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# ***Laser Technology 2012: Applications of Lasers***

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**Ryszard S. Romaniuk**  
*Editors*

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# Introduction

Laser Technology X was the tenth symposium in a periodical series that deals with advances in the state-of-the-art of laser technology in Poland. Historically this series of symposia 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 and co-organized by Warsaw University of Technology, and Military University of Technology, and Industrial Center of Optics in Warsaw. Three volumes of proceedings were published beginning in June, 1984.

Laser Technology II was organized in 1987 by Szczecin University of Technology, Warsaw University of Technology, and Military University of Technology. The host of the symposium was the Institute of Industrial Automation of Szczecin University of Technology. The symposium provided material for four volumes of proceedings. 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 859).

Laser Technology III was organized in 1990 also by Szczecin University of Technology, Warsaw University of Technology, and Military University of Technology. It was hosted by the Institute of Industrial Automation of Szczecin University of Technology. The symposium provided materials for four volumes of proceedings. Two of them were 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, Warsaw University of Technology, and Military University of Technology. The host of the symposium was the Institute of Electronics and Computer Science of Szczecin University of Technology. The symposium provided material for five volumes of proceedings. Two of them were 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 2003).

Laser Technology V was organized in 1996 by Szczecin University of Technology, Warsaw University of Technology, and Military University of Technology. The host of the symposium was the Institute of Electronics and Computer Science of Szczecin University of Technology. The symposium provided material for five volumes of proceedings. Two of them were 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, Warsaw University of Technology, and Military University of Technology, 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 were 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 organized in 2002 also by Szczecin University of Technology, Warsaw University of Technology, and Military University of Technology, 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 organized in 2006 also by Szczecin University of Technology, Warsaw University of Technology, and Military University of Technology, 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 was hosted by Institute of Electronics, Telecommunications and Computer Science of Technical University of Szczecin and was held in Świnoujście in September. 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 6598 and 6599).

Laser Technology IX was organized in 2009 also by Szczecin University of Technology, Warsaw University of Technology, and Military University of Technology, and by the Committee for Optoelectronics of the Association of Polish Electrical Engineers and by the Photonics Society of Poland (which converted from SPIE Poland Chapter), 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 Technical University of Szczecin and was held in Świnoujście in September. The symposium provided material for a volume of abstracts. This time no SPIE Proceedings volume was published.

The Jubilee Laser Technology X was organized in 2012 by West Pomeranian University of Technology (which converted from Szczecin University of Technology and Szczecin University of Natural Sciences), Warsaw University of Technology, and Military University of Technology, and by the Committee for Optoelectronics of the Association of Polish Electrical Engineers and 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 Technical University of Szczecin and was held in Świnoujście on 24-28 September. Approximately 120 participants attended this symposium. Professor Wiesław L. Woliński, Chairman of the Polish Committee for Optoelectronics, and Symposium Scientific Committee presented the welcome address and opened the meeting. The opening lectures were given by Professor Zygmunt Mierczyk of Military University of Technology on "Lasers in the dual application technologies," and Professor Krzysztof Abramski of Wrocław University of Technology 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, and (6) applications of lasers in industry, medicine and biology, environment protection, military technology and in research.

The 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). The editors of these volumes present the full texts of 60 chosen and reviewed papers by authors affiliated primarily with university-based laboratories.

The symposium chairs and editors would like to thank personally the authors and conference contributors who made these books possible. Special cordial thanks are also due to SPIE for supporting the symposium by undertaking the publication of two proceedings volumes. The Symposium Committee announces with pleasure that the next meeting on Laser Technology is scheduled to be held in Świnoujście in 2015.

**Wiesław L.Woliński**  
**Zdzisław Jankiewicz**  
**Ryszard S.Romaniuk**

