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**Jarmila Müllerová
Dagmar Senderáková
Stanislav Jurečka**
Editors

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Introduction

The 17th Slovak-Czech-Polish Optical Conference (17th SCPOC) was held 6–10 September 2010 in the SOREA Máj Hotel in Liptovský Ján, located in the Janska Dolina Valley, one of the most beautiful valleys in the Low Tatras National Park in Slovakia. The conference was a continuation of a series of regular meetings of Slovak, Czech, and Polish optical communities started in 1972 in Rusava, Czech Republic. After a short interruption between the 1980s and 1990s, the meetings have grown to conferences under the name 'Wave and Quantum Aspects of Contemporary Optics.'

For more than 30 years, the conference has been organized biannually in turn in Czechoslovakia and Poland and since 1996 in Slovakia, the Czech Republic and Poland. It has become a place to exchange knowledge on the latest optical research, to meet friends and co-workers, including young scientists.

The 17th SCPOC was organized by the Department of Engineering Fundamentals, the Faculty of Electrical Engineering, University of Žilina, Slovakia; the Slovak Electrotechnical Society; and by the Faculty of Mathematics, Physics and Informatics, Comenius University in Bratislava, Slovakia, and in cooperation with SPIE.

In 1996, at the conference in Karpacz, Poland, due to the initiative of the Polish Chapter of SPIE, the agreement with SPIE to publish conference contributions in the Proceedings of SPIE was signed. Since then, selected conference papers have been published in the Proceedings of SPIE. SPIE agreed to serve as the Cooperating Organization for 17th SCPOC as well as publish conference papers online as part of the SPIE Digital Library. Additionally, SPIE supported student participation in the conference and acknowledged excellence in student research by the Student Best Paper Awards.

The 17th SCPOC was also supported by both the Czech and Slovak Society of Photonics, and the Optical Society of the Czech Republic and Slovak Republic, the follower of former SPIE/CS Chapter.

One of the most important aims of scientific conferences is to encourage and promote international collaboration and cooperation. Therefore it was great pleasure for the 17th Slovak-Czech-Polish Optical Conference to host - the first time in its history - the Workshop of the COST Action MP0702 Towards Functional Sub-Wavelength Photonic Structures, Working Group 1 Plasmonics, Metamaterials and Non-reciprocity.

The conference attracted 126 participants, among them: 48 from the Czech Republic, 45 from Poland, 24 from Slovakia, and 9 from other countries (France 1;

Canada 1; Austria 1; United Kingdom 2; Turkey 3). The scientific programme comprised 20 invited papers, 45 oral presentations and 46 poster presentations. The contributions covered generally all aspects of optics, e.g., quantum and nonlinear optics, quantum information and cryptography, ultrafast optical phenomena, wave optics, interferometry and holography, optical technologies for optical communications and networks, waveguide and optoelectronics devices, laser physics, technology, photonic crystals, photonic nanostructures and integrated optics, biophotonics, design and manufacture of optical components and optical devices, optical materials, fabrication and characterization, optical data storage and data processing, teaching and training in optics, optical imaging, sensing and metrology, etc.

This volume contains 72 peer-reviewed submitted contributions based on presentations given at the conference. The first eight papers present scientific content of invited lectures in the current fields of quantum optics, plasmonics, laser-induced plasma and laser-ablation diagnostics, sub-wavelength photonic structures, ultra-fast optical communication technologies and optical trapping. Also, the volume contains papers of the first three SPIE Student Best Paper Awards winners, K. Pokorski (PL), B. Zielinski (PL) and I. Kubicova (SK).

When compared to similar world optical conferences, the International Scientific Board rated highly the scientific level of the 17th SCPOC. In particular, the presence of many young participants was greatly appreciated. This, in a way, guarantees the future of common optical conferences, connecting optical communities especially from Slovakia, the Czech Republic and Poland, but not only. The 18th Slovak-Czech-Polish Optical Conference on Wave and Quantum Aspects of Contemporary Optics will be held in the Czech Republic in 2012.

Concluding, we would like to express our thanks to the members of the International Scientific Board and to the session chairs. We also would like to express our gratitude to the Organizing and Cooperating Organizations and to the Local Organizing Committee for their attitude and diligent work behind the scenes: resulting in great conference facilities.

The conference is still characterised by a special pleasant atmosphere. The participants themselves had created this atmosphere above all. We would like to express our gratitude to each of them for their individual scientific and human contributions in exchanging ideas and experience, and for keeping a warm spirit of friendship and mutual understanding.

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