

AOP 2026

7th International Conference on Application of Optics and Photonics

Lisbon, Portugal, July 7–10, 2026

ISEL Campus



Conference Program

Version: June 15, 2026

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Track Codes

| Code | Track Description |
|-------------|---|
| BIOOPTPH | Biomedical and Medical Applications of Optics and Photonics |
| ENSSC | Energy, Sustainability and Smart Cities |
| INTPH | Integrated Photonics |
| LNOPT | Lasers and Nonlinear Optics |
| MATPRCH | Materials Processing and Characterization |
| NANPHOPT | Nano-photonics and Optoelectronics |
| O3CVS | Optometry, Ophthalmic Optics, Color and Visual Sciences |
| OPTCOM | Optical Communications |
| OPTFSA | Optical Fibers, Sensors and Applications |
| OPTINSTSA | Optical Instrumentation for Space and Astronomy |
| OPTMAT | Optical Materials |
| OPTMETIMP | Optical Metrology, Image Processing and Industrial Applications |
| PPV | Photonics for Photovoltaics |
| QOPT | Quantum Optics |
| THEOCOMPOPT | Theoretical and Computational Optics |

Presentation Time Allocation

| Presentation Type | Talk | Q&A | Total |
|--------------------------|-------------|----------------|--------------|
| Plenary | 40 min | 5 min | 45 min |
| Keynote | 25 min | 5 min | 30 min |
| Invited | 15 min | 5 min | 20 min |
| Oral | 12 min | 3 min | 15 min |

| Day | Time | Event Type | Room |
|------------------------------|-------------------|---|--------------|
| Tuesday, July 7 | 09:00 12:30 | Registration | Foyer |
| | 12:00 | Lunch | |
| | 13:45 | Opening Ceremony | Lecture Hall |
| | 14:45 | Plenary Session 1 [LNOPT] | Lecture Hall |
| | 15:30 | Plenary Session 2 [INTPH] | Lecture Hall |
| | 16:15 | Coffee Break | |
| | 17:00 | Parallel Session 1 [INTPH1] | Lecture Hall |
| | 17:00 | Parallel Session 1 [OPTMETIMP1] | Room A |
| | 17:00 | Parallel Session 1 [BIOOPTPH1] | Room B |
| | 18:30 | Welcome Reception and Poster Session 1 | Main Hall |
| | 20:00 | End of the day | |
| Wednesday, July 8 | 08:00 | Registration | Foyer |
| | 08:45 | Plenary Session 3 [INTPH] | Lecture Hall |
| | 09:30 | Parallel Session 2 [INTPH2] | Lecture Hall |
| | 09:30 | Parallel Session 2 [OPTMETIMP2] | Room A |
| | 09:30 | Parallel Session 2 [NANPHOPT1] | Room B |
| | 11:00 | Coffee Break | |
| | 11:30 | Parallel Session 3 [BIOOPTPH2] | Lecture Hall |
| | 11:30 | Parallel Session 3 [OPTMETIMP3] | Room A |
| | 11:30 | Parallel Session 3 [THEOCOMPOPT1] | Room B |
| | 13:00 | Lunch | |
| | 14:30 | Parallel Session 4 [BIOOPTPH3] | Lecture Hall |
| | 14:30 | Parallel Session 4 [OPTFSA1] | Room A |
| | 14:30 | Parallel Session 4 [O3CVS1] | Room B |
| | 16:00 | End of Sessions | |
| | 17:00 | Social Program - Visit to Mosteiro de São Vicente | |
| 19:00 | Conference Dinner | Voz do Operário | |
| 23:00 | End of the day | | |

| Day | Time | Event Type | Room | |
|-----------------------------|----------------------------|-----------------------------------|-----------------------------|--------------|
| Thursday, July 9 | 08:00 | Registration | Foyer | |
| | 08:45 | Plenary Session 4 [LNOPT] | Lecture Hall | |
| | 09:30 | Parallel Session 5 [OPTFSA2] | Lecture Hall | |
| | 09:30 | Parallel Session 5 [OPTINSTSA1] | Room A | |
| | 09:30 | Parallel Session 5 [QOPT1] | Room B | |
| | 11:00 | Coffee Break | | |
| | 11:30 | Parallel Session 6 [OPTFSA3] | Lecture Hall | |
| | 11:30 | Parallel Session 6 [OPTMAT1] | Room A | |
| | 11:30 | Parallel Session 6 [QOPT2] | Room B | |
| | 13:00 | Lunch | | |
| | 14:30 | Plenary Session 5 [PPV] | Lecture Hall | |
| | 15:15 | Parallel Session 7 [PPV1] | Lecture Hall | |
| | 16:00 | Parallel Session 7 [ENSSC1] | Lecture Hall | |
| | 15:15 | Parallel Session 7 [NANPHOPT2] | Room A | |
| | 15:15 | Parallel Session 7 [LNOPT1] | Room B | |
| | 16:45 | Poster Session 2 and Coffee Break | Main Hall | |
| | 18:15 | SPOF General Assembly | | |
| | 20:00 | End of the day | | |
| | Friday, July 10 | 08:00 | Registration | |
| | | 08:45 | Plenary Session 6 [MATPRCH] | Lecture Hall |
| 09:30 | | Parallel Session 8 [MATPRCH1] | Lecture Hall | |
| 09:30 | | Parallel Session 8 [OPTCOM1] | Room A | |
| 09:30 | | Parallel Session 8 [OPTINSTSA2] | Room B | |
| 10:50 | | Coffee Break | | |
| 11:10 | | Parallel Session 9 [MATPRCH2] | Lecture Hall | |
| 11:10 | | Parallel Session 9 [OPTCOM2] | Room A | |
| 11:10 | | Parallel Session 9 [LNOPT2] | Room B | |
| 11:55 | | Parallel Session 9 [OPTFSA4] | Room B | |
| 12:30 | | Awards & Closing Ceremony | | |
| 13:00 | | Lunch | | |
| 14:30 | | Guided Tour to RTP Museum | | |

Tuesday, July 7

| | | |
|------------------------------|---|---------------------|
| 09:00 12:30 | Registration | Foyer |
| 12:00 | Lunch | |
| 13:45 | Opening Ceremony | Lecture Hall |
| 14:45 | Plenary Session 1 [LNOPT] 203 Precision Optical Spectroscopy of Magnetoelectric Interactions in Quantum Materials – <i>Edoardo Baldini</i> | Lecture Hall |
| 15:30 | Plenary Session 2 [INTPH] 280 Photonic Computing & Applications – <i>Bhavin Shastri</i> | Lecture Hall |
| 16:15 | Coffee Break | |
| 17:00 | Parallel Session 1 [INTPH1]: Reconfigurable Photonic Integrated Circuits 110 Phase-Change Materials as an Enabling Platform for Memory-Enabled Silicon Photonics – <i>Bharathi Rajeswaran</i> - (Invited) 48 Computational Design of a TE/TM-Pass Polarization Controller on SOI Photonic Integrated Circuits – <i>Kenan Cicek</i> 56 A Reconfigurable Free-Space Optical Fabric for Chip-to-Chip Interconnects – <i>John Sanford</i> 283 3D printing of optical interconnects for PICs – <i>Alexander Legant (Nanoscribe)</i> | Lecture Hall |
| 17:00 | Parallel Session 1 [OPTMETIMP1]: High-Speed Photonic, Quantum, and AI-Enabled Optical Systems 126 High-speed trace gas detection based on all-optical pattern matching using precise phase control of an optical frequency comb – <i>Kaoru Minoshima</i> - (Keynote) 95 A Gigahertz Thin-Film Lithium Niobate Phase-SLM Architecture for True Matrix–Matrix Multiplication in Photonic AI Accelerators – <i>Eran Gur</i> 91 Frequency, Intensity, and Phase Synchronous Imaging of Microwave With Nitrogen-Vacancy Center Microscopy – <i>Hao Zhang</i> 92 Separation and imaging of mixed signals on microwave chips based on nitrogen-vacancy color center microscopy – <i>Hao Zhang</i> 144 Adaptive Lighting Control System for Automotive Headlights Based on Computer Vision – <i>Enrique Sánchez del Ángel</i> | Room A |
| 17:00 | Parallel Session 1 [BIOOPTPH1]: Advanced Optical Imaging and Microfluidic Platforms for Biophotonics 192 Optically Driven Redox Control and Resonant Raman Amplification in Porous Silicon Microcavities. – <i>Igor Nabiev</i> - (Keynote) 68 Light Sheet Fluorescence Microscopy for Biophotonics – <i>Alessia Candeo</i> - (Invited) 76 Holographic endoscopy: challenging the limits of conventional imaging – <i>André Gomes</i> - (Invited) 270 Microfluidics model to analyze formation of intracranial aneurysm: fabrication challenges with optical technologies – <i>Carmen Bao Varela</i> - (Invited) | Room B |
| 18:30 | Welcome Reception and Poster Session 1 BIOOPTPH 99 Digital Holographic Microscopy for Tissue Analysis across Malignancy Grades: A Label-Free Approach to Cancer Diagnostics in Digital Pathology – <i>Violeta Liuba Calin</i> 111 From Bacterial Fingerprints to Renal Biomarkers: Deep Learning in Raman Spectroscopy – <i>Rima Mansour</i> | Main Hall |

- 132 Fabrication and structural characterization of dexamethasone-loaded SZ2080 structures via two-photon polymerization – *Ana Gomez-Varela*
- 133 Dimensionality reduction in hyperspectral profiles classification of cells from serous cavities – *Violeta Liuba Calin*
- 134 A Single-Stage Approach to Dynamic Focusing for High-NA Full-Field OCT – *Taylor Sanderson*
- 135 Acute Kidney Injury/Chronic Kidney Disease diagnosis through Optoelectronic-based urine analysis – *Ana Moreno*
- 156 In Vitro Time-Correlated Near-Infrared Photon Counting for Direct Detection of Singlet Oxygen in 5-ALA-Sensitized Glioblastoma Cells – *Iva Popović*
- 160 Label Free TCMPC Quantification of Singlet Oxygen Phosphorescence in 5 ALA PDT Glioma Models – *Maja Nesic*
- 166 Light-based analysis of voice frequency – *Nelia Alberto*
- 182 Fiber Bragg gratings in PDMS membranes for real-time respiratory monitoring using edge filtering – *Eduarda Marinho*
- 215 Carbon dot-based optical sensor for ferritin detection: preliminary insights – *Nelia Alberto*
- 234 The development of tunable pinhole-based Polymer Dispersed Liquid Crystal (PDLC) for in vivo confocal microscopy – *Jaesung Park*
- 235 Optimization of Machine Learning Algorithms for Color Prediction in Anatomically Shaped Resin-Based Dental Materials: A Pilot Study. – *Maria Tejada Casado*
- 244 Chromatography-on-a-chip: UV-VIS detection using miniaturized amorphous silicon photosensors – *Rodolfo G. Rodrigues*
- 248 Estimation of the Electric Dipole Moment in the First Excited State of Trypan Blue Molecule from Solvatochromic Data – *Mihaela Miron*
- 263 Photonic integrated circuit for Salmonella species determination – *Sara Costa*
- 269 Outdoor Evaluation of Low-Resolution LiDAR Representations for Assistive Obstacle Detection – *Nuno Bezelga*
- INTPH**
- 49 Development of an all optical 1 X 4 switch – *Paulo Lourenço*
- 141 Reconfigurable Optical Switching using Sb₂Se₃ Phase-Change Material – *Iñigo Lopez-Mulet*
- 253 Silicon Nitride Ring Resonator Simulation for Visible-Band Integrated Photonics – *Martim Lemos*
- 260 Graphene Based Modulator – *Diogo Martins*
- 274 Optimization of Optical Coupling from Free Space to Photonic Waveguides under Alignment and Turbulence Constraints – *Ileida Veiga*
- OPTMETIMP**
- 117 Experimental Techniques for Measuring MTF – *Héctor Aira*
- 137 YOLO Based Method for Defect Detection in Painted Surfaces – *João Fontoura*
- 138 Logistic Regression-Based Method for Defect Detection in Painted Surfaces – *Rodrigo Rito*
- 186 Integrated Software Tool for Batch 3D Reconstruction Using Fringe Projection Profilometry – *Juan Vilarly*
- 191 Performance Evaluation of a Colour Image Encryption System Based on a Nonlinear Joint Transform Correlator in the Fractional Fourier Domain Under Occlusion and Noise Tests Applied to the Encrypted Image – *Juan Vilarly*
- 217 Optical Drone-Mounted Payload for In-Flight Detection of Airborne Microplastics – *Guilherme Pereira*
- 259 Optimization of Lens Design for Spot Size Stability Under Irregular Surface Topologies – *Diogo Martins*
- 262 Hierarchical Classification of Polymer Pellets using Short-Wave Infrared Hyperspectral Imaging for Recycling Applications – *Rui Carvalho*
- NANPHOPT**
- 46 Tuning Chemical Interface Damping in Single Au–Ag Heterostructured Nanodumbbells by Adjusting the Au–Ag Atomic Ratio and the d-Band Center Position – *Ji Won Ha*
- 113 Nanowires for Enhanced Biosensing: Tapered Geometry to Improve Fluorescence Signal and Imaging – *Farhana Akter Mou*
- 55 Broadband THz Polarization Conversion with All-Silicon Metasurface – *Rebeca Tudor*
- THEOCOMPOPT**
- 201 LIDAR beam steering via 2D amorphous silicon photonic optical phase controlled array – *Gabriele Farina*
- 242 Analysis of control mechanisms for directional-coupler-based 2×2 photonic switches in amorphous silicon waveguides. – *Ernesto Velazquez*
- OPTMAT**
- 90 Photonic Plasmonic Paper Platform for Multimodal Optical Sensing – *Caterina Serafinelli*
- 168 Azobenzene Relief Gratings for Reconfigurable Photonic Applications – *Paulo Ribeiro*
- O3CVS**
- 104 Modulation of Pupillary Constriction by Commercial LED: Effects of CCT and background Luminance – *Beatriz Martinez Matesanz*
- 105 Colour Temperature and Glare in Pseudophakic with Depth-of-Focus Lenses – *Isabel Arranz de La Fuente*

- 163 Ocular Optical Quality During Accommodation and Post-Stimulus Across Refractive States – *Sandra Franco*
 165 Spherical Aberration Outcomes Following Vision Therapy in Patients with Accommodative Insufficiency – *Sandra Franco*
 223 Peripheral Defocus Myopia Control Lenses: Effects on Visual Function, Eye Movements, and Hazard Detection in Driving – *Sonia Ortiz Peregrina*

20:00 **End of the day**

Wednesday, July 8

08:00 **Registration** *Foyer*

08:45 **Plenary Session 3 [INTPH]** *Lecture Hall*

- 264 Photonic Interfaces for Weak Dynamics in Nature – *Imran Avci*

09:30 **Parallel Session 2 [INTPH2]: Integrated Photonics: From PIC Design and Fabrication to Quantum Applications** *Lecture Hall*

- 251 Integrated Photonics for Quantum Applications – *Jorge Barreto* - (Keynote)
 190 Industry-compatible, hands-on training modules for PIC design, fabrication, and testing – *Emre Kaplan* - (Invited)
 62 A Photonic Journey: From Systems to Devices – *Senthil Vinodh*
 187 How Luceda empowers the PIC value chain – *Ana Filipa Gonçalves de Carvalho*

09:30 **Parallel Session 2 [OPTMETIMP2]: Optical Spectroscopy and Sensing for Environmental, Material, and Food Analysis** *Room A*

- 66 Photoacoustic Spectroscopy for Ambient Aerosols Characterization – *Abdul Rahman* - (Keynote)
 153 Real-time temperature monitoring in a diode-pumped alkali laser via NIR methane absorption spectroscopy – *Fengjie Xi*
 207 Development of a multispectral spatially resolved light logger – *Francisco Afonso*
 77 Raman Spectroscopy Coupled with Multi-Variate Analysis for Estimating Sugars in Fresh and Packaged Tender Coconut Water – *Darshan C M*
 181 Overcoming the Limitations of Pd Thin Films in SPR Hydrogen Sensors with Au@Pd Nanoparticles – *Miguel A. S. Almeida*

09:30 **Parallel Session 2 [NANPHOPT1]: Resonant Nanophotonics, Wave Control, and Photonic Computing** *Room B*

- 47 Controlled Suppression of Anderson Modes in a Three-Dimensional Disordered Optical Waveguide – *Belkis Gökbulut*
 52 Paired exceptional points and a q-BIC on a bulk Fermi arc in a single dielectric ring resonator – *Nikolay Solodovchenko*
 169 Nanophotonic Resonant Tunneling Diodes for Neuromorphic Applications – *Francisco Várzea Figueiras*
 204 Exceptional Points Enabled By Plasmonic Guided-Mode Resonance – *Wenjuan Zhao*
 210 Extreme Learning Machine in Artificial Sensory Oscillator Photonic Neurons – *Juan Silva*
 243 Spatial Encoding and Multimode Fiber-Based Photonic Extreme Learning Machines for Efficient Optoelectronic Computing – *Pedro Miguel Sousa Coelho*

11:00 **Coffee Break**

11:30 **Parallel Session 3 [BIOOPTPH2]: Advanced Optoelectronic Sensing: From Quantum Technologies to Biomedical Diagnostics** *Lecture Hall*

- 96 Are Thin Film Devices Ready for Biomedical Optoelectronics? – *Domenico Caputo* - (Keynote)
 255 Quantum sensing forever – *Jana Nieder* - (Keynote)
 162 Calibration of a Time-Resolved Near-Infrared Detection System for Singlet Oxygen – *Mioljub Nesic*

236 Molecularly Imprinted Polymer-Based Dual-Transduction Biosensor for Albumin Detection: Toward Point-of-Care Monitoring of Hypertension Biomarkers – *Ana Sofia Matos Assunção*

11:30 Parallel Session 3 [OPTMETIMP3]: Computational, Holographic, and Wavefront Imaging Room A

- 61 Decoupling Imaging Geometry from Optics Using Digital Holography – *Claas Falldorf* - (Keynote)
- 89 High-order correlated imaging through intense noise using a 1550 nm super-correlated light source – *Jiamin Li*
- 174 Integrated 3D Imaging and Spectroscopy for Cultural Heritage Analysis – *Luana Pereira*
- 178 Polarization-Holographic Imaging Stokes Spectropolarimeter for Remote Sensing Applications – *Barbara Kilosanidze*
- 221 Wavefront Line-Scan Imaging: A Fast and Low-Storage Single-Pixel Wavefront Sensing Technique – *Wenjing Zhao*

11:30 Parallel Session 3 [THEOCOMPOPT1]: Computational Methods in Photonics, Metrology and Nanostructured Optics Room B

- 74 Characterizing Structured Polarizing Elements through Matrix-Based Fourier Optics – *Ignacio Moreno* - (Keynote)
- 87 Sparse-Sampling Reconstruction for High-Resolution NV Ensemble Magnetic Imaging – *Jiazhao Tian*
- 102 Simulation of optical transmission through planar multilayer dielectric stacks on silicon substrates: a comparative analysis between three numerical approaches – *João Fernandes*
- 208 fastplasmon - A Python toolkit for fast computation of near and far-field quantities for plasmonic nanoparticles – *Paulo Santos*
- 226 Interactive interface Software for color evaluation – *Rafael Vázquez Conejo*

13:00 Lunch

14:30 Parallel Session 4 [BIOOPTPH3]: Advanced Optical Imaging and Microfluidic Platforms Lecture Hall for Biophotonics

- 276 Laser-based Technologies for the Advanced Fabrication of Organ-on-a-Chip Devices in Personalized Medicine – *Maria Teresa Flores Arias* - (Keynote)
- 78 Three-dimensional label-free imaging of rapid biological cell dynamics via interferometric multiplexing – *Natan T. Shaked*
- 232 Optically Triggered Plasmonic Lipogels for Precision Melanoma Treatment – *Valéria Gomes*
- 45 Effects of Skin Pores on Photon Propagation in Optical Brain Imaging Systems – *Kenan Nurettin Bilgiçer*
- 247 Solvatochromic Investigation and Quantum-Molecular Modeling of 9-Aminoacridine – *Mihaela Miron*

14:30 Parallel Session 4 [OPTFSA1]: Applied Fiber-Optic Sensors for Monitoring and Human Interaction Room A

- 67 From Ultralow-Concentration Biosensing to Vibrational Fingerprint Selectivity with Bound States in the Continuum Metasurfaces – *Silvia Romano* - (Keynote)
- 53 Multi-parametric fiber Bragg grating sensor to monitor users of a soft hand-exoskeleton – *Juan Andrés García Zapata*
- 171 Tactile sensor based on multicore fiber Bragg gratings – *Arezoo Sheykhan*
- 240 In Situ Monitoring of Critical Safety Parameters in Lithium-Ion Batteries via Hybrid Fiber-Optic Sensing – *Micael Nascimento*
- 254 Sensing Batteries via Optical Fiber Sensors: Operando Monitoring in-cell Refractive Index and Temperature – *Tiago Amaral*

14:30 Parallel Session 4 [O3CVS1]: Ocular Optics, Imaging and Visual Performance Room B

- 114 Precision sight: The Optics behind the intraocular lens – *Maria S. Millán García-Varela* - (Keynote)
- 230 Anterior segment OCT image features in the retro-iris space – *António Baptista* - (Invited)
- 119 Subclinical Ocular Effects of Digital Blue Light Exposure: An Integrated Optical and Functional OCT Study – *Vladimiro Hipólito*
- 164 Ocular optical quality in reduced accommodation: accommodative dysfunction vs pre-presbyopia – *Sandra Franco*
- 245 Deriving Individualized Color Matching Functions in Color Vision Deficiency with a 3D-printed Colorimeter – *Rodrigo Lecanda Rodriguez*

16:00 End of Sessions

17:00 Social Program - Visit to Mosteiro de São Vicente

19:00 Conference Dinner

Voz do Operário

23:00 End of the day

Thursday, July 9

08:00 Registration

Foyer

08:45 Plenary Session 4 [LNOPT]

Lecture Hall

69 Liquid Solitons in Photonic and Quantum Systems – *Humberto Michinel*

09:30 Parallel Session 5 [OPTFSA2]: Advanced Fiber-Optic Devices, Distributed Sensing, and Optical Measurement Platforms

Lecture Hall

70 Doppler Gyroscopes – *John Howell* - (Keynote)

149 High Transmission in Step-Index Multimode Fibre Tapers – *Piyamas Choochalerm*

250 Acoustic Detection and Source Localization with Event-Based Fiber Speckle Sensing – *Sofia Marques Duarte*

256 Going Around The Core: Ultra-Sensitive Refractometry Based on Cladding Multimode Interference – *Mariline Costa*

211 Innoaqua: Innovative Approaches for an Integrated use of Algae in Sustainable Aquaculture Practices and High-Value Food Applications – *João Mendes*

09:30 Parallel Session 5 [OPTINSTSA1]: Optical Systems and Components for Space Applications

Room A

81 Reliability of opto-electronic components in space – *Heinz-Christoph Neitzert* - (Keynote)

184 Gallium oxide UV photodetectors for solar-blind and space applications – *Steve Reynolds* - (Invited)

97 Optical System Design and Performance Analysis of a Star Tracker – *Tuğba Güvercin*

93 PoET: a spatially resolved Sun in a high-resolution spectrograph – *Inês Leite*

09:30 Parallel Session 5 [QOPT1]: Quantum Photonic Networks, QKD, and Secure Communication

Room B

72 Quantum Photonic Chips for Quantum Entanglement Distribution Networks – *Wei Zhang* - (Keynote)

88 High-Quality Quantum Random Number Generator Based on Super-Correlated Light Sources – *Jiamin Li*

94 Single-Photon Detectors for Satellite-Earth QKD Links – *Jaime Vieira*

147 High-Speed Lithium Niobate Polarization Control for Polarization-Encoded QKD – *Hugo Costa*

227 Experimental Bell Inequality Violation Using Constrained Measurement Geometry – *Piyush Saklani*

11:00 Coffee Break

11:30 Parallel Session 6 [OPTFSA3]: Advanced Optical Fiber Systems for Sensing, Metrology, and Communications

Lecture Hall

22 Design of a Photonic Synopsis Multiplexer Based on Multicore Polymer Optical Fiber – *Dror Malka* - (Invited)

143 Exploring New Frontiers in Optical Interferometric Sensing: Vernier effect and White Light Interferometry for Harsh Environments – *Paulo Robalinho* - (Invited)

60 Emerging Trends in Optical Metrology for Optical Communication Systems. – *Modesto de Moraes* - (Invited)

157 Integrated Sensing and Communications: Coexistence of a 400G Coherent Link and Raman-based Distributed Temperature Sensing at 1064 nm – *Joana Vieira*

228 Two Optical-Fiber Approaches to Embeddable Concrete Monitoring: Interferometric and Intensity-Based Methods – *Rita Pereira de Faria*

11:30 Parallel Session 6 [OPTMAT1]: Functional and Active Photonic Materials **Room A**

- 71 High-energy meta-optics for structured laser-matter interactions – *Marco Piccardo* - (Keynote)
 185 CoherentStack: Modelling and Characterization of Optical Multilayer Structures Using the Transfer Matrix Method – *Yuriy Vygranenko*
 58 Hybrid Metallic-Dielectric Systems for Sensitive Optical and Biological Detection – *Andrea Chiappini*
 116 All-optical reservoir computing enabled by luminescent materials with intrinsic synaptic dynamics – *Ana Rita da Naia Bastos*
 161 Enhanced Fluorescence-Based Sulfite Detection in Acidic Media with Platinum(II) Porphyrins – *Guilherme Costa*

11:30 Parallel Session 6 [QOPT2]: Quantum Light Sources, Coherent Control, and Quantum-Enhanced Sensing **Room B**

- 73 Towards the quantum noise limit in mid-infrared Quantum and Interband Cascade Lasers – *Paolo de Natale* - (Keynote)
 82 Engineering photonic dispersion relation and atomic dynamics in waveguide QED setup via long-range hoppings – *Weijun Cheng*
 257 Quantum-based polarization imaging: from quantum to nonlinear interference – *Carolina Ramos Goncalves*
 258 All-optical coherent quantum control for quantum-enhanced photonic sensing – *Jonas Junker*
 85 Interference-Resistant Bioimaging via Temporal Correlation with Super-Correlated Light – *Shuangping Han*

13:00 Lunch

14:30 Plenary Session 5 [PPV] **Lecture Hall**

- 75 Current density management in modern silicon-based solar cells – *Kaining Ding*

15:15 Parallel Session 7 [PPV1]: Advanced Photonics for Solar Cells and Optical Power Transfer **Lecture Hall**

- 59 Machine Learning-Driven Design of Photonic Crystals for Enhanced Back-Reflectors in Photovoltaic Cells – *Cosme Eustaquio Rubio Mercedes*
 183 Will Carrier Mobilities and Lifetimes in SnS Thin Films Lead to Competitive Solar Cells ? – *Reinhard Schwarz*
 209 Experimental Validation and Numerical Simulation of a 520 nm Optical Wireless Power Transmission System – *Elisa Casal Gómez*

16:00 Parallel Session 7 [ENSSC1]: Photonics for Industrial Sensing and Autonomous Systems **Lecture Hall**

- 212 Novel Applications of LIBS in Recycling – *Amy Bauer*
 249 Optical Wireless AGV Navigation and Coordination Using Visible Light Communication – *Paula Louro*

15:15 Parallel Session 7 [NANPHOPT2]: Optoelectronic Materials, Photodetectors, and Light-Matter Characterization **Room A**

- 176 Influence of different wavelengths on the operation of gallium oxide-based photomemristors – *Marina Sparvoli* - (Keynote)
 79 Temperature-Dependent Spectromicroscopy of Single Quantum Emitters as a Basis for Luminescence Nanothermography – *Andrei Naumov* - (Invited)
 84 Asymmetric Interlayer Carrier Migration Governs Anomalous Photoluminescence Enhancement Across Coupling Regimes in 2D Heterostructures – *Shuangping Han*
 86 Emergent chiral phenomena in in-plane hyperbolic van der Waals MoOCl₂ – *Meri Hayrapetyan*
 106 Optoelectronic Study and Optimization of a Hybrid Nanograting-Enhanced GaAs MSM Photodetector with Metallic Adhesion Layers – *Mohamed Khadraoui*

15:15 Parallel Session 7 [LNOPT1]: Ultrafast Optical Diagnostics, Spectroscopy, and Real-Time Measurement **Room B**

- 65 Real time processing for ultra fast Optical Coherence Tomography – *Adrian Podoleanu* - (Keynote)
 131 Generalised Thomson scattering for relativistic plasma optics – *Rafael Russo de Almeida*
 150 Advances in diode-pumped metastable rare gas lasers – *Rui Wang*
 154 The Impact of Ambient Gas Conditions and Delay Time on Emission Characteristics of Al Plasma Generated using Nanosecond Laser-Induced Breakdown Spectroscopy (nsLIBS) – *Atif Hussain*

158 Intensity scaling of rotational anisotropy for detection of wave-mixing processes – *Hugo Pires*

16:45 Poster Session 2 and Coffee Break

Main Hall

OPTFSA

- 98 A Stability Enhanced EDF Ring Laser Interrogator for FBG Sensing: Linear Response, Low Cost Design and Practical Optimization – *Nikolaos Stathopoulos*
- 107 BathLiDAR: Privacy-Preserving Bathroom Fall Detection with a Single ToF Sensor – *Gunzung Kim*
- 108 Five Wavelengths, Five Distances : A Concentric Structured-Light Sensor for Long-Range Forward Profiling in Gas Pipelines – *Gunzung Kim*
- 115 Optimization of a fluorescence sensing setup for water contaminants – *Catarina Novo*
- 118 Surface Plasmon Resonance (SPR) sensor study for contaminant sensing – *Gonçalo Alves*
- 121 Tapered Erbium Fiber Laser Using FBG Mirrors – *Jose Costa*
- 124 Torsion Sensing in Optical Fibers via Polarization State Evolution – *Virgínia Linhares*
- 136 Fiber Bragg Grating Biaxial Displacement Sensors for Long-Term Monitoring of Wooden Panel Paintings – *Luis Pereira*
- 140 Optical fibre sensor for water contaminant detection - PFAS case study detection – *Catarina Novo*
- 146 Laser-processed WO₃/graphene oxide nanocomposites for Raman-active fiber Fabry-Perot hydrogen sensing – *Jorge Moura*
- 159 Engineered Plasmonic Substrates for Surface-Enhanced Raman Spectroscopy Applications – *Angela Baracu*
- 177 LiDAR-Based Monitoring of Railway Bogie Springs – *Francisco José Lacerda Frade*
- 188 Hydrogen Leak Detection with Optical Fibers: Implementation and Validation in Industrial Settings – *André Santos*
- 219 Enhancing Optical Fibre Sensing with Zinc Oxide Tetrapod Layer Deposition – *Lucas Pereira*
- 220 Differential optical sensing platform based on strong-coupled interactions between plasmonic and excitonic materials – *João Pedro Carvalho*
- 222 Modeling of active waveguide Bragg gratings for thermal sensing and temperature gradient threshold detection – *Ángel Sanz Felipe*
- 229 Interchangeable-Spring FBG Extensometer for Adaptive Strain and Displacement Monitoring – *Gustavo Saturno*
- 231 Tantalum-Enhanced Fabry-Perot Fiber Sensor for Intensity-Based Refractive Index Detection – *Guilherme Pereira*

OPTINSTSA

- 120 A software tool for the alignment and characterization of cross-dispersed echelle spectrographs – *Gonçalo Blanco*
- 122 Low-Cost Minimal RA Tracking System for Deep-Sky Astrophotography – *Raul Casquinha*

QOPT

- 216 Quantum-Kinetic Modeling of Cooperative Photoluminescence From Coupled Lifetime-Limited Organic Molecules – *Maxim Gladush*

LNOPT

- 112 Investigation of the Nonlinear Response of Photonic Crystals for Applications in Laser Protection Systems – *Abdelmoumen Guessoum*
- 129 Yb driven few-cycle, mJ-level 3 μm laser source – *Gonçalo Vaz*
- 266 Introducing Dual-Cell Photoacoustic Spectroscopy For Studying Quantitative Absorption Spectrum Of Aerosols – *Jamshed Saeed Shah*
- 273 Development and operation of laser spectroscopy of lanthanides at KU Leuven – *Sughra Mohamed*
- 152 Study on the amplification of diode pumped alkali vapor laser – *Hongyan Wang*

ENSSC

- 80 Application of Photonics-Based Spectroscopy and Machine Learning in Rare Earth Element Prospectivity Modelling – *Avery Inyangala*
- 123 VLC-Based Traffic Coordination: Physical Layer Modeling and System Design – *Susana Amaral*
- 139 Hybrid Photonic-AI Framework for Urban Traffic Optimization Using Visible Light Communication Networks – *Joao Matos*
- 175 Distributed Adaptive Road Lighting System with Predictive Anticipation Based on Edge Computing – *Tiago Moreno*
- 189 Optical Wireless Communication for Cooperative Traffic Control: A VLC-Enabled Multi-Agent Reinforcement Learning Approach – *Astride Morais*
- 214 Characteristic-curve tracer and electrical-parameter measurement system for a photovoltaic panel powering IoT-connected devices – *Gonçalo Machado*
- 237 Visible Light Communication-Enabled Reinforcement Learning for Data-Calibrated Urban Traffic Control in Lisbon – *João Evaristo*
- 241 An Optical Fiber-based System for Charging Batteries by Wireless Power Transfer – *Micael Nascimento*
- 278 Multiwavelength Photoacoustic Spectroscopy for Emission-Based Fuel Development. – *Rana Khawar Ashfaq*

MATPRCH

- 103 Friction Behaviour of Femtosecond Laser Textured DLC Coatings – *Vitor Oliveira*
 127 Color Adjustment Potential in One-shade restorative materials: Thickness and Shade Interaction – *Marina Chacón Werner*
 233 Optical Characterization of Squid Gladius Biomaterials for Cornea Tissue Engineering – *Juan de La Cruz Cardona Pérez*
 261 Nd:YAG Pulsed Laser Deposition Platform for Thin-Film and Nanostructured Material Fabrication for Photonic Applications – *André Moreira*
 275 Femtosecond Laser Ablation of Flexdym Elastomeric Polymer for Biomedical Surface – *Maria Teresa Flores Arias*
 272 Laser technology in the injection moulds industry – *Nuno Ferreira*
 282 Photoanisotropy in a Non-Azobenzene Composition with an Extended Operating Range – *Barbara Kilosanidze*

OPTCOM

- 145 Visible Light Communication System Integrated with SUMO Simulation – *João Marques*
 148 Simulation of a RoPOF system with plastic optical fibers – *Felisberto Varela*
 167 Optical Links for CubeSat Communications - Technologies and Challenges – *Erica Alves*
 194 Cellular VLC-Based Vehicle Localization Integrated with SUMO Traffic Simulation – *David Almeida*
 196 VLC-Enabled Multi-Agent Reinforcement Learning with Dynamic Phase Timing for Traffic Optimization – *Gonçalo Galvão*
 252 Experimental Evaluation of Power-over-Fiber Topologies for IoT Sensor Deployment Over Single-Mode Fiber at 1550 nm – *Daniel Graça*
 265 End-to-End Visible Light Communication Vehicular Prototype: Design and Experimental Validation – *Duarte Cruz*
 142 Classical Emulation of the BB84 Quantum Key Distribution Protocol over Optical Fibers – *Rodrigo Cosme*
 225 Joint Computer Vision and Multicore-Fiber Sensing for Automatic FSO Alignment – *Pedro Pereira*

18:15 SPOF General Assembly

20:00 End of the day

Friday, July 10

08:00 Registration

08:45 Plenary Session 6 [MATPRCH]

Lecture Hall

- 281 The Rise of Sustainable Advanced Materials for Electronics and Energy Applications – *Rodrigo Ferrão Paiva Martins*

09:30 Parallel Session 8 [MATPRCH1]: Advanced Optical Thin Films, Nanostructures and SERS for Sensing Applications

Lecture Hall

- 239 The impact of noble metal thin films on SERS substrates for pesticide detection – *Oana Raşoga*
 246 Investigations of the properties of some organic and hybrid layers deposited on flat and patterned substrates – *Oana Raşoga*
 238 Semiconductors-based Pervious Concrete for Photocatalytic Performance – *Fabiúla Pereira Lessa*
 51 Composite structures based on shape-controlled Ag nanoparticles embedded in c-Si as a promising SERS substrate – *Anna Ermina*
 195 Coherence and superradiance from a plasma-based quasiparticle accelerator – *Bernardo Malaca* - (Invited)

09:30 Parallel Session 8 [OPTCOM1]: Quantum Communications and Advanced LiDAR Systems

Room A

- 199 The Development of Quantum Communication Links – *Yaseera Ismail* - (Keynote)
 213 First Experimental Demonstration of Chaos-Based LiDAR in the Long-Wave Infrared Exploiting Photonic Chaos – *Sara Zaminga* - (Invited)
 172 Receiver Lens System Design Considerations for Wide-Angle FMCW LiDAR – *Marcus Baumgart*

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- 09:30 Parallel Session 8 [OPTINSTSA2]: Astronomical Instrumentation and Optical Design Room B**
- 100 Advancing Optical Astronomy at ESO: Portuguese Contributions from the Institute of Astrophysics and Space Sciences – *Alexandre Pereira Cabral* - (Keynote)
- 125 Model-Based Systems Engineering for the Front-End of ANDES, the High-Resolution Spectrograph for the ESO Extremely Large Telescope – *Daniel Santos*
- 128 Towards the miniaturization of cross-dispersed echelle spectrographs: Parametric modelling and trade-off analysis of three optical designs – *Nuno M. Gonçalves*
- 130 Reaching the milli-arcseconds level in atmospheric dispersion correction for astronomical instruments. – *Pedro José Barreto Pereira*
-

10:50 Coffee Break

- 11:10 Parallel Session 9 [MATPRCH2]: Session 2: Materials, Thermal, and Photocatalytic Applications Lecture Hall**
- 109 Ion Beams for Materials Processing and Characterization – *Katharina Lorenz* - (Invited)
- 202 Optical Methods for Self-Cleaning Assessment Across Multiple Substrates – *Orlando Lima Jr.*
- 170 Design and Synthesis of Magneto-Plasmonic Liposomes: Towards Dual-Mode Hyperthermia – *Fábio Alberto da Costa Lopes*
- 271 Laser processing of oxides for energy applications – *Nuno Ferreira*
-

- 11:10 Parallel Session 9 [OPTCOM2]: Advanced Optical Communications and Photonic Networking Room A**
- 63 LUMIRing: the Largest Terrestrial Multicore Fiber Testbed Enabling Real-World SDM at Scale – *Adolfo Cartaxo* - (Keynote)
- 197 Photonic Enabled Multi Agent Traffic Orchestration Using Visible Light Communication for Adaptive Urban Mobility – *Manuela Vieira* - (Invited)
- 193 Overcoming Nonlinearities in High Power EDFAs for Coherent Ground-to-LEO Optical Links – *Ricardo Cotrim*
- 224 Modelling Rate-Adaptive LEO-to-Ground Coherent WDM FSO Links with Throughput and Power Optimization – *Diogo Malheiro*
-

- 11:10 Parallel Session 9 [LNOPT2]: Laser Sources, Architectures, and Gain Media Room B**
- 200 Beyond Single Lasers: 2-Dimensional VCSEL Arrays – *Kent Choquette* - (Keynote)
- 205 Low-Threshold Lasing in Cholesteric Liquid Crystals with Multiple Defect Layers – *Shaohua Gao*
-

- 11:55 Parallel Session 9 [OPTFSA4]: Light-to-Energy Conversion in Nanostructures Room B**
- 279 Analytical Technique for the Quantification of C₂H₄ and CH₄ – *Arthur George Tissi Batista*
- 218 Optimization of Hybrid Electrodes for Integrated Electrochemical Surface Plasmon Resonance (eSPR) Systems – *José Lucas Camacho Monteiro*
-

12:30 Awards & Closing Ceremony

13:00 Lunch

14:30 Guided Tour to RTP Museum



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