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Tanja Dreischuh
Petar A. Atanasov
Nikola V. Sabotinov
Editors

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Introduction

This volume is a collection of papers presented at the XVIII International Symposium on Gas Flow and Chemical Lasers and High-Power Lasers (GCL-HPL 2010) held in Sofia, Bulgaria from 30 August–3 September 2010. This edition of the traditional biennial symposium was organized by the Institute of Electronics at the Bulgarian Academy of Sciences and was dedicated to the 50th anniversary of the laser invention. The event was financially supported by EOARD, SPIE, the Bulgarian Academy of Sciences and the National Science Fund of Bulgaria, to which the organizing committee expresses deep gratitude.

This was the 18th in a series of symposiums to focus on gas flow, chemical and high power lasers. The scope of the GCL-HPL is broad, including fundamental research, laser development and systems engineering (gas and chemical lasers, solid state, disk and fiber lasers, lasers emitting in UV & VUV region of the spectrum), short pulse amplification, resonators and active optics as well as gas, chemical and high power laser applications in a wide range of fields – laser matter interaction, nanophotonics and microprocessing, propagation, space and sensing. GCL-HPL 2010 brought together scientists and engineers from all over the world to create an event where members of the laser community can meet to exchange ideas, review the latest technologies and achievements, discuss the future directions, and initiate new collaborations and joint research projects. Over 110 scientists from Austria, Canada, China, Czech Republic, France, Germany, Iran, Israel, Italy, Japan, Portugal, Russia, Spain, South Africa, United Kingdom, the United States of America and Bulgaria participated in this edition. The choice of Sofia, one of the oldest cities in Europe, strongly enhanced the friendly and stimulating atmosphere of the symposium.

The GCL-HPL 2010 symposium also provided a meeting place for discussion of senior scientists and young researchers. To encourage and acknowledge excellence in oral and poster student paper presentations, SPIE sponsored three best student paper awards.

The editors of the volume would like to thank the members of the international advisory committee for their great support, as well as the authors and reviewers for their contribution to these proceedings. Thanks also go to the SPIE staff for their invaluable assistance. We hope that readers will find this volume useful and informative and we would like to invite them to take part in the XIX GCL-HPL, which will be held in 2012.

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