenjun Ni, South-Central Minzu University, China

10:20 – 10:40 **Calibration of Interferometric Optical Path Length Using the Non-Uniform Fourier Transform**
Muqian Wen, South East Technological University, Ireland

10:40 – 10:50 Short Break

Session VIII - Atomic Physics | Laser Science and Technology | Optical and Photonic Communications and Signaling | Quantum Science, Communications and Applications | Solar Energy & Photovoltaics

Chair: Shamaila Manzoor, University of Florence, Italy
Jin Wang, University of Michigan, MI, USA

10:50 – 11:10 **Complete Characterization of Ultrafast Optical Fields by Phase-Preserving Nonlinear Autocorrelation**
Dong Eon Kim, Pohang University of Science and Technology (POSTECH), Korea (South)

11:10 – 11:30 **Mitigation of Amplified Spontaneous Emission Noise for an All-Fiber Coaxial Aerosol Lidar with Different Single-Photon Detectors**
Qiang Wei, University of Science and Technology of China, China

PROGRAM

11:30 – 11:55 **Analyses and Evaluation of Environmental Parameters Impact to Underwater Optical Wireless Communication**
Shien-Kuei Liaw, National Taiwan University of Science and Technology, Taiwan **- Invited**

11:55 – 12:15 **Self-Mixing Displacement Reconstruction Based on Improved Fringe Scaling**
Chol-Hyon Kim, Organization Kim Chaek University of Technology, Korea (North)

12:15 – 12:35 **Environment-Assisted Strong Coupling Regime and Entanglement**
E.S. Andrianov, Moscow Institute of Physics and Technology, Russian Federation

12:35 – 12:55 **Curved Novel Grating Structure for DLA Electron Accelerators**
Salar Ghaderi, Middle East Technical University,Turkey

12:55 – 13:00 Short Break

13:00 – 13:20 **The Cesium D2 Hyperfine Structure**
Thomas Marty, Heckenweg 6a, CH-5430 Wettingen, Switzerland

13:20 – 13:40 **High-Power, Frequency-Quadrupled UV Laser Source Resonant with the 1S0–3P1 Narrow Intercombination Transition of Cadmium at 326.2 nm**
Shamaila Manzoor, University of Florence, Italy

13:40 – 14:00 **Data-Driven Machine Learning Prediction for Emerging Photovoltaic Materials**
Lei Zhang, Nanjing University of Information Science and Technology, China

14:00 – 14:20 **Regulation of Ultrafast Laser Transfer for Flexible GAN-Based Device**
Lingfei Ji, Beijing university of technology, China

14:20 – 14:40 **Linear and Nonlinear Dynamics in a Two-Membrane Optomechanical System**
Paolo Piergentili, University of Camerino, Italy

14:40 – 15:00 **Dynamic Magnetic Field Entanglement Stabilization**
Jin Wang, University of Michigan, MI, USA

15:00 – 15:10 Short Break

Plenary Session

Chair: Jin Wang, University of Michigan, MI, USA

15:10 – 15:50 **Higher Harmonic Generation and Ultra Supercontinuum from Electronic and Molecular Kerr Effects From Various States of Matter Under Intense Femtosecond Laser Pulses**
Robert Alfano, The City College of New York, NY, USA

15:50 – 16:30 **Programming Complex Systems for Quantum Information & Machine Learning**
Dirk Englund, Massachusetts Institute of Technology, MA, USA

Keynote

Chair: Jin Wang, University of Michigan, MI, USA

16:30 – 17:00 **Nanoscale 3D Printing of Functional Structures**
Yongfeng Lu, University of Nebraska Lincoln, NE, USA

Poster Presentations

17:00 - 17:05 **Spectral Light- Sensitive Systems of the Core- Shell Type**
Sergei Aleksandrovich Zhukov, I.I. Mechnikov, Odessa National University, Ukraine

17:05 - 17:10 **Study of the Stability in Rows of Plasmonic Nanoparticles**
Alicia Fresno Hernandez, Carlos III University of Madrid, Spain

17:10 - 17:15 **Laser Assisted Barbed Suture for Wound Closure during Plastic Surgery**
Karuna Nambi Gowri, North Carolina State University, USA

17:15 - 17:20 **Incoherent Laser Radiation**
S. Kobtsev, Novosibirsk State University, Russian Federation

17:20 - 17:25 **Laser Fabrication of Composite Subwavelength Gratings**
Yaroslava Andreeva, ITMO University, Russian Federation

17:25 - 17:30 **Quantum Imaging of Biological Tissue Samples**
Vitaly Sukharenko, The City College of New York, USA

17:30 - 17:35 **Engineered Core-Shell Nanoparticles-Based Absorber for the Visible-Near Infrared Regime**
Pankaj Arora, BITS Pilani, India

17:35 - 17:40 **Laser Paintbrush: From Fundamentals of Laser Oxidation to Modern Art**
Anastasia Morozova, ITMO University, Russian Federation

17:40 - 17:45 **Second Harmonic Generation on Germanium Telluride (GeTe) Thin Films**
Rohit Kumar, University of Naples, Italy

17:45 - 17:50 **Generation of Vortex Beams Superposition by Multisector Binary Phase Plates Fabricated by Laser-Induced Microplasma**
Victoria Shkuratova, ITMO University, Russian Federation

17:50 - 17:55 **A Satellite-based ICESat-2 Adaptive Elliptical DBSCAN Reference Bathymetric Point Dataset Extraction Method**
Congshuang Xie, Second Institute of Oceanography, China

17:55 - 18:00 **The Effects of Multiple Internal Reflections: Newton's Prism Never Ceases to Amaze**
Antonio Parretta, University of Ferrara, Italy

End of the Day 3

Thank you for connecting !

USG United Scientific Group

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