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Tanja Dreischuh
Albena Daskalova
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Introduction

The International School on Quantum Electronics: Laser Physics and Applications (ISQE) has been organized biennially since 1978 by the Institute of Electronics of the Bulgarian Academy of Sciences. The School has already turned into a well-known forum, where both senior and young scientists can present and discuss the recent developments in the field of lasers and their applications in material processing, spectroscopy, nonlinear optics, remote sensing, medicine, and ecology.

The 17th International School on Quantum Electronics (ISQE 2012) took place from 24 to 28 September 2012, in Nessebar, Bulgaria. More than 90 scientists from 16 countries participated in this edition of the School and presented around 100 contributions. A wide range of subjects reflecting the current trends in laser physics were discussed during the invited lectures and two poster sessions. ISQE 2012 was recognized as a high scientific level European conference and was financially supported by SPIE, the Optical Society of America, European Office of Aerospace Research and Development, Bulgarian Science Fund, the European Physical Society, Bulgarian Academy of Sciences, the National Technical University of Athens (Greece), IEEE Bulgaria Section, and the Vivacom-fund (Bulgaria), to which the organizing committee expresses deep gratitude. During the School, a scientific exhibition was organized where leading companies in the domain of quantum electronics (Siemens, Bulgaria; Toptica Photonics AG; Astel Ltd.; Coherent, Bulgaria; Andor Technology; and American Elements) demonstrated their recent developments and presented scientific lectures. To encourage and acknowledge excellence in research and scientific presentation skills, SPIE, EPS, and OSA sponsored the best student paper awards. In addition to the prizes, the winners were given also the opportunity to present their papers before the conference audience during a special oral session at the end of the School.

This Proceedings volume contains 61 invited and contributed papers covering the School topics of laser-matter interactions, laser spectroscopy and metrology, laser remote sensing and ecology, lasers in biology and medicine, and laser systems and nonlinear optics. All the submitted manuscripts were peer-reviewed by experts in the respective fields using the SPIE review process.

The editors of the volume would like to thank all the lecturers and participants for their contributions, as well as the reviewers for their time and effort and for their careful evaluation of the papers. We hope that the readers will find this collection

of papers interesting and useful and we would like to invite them to take part in the next 18th ISQE, which will be held in 2014.

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