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Editors

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Introduction

Laser Technology (SLT 2016) was the eleventh symposium in a periodical series that deals with advances in the state-of-the-art of laser technology and applications in Poland. This symposia series has evolved since 1984 due to the activity of the Committee of Electronics and Telecommunication of the Polish Academy of Sciences and the support of relevant universities.

The first symposium on laser technology was organized and hosted by the Nicolaus Copernicus University at Toruń (Poland) and co-organized by Warsaw University of Technology (Poland), and Military University of Technology (Poland), and Industrial Center of Optics in Warsaw (Poland). Three volumes of proceedings were published beginning in June 1984.

Laser Technology II was organized in 1987 by Szczecin University of Technology (Poland), Warsaw University of Technology (Poland) and Military University of Technology (Poland). The host of the symposium was the Institute of Industrial Automation of Szczecin University of Technology (Poland). The 1987 symposium provided material for four proceedings volumes. Two of them were published in Polish– a volume of 140 contributed papers and volume of 14 invited papers; and two in English– a volume of abstracts and SPIE Proceedings volume 0859 (edited by Ryszard S. Romaniuk, Bohdan K. Wołczak and Wielsaw L. Woliński). SPIE Proceedings volume 0859 was the first volume of SLT Proceedings kindly published by SPIE.

Laser Technology III was again organized in 1990 by Szczecin University of Technology (Poland), Warsaw University of Technology (Poland) and Military University of Technology (Poland). It was hosted by the Institute of Industrial Automation of Szczecin University of Technology (Poland). The symposium provided materials for four proceedings volumes: two of them published in Polish– a volume of 140 contributed papers and another of invited papers; and two in English– a volume of abstracts and SPIE Proceedings volume 1391.

Laser Technology IV was organized in 1993 by Szczecin University of Technology (Poland), Warsaw University of Technology (Poland) and Military University of Technology (Poland). The host of the symposium was the Institute of Electronics and Computer Science of Szczecin University of Technology (Poland). The symposium provided material for five volumes of proceedings: two of them published in Polish– a volume of contributed papers and another of invited papers; and three in English– a volume of abstracts and SPIE Proceedings volumes 2202 and 2203.

Laser Technology V was organized in 1996 by Szczecin University of Technology (Poland), Warsaw University of Technology (Poland) and Military University of

Technology (Poland). The Institute of Electronics and Computer Science of Szczecin University of Technology (Poland) hosted the symposium. The symposium provided material for five volumes of proceedings: two of them published in Polish– a volume of contributed papers and another one of invited papers; and three in English– SPIE Proceedings volumes 3186, 3187, and 3188.

Laser Technology VI was organized in 1999 by Szczecin University of Technology (Poland), Warsaw University of Technology (Poland) and Military University of Technology (Poland), and by the Committee for Optoelectronics of the Association of Polish Electrical Engineers under the auspices of the Polish Academy of Sciences Committee of Electronics and Telecommunication. The symposium provided material for four volumes of proceedings: two of them published in Polish– a volume of contributed papers and another one of invited papers; and two in English– SPIE Proceedings volumes 4237 and 4238.

Laser Technology VII was again organized in 2002 by Szczecin University of Technology (Poland), Warsaw University of Technology (Poland) and Military University of Technology (Poland), and by the Committee for Optoelectronics of the Association of Polish Electrical Engineers and SPIE Poland Chapter, under the auspices of the Polish Academy of Sciences Committee of Electronics and Telecommunication. The symposium provided material for four volumes of proceedings: two of them were published in Polish– a volume of contributed papers and another one of invited papers; and two in English– SPIE Proceedings volumes 5229 and 5230.

Laser Technology VIII was once again organized in 2006 by Szczecin University of Technology (Poland), Warsaw University of Technology (Poland) and Military University of Technology (Poland), and by the Committee for Optoelectronics of the Association of Polish Electrical Engineers and the Poland Chapter of SPIE under the auspices of the Polish Academy of Sciences Committee of Electronics and Telecommunication. The symposium was hosted by Institute of Electronics, Telecommunications and Computer Science of Szczecin University of Technology (Poland) and was held in Świnoujście, Poland in September. The symposium provided material for four volumes of proceedings: two of them published in Polish– a volume of contributed papers and another one of invited papers; and two in English– SPIE Proceedings volumes 6598 and 6599.

Laser Technology IX was once again organized in 2009 by Szczecin University of Technology (Poland), Warsaw University of Technology (Poland), the Military University of Technology (Poland), the Committee for Optoelectronics of the Association of Polish Electrical Engineers, and by the Photonics Society of Poland (originally the Poland Chapter of SPIE) under the auspices of the Polish Academy of Sciences Committee of Electronics and Telecommunication. The symposium was hosted by Institute of Electronics, Telecommunications and Computer Science of Szczecin University of Technology (Poland) and was held in

Świnoujście, Poland in September 2009. The symposium provided material for a volume of abstracts. No SPIE Proceedings volumes were published this time.

The Jubilee Laser Technology X was organized in 2012 by West Pomeranian University of Technology in Szczecin (Poland) – previously known as the Szczecin University of Technology and Szczecin University of Natural Sciences – Warsaw University of Technology (Poland), the Military University of Technology (Poland), the Committee for Optoelectronics of the Association of Polish Electrical Engineers, and the Photonics Society of Poland, under the auspices of the Polish Academy of Sciences Committee of Electronics and Telecommunication. The symposium was hosted by Faculty of Electrical Engineering, Chair of Photonics of West Pomeranian University of Technology in Szczecin (Poland) and was held in Świnoujście, Poland on 24–28 September 2012.

Approximately 120 participants attended this symposium. Professor Wiesław L. Woliński, Chairman of the Polish Committee for Optoelectronics and of the Symposium Scientific Committee, presented the welcome address and opened the meeting. The opening lectures were given by Professor Zygmunt Mierczyk of the Military University of Technology (Poland) on "Lasers in the dual application technologies", and Professor Krzysztof Abramski of Wrocław University of Technology (Poland) on "Optical fiber frequency combs".

The topics of Laser Technology X were as follows:

(1) Laser materials, components and assemblies,
(2) gas lasers, solid-state lasers, semiconductor lasers, and other kinds of lasers,
(3) generation, amplification, stabilization, synchronization, multiplication of frequencies, shaping of space and time characteristics of laser radiation,
(4) detection and registration of laser beam parameters,
(5) circuits, devices, apparatus and systems working with lasers,
(6) and applications of lasers in industry, medicine and biology, environment protection, military technology and in research.

The tenth symposium provided material for three volumes of proceedings: one of them was published in Polish– a volume of abstracts of all symposium presentations; and two in English– SPIE Proceedings volume 8702 (Laser Technology 2012: Progress in Lasers), and volume 8703 (Laser Technology 2012: Applications of Lasers). The 2012 SPIE Proceedings volumes contained 60 chosen reviewed papers by authors affiliated primarily with university-based laboratories. The editors of these volumes were Wieslaw L. Woliński, Zdzislaw Jankiewicz, and Romaniuk S. Romaniuk, who also edited the SPIE Proceedings volumes for the 2002 and 2006 symposia.

Laser Technology XI was organized in September 2016 by the Military University of Technology (Poland), the Institute of Optoelectronics (Poland) in cooperation

with Warsaw University of Technology (Poland), Warsaw University (Poland) and Wrocław University of Technology (Poland). The eleventh SLT was originally scheduled for September 2015, but due to a number of additional conferences and meetings associated with celebrations of the International Year of Light in Poland (IYL2015), had to be rescheduled and finally delayed by one year.

The SLT 2016 venue was Jastarnia Resort situated on the Hel Peninsula at the Polish Baltic seashore. Traditionally the patronage and sponsoring organizations were: Polish Academy of Sciences Committee of Electronics and Telecommunication, Committee for Optoelectronics of the Association of Polish Electrical Engineers, and the Photonics Society of Poland. The symposium provided material for two volumes of proceedings: one published in Polish– a volume of abstracts for contributed and invited papers; and one in English– these SPIE Proceedings.

Approximately 140 participants attended this symposium from all leading research laser technology and laser application research centers in academia, research institutes and industry. Over 120 papers were presented.

The topics of Laser Technology XI were as follows:

Lasers: Yesterday, Today and Tomorrow;
Optical Fibre Lasers; Laser Applications in Research;
New Types of Lasers;
Applications of Lasers in Material Engineering and Nanotechnology;
Industrial Applications of Lasers;
Applications of Lasers in Medicine and Biomedical Engineering;
Application of Lasers in Safety and Defense Systems;
New Laser Materials, Components and Assemblies;
Optical and Laser Measurements;
and Laser Spectroscopy.

The symposium chairs and editors would like to personally thank the authors and conference contributors who made this book possible. Special cordial thanks are also due to SPIE for supporting the symposium by undertaking the publication of the proceedings volumes for nearly the last three decades.

The symposium committee announces with pleasure that the next meeting on Laser Technology is scheduled to be held in Jastarnia, Poland in 2018.

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