

Preface

This revised selected paper series Springer Proceedings in Physics Springer volume contains the papers of the 2nd International Conference on Photonics, Optics and Laser Technology (PHOTOPTICS) held in Lisbon, Portugal, sponsored by the Institute for Systems and Technologies of Information, Control and Communication (INSTICC). PHOTOPTICS 2014 was held in cooperation with the Sociedade Portuguesa de Física (SPF), Sociedade Portuguesa Interdisciplinar do Laser Medico (SPILM), Sociedade Portuguesa de Materiais (SPM), European Materials Research Society (E-MRS), Sociedade Anatómica Portuguesa (SAP), European Optical Society (EOS), European Physical Society (EPS), and Fundação para a Ciência e Tecnologia (FCT). It was held in collaboration with the Center of Physics and Technological Research (CEFITEC) and Faculdade de Ciências e Tecnologia-Universidade Nova de Lisboa (FCT-UNL) and technically sponsored by the Photonics21 platform. The Sociedad Española de Láser Médico Quirúrgico was an institutional partner, and the Science and Technology Events (SCITEVENTS) was the logistics partner. PHOTOPTICS 2014 featured five prominent keynote speakers which addressed cutting-edge topics worth to be emphasized. These were “Photon Wave Fronts—Frontiers in Photonics,” by David Andrews, University of East Anglia, UK; “Multifunctional Nanoscale Oxide Conductors and Semiconductors,” by Elvira Fortunato, CENIMAT/I3N/FCT/UNL, Portugal; “Circumventing the Diffraction Limit—Fluorescence Optical Microscopy at the Nanoscale,” by Alberto Diaspro, Istituto Italiano di Tecnologia, Italy; “Dielectric Waveguide Amplifiers and Lasers,” by Markus Pollnau, University of Twente, The Netherlands; and “Biomedical Cells as Bits—Diagnostics Inspired by Data Communication Techniques,” by Bahram Jalali, UCLA, USA. High-quality presentations also took place in all main conference fields which covered theoretical, applied, and experimental issues. These include new materials for optics and photonics; optical fibers spontaneous emission and optical fiber nanoprobe; new optical devices, systems, and procedures; nonlinearity and distortion studies in data transmission; optical signal optimization; filtering and precise phase measurements; interferometry applied to holographic encryption; high power lasers and quantum dot lasers; and

theoretical models such as universal polariton modeling of damage induced by laser, Monte Carlo inverse modeling toward optical tissue properties evaluation, charge carriers dynamics in diamond, propagation and amplification of short and intense pulses in plasma channels, direct capture in quantum dot lasers under optical feedback, and performance evaluation of amplified spontaneous emission noise-impaired direct detection in optical systems. The conference and the papers in this Springer Proceedings in Physics volume reflect a growing effort to increase the dissemination of new results among researchers and professionals related to Photonics, Optics and Laser Technology. The PHOTOPTICS 2014 has built on successes of the previous conference that took place at Barcelona, Spain.

PHOTOPTICS 2014 received 82 submissions, of which 11 % were presented as full papers. Additionally, 16 % were short oral presentations and 16 % presented as posters. To evaluate each submission, a double-blind paper evaluation method was used: each paper was reviewed by at least two experts from the International Program Committee in a double-blind review process, and most papers had three reviews or more.

The best papers of the conference were invited, after corrections and extensions, to appear in this post-conference Springer Proceedings in Physics book.

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Photoptics 2014

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Selected Papers

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