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Introduction

The XXII International Symposium on High Power Laser Systems and Applications, (HPLS&A 2018), was held in Villa Mondragone, Frascati, Italy, 9-12, October 2018 and was organized by ENEA. The conference convened a few days after the announcement of the Nobel Prize in Physics, which was awarded to Arthur Ashkin, for his work on optical tweezers able to trap and manipulate living cells by their laser beam fingers and to Gérard Mourou and Donna Strickland, for their work on the generation of high-intensity, ultrashort laser pulses. This event has reignited the attention of the media on lasers and their applications. Let us hope this opportunity will attract young talent to work in this field.

Since 1976, the symposium has provided an international biennial forum to report and review innovative ideas and up-to-date progress and developments in the broad fields of laser systems and their applications. Topics include advances in high-power laser sources, resonators and laser beam control, applications, and novel approaches. Traditionally, the symposium is organized into a single session, thus allowing delegates to attend all oral and poster presentations and encouraging cross-fertilization between laser developers and users.

The above topics were addressed by 51 oral and 27 poster presentations, in a friendly and collaborative atmosphere, facilitated by the splendid scenery of Villa Mondragone. Creative discussions during coffee breaks and lunches allowed attendees to share common interests and begin new collaborations.

While the XXII International Symposium on High Power Laser Systems and Applications is now in the past, the ideas and connections delegates shared will live on, not only through our memories, but via this proceedings volume. Here you will find most of the excellent results presented during the sessions. I am confident they will provide a source of ideas and references to assist in your research efforts.

I would like to thank the delegates for attending the symposium and submitting the papers included in these proceedings. In particular, I heartily thank the ENEA colleagues who formed the local organizing committee for ensuring the symposium ran smoothly. My thanks also to the friends of the international advisory committee for their trust and their help to make the symposiums possible, to the members of the program committee for their valuable advice, to the session chairs for their effective work, and to the colleagues of the review committee who gave of their time to review the submitted manuscripts while maintaining high scientific standards. Finally, I would like to thank my wife Laura and my family, who made it all worthwhile.

Paolo Di Lazzaro