10th International Conference on Photonics, Optics and Laser Technology (PHOTOPTICS 2022)

Online 10 - 11 February 2022

Editors:

Domenico de Ceglia Maria Raposo Pablo Albella Paulo Ribeiro

ISBN: 978-1-7138-5320-6

Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright $\ \bigcirc \ (2022)$ by SCITEPRESS – Science and Technology Publications, Lda. All rights reserved.

Printed with permission by Curran Associates, Inc. (2022)

For permission requests, please contact SCITEPRESS – Science and Technology Publications, Lda. at the address below.

SCITEPRESS – Science and Technology Publications, Lda. Avenida de S. Francisco Xavier, Lote 7 Cv. C, 2900-616 Setúbal, Portugal

Phone: +351 265 520 185 Fax: +351 265520 186

info@scitepress.org

Additional copies of this publication are available from:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571 USA Phone: 845-758-0400

Fax: 845-758-2633

Email: curran@proceedings.com Web: www.proceedings.com

CONTENTS

INVITED SPEAKERS

KEVNOTE	CDEA	ZEDC
K EVNOTE	SPEA	KHRC

Deeply Subwavelength Layered Metamaterials: From Hyperbolic Dispersion Metasurfaces to Fano Resonance Optical Coatings Giuseppe Strangi	5
Dielectric Nanophotonics for Reconfigurable Planar Optics and Biosensing Romain Quidant	7
Electro-Optic Metal-Oxides for Miniaturised Telecom and Sensing Devices Rachel Grange	ç
Topological Plasmonics: Ultrafast Vector Movies of Plasmonic Skyrmions on the Nanoscale Harald Giessen	11
PAPERS	
FULL PAPERS	
Study of Three WFS for the Modular System in a Portable AO Instrument: ALIOLI <i>Esther Soria and Roberto López</i>	17
Combining a Grayscale Camera and Spectrometers for High Quality Close-range Hyperspectral Imaging of Non-planar Surfaces Stefan Lörcks and Josef Pauli	26
Moving Gap Solitons in Semilinear Coupled Bragg Gratings with a Phase Mismatch Shuvashis Saha and Javid Atai	38
Native Ethernet Optical Switching for Deterministic Critical Networks Brice Leclerc, Olivier Marce, Bogdan Uscumlic and Dominique Chiaroni	42
Solid-state Photoluminescent Quantum Dots for Explosive Detection Federica Mitri, Andrea De Iacovo, Serena De Santis, Carlo Giansante, Davide Spirito, Giovanni Sotgiu and Lorenzo Colace	48
Classification of Brain Tumour Tissues in Human Patients using Machine Learning Françoise Bouvet, Hussein Mehidine, Bertrand Devaux, Pascale Varlet and Darine Abi Haidar	53
Exploring the Tabu Search Algorithm as a Graph Coloring Technique for Wavelength Assignment in Optical Networks Inês Gomes, Luís Cancela and João Rebola	59
Acousto-optic k-space Filtering of Optical Beams Konstantin B. Yushkov	69
Multiphoton Microscopy for Bacterial Imaging: A Label-free Solution Resting on Endogenous Two-photon Fluorescence Cédric Delmon, Erwan Ferrandon, Emilie Chouzenoux, Audrey Prorot, Sophie Alain and Claire Lefort	76

Deployment of 1610 nm InAs/InP Quantum-dash Laser Diode in 28–50 GHz Hybrid RoF-RoFSO-Wireless Transmission System <i>M. Z. M. Khan</i>	84
SHORT PAPERS	
OTDR based Estimation of Optical Fiber Link Residual OFDM CFO Adriana Lipovac, Vlatko Lipovac, Mirza Hamza and Vedran Batos	91
Integration of Downlink Scheme VLC Access Techniques for Low-cost Implementation Indoor Communication System: A Survey Hikmatyarsyah and Sasono Rahardjo	97
Analysis of Optimal Polarization State Sampling Frequency Applied to Photoelastic Analyzer Chih-Chung Yang, Chih-Ning Hsu, Yi-Yung Chen, Yu-Hsuan Lin, Hsin-Yi Tsai, Kuo-Cheng Huang and Chun-Han Chou	106
Eigenvalue and Eigenvector Expansions for Image Reconstruction Tomohiro Aoyagi and Kouichi Ohtsubo	111
BER based Assessment of Spectral and Energy Efficiency in a Two-tier Heterogeneous Network Jasmin Musovic, Adriana Lipovac and Vlatko Lipovac	116
Quality Analysis and Colour Decoding of Printed Matters using a Portable 2D Chroma Meter Cheng-Ru Li, Chih-Chung Yang, Chun-Han Chou, Ming-Yen Lin and Yu-Hsuan Lin	123
Improvement of Thermal Resistance of Surface-emitting Quantum Cascade Laser using Structural Function and 3D Thermal Flow Simulation Shigeyuki Takagi, Hirotaka Tanimura, Tsutomu Kakuno, Rei Hashimoto, Kei Kaneko and Shinji Saito	128
Impact of Physical Layer Impairments on C+L-band Metro Networks Filipa F. Gomes, Luís G. Cancela and João L. Rebola	134
MUFF: A Low-cost Motorized Positioner Developed by Additive Manufacturing to Obtain Multi-focus Images Gustavo Lelis da Silva, Jorge Stolfi and Helena Cristina da Gama Leitão	144
Sensing Bandwidth Enlargement with Ten Orthogonal Codes in Quasi-distributed Acoustic Sensing System Ziwen Deng, Ruobing Xu, Yuyao Wang, Jialin Jiang and Zinan Wang	152
Optimized Detection of Hypoglycemic Glucose Ranges in Human Serum by Raman Spectroscopy with 532 nm Laser Excitation Ata Golparvar, Assim Boukhayma, Christian Enz and Sandro Carrara	158
Comparative Study of Two Approaches for Application of Terrestrial Laser Scanner in Structural Health Monitoring and Damage Assessment Shakhzod M. Takhirov	166
Comparison of Different Grating Structure DFB Lasers for High-speed Electro-absorption Modulated Lasers Siti Sulikhah, San-Liang Lee and Hen-Wai Tsao	172
Silica Coated Plasmonic Nanobone-based Tags for Safe Bioimaging Aleksei N. Smirnov, Vasilisa O. Svinko, Aleksei S. Strelnikov, Alisa I. Shevchuk, Anna V. Volkova and Elena V. Solovyeva	179

SPECIAL SESSION ON ADVANCED OPTICAL MATERIALS AND DEVICES

SHORT PAPER

Long Period Grating based Biosensing Technology for the Detection of Vitamin D3

Flavio Esposito, Lucia Sansone, Anubhav Srivastava, Angela Maria Cusano, Stefania Campopiano, 191

Michele Giordano and Agostino Iadiccico

WORKSHOP ON OPTICAL WIRELESS COMMUNICATIONS: STATUS AND PERSPECTIVES

SHORT PAPERS

Towards Terabit LiFi Networking Ahmad Adnan Qidan, Taisir El-Gorashi and Jaafar M. H. Elmirghani	203
All Signs Lead to LiFi Alistair Banham, Sarah Scace, Ron Schaeffer and Mostafa Afgani	213
AUTHOR INDEX	219