EPJ Web of Conferences **59**, 00001 (2013)
DOI: 10.1051/epjconf/20135900001

Preface

The Seventh International Conference on Inertial Fusion Sciences and Applications was hosted September $12^{th}-16^{th}$ at the Bordeaux-Lac Congress center, organized by the Institut Lasers et Plasmas. It brought together 533 participants from 21 countries, with the common goal of sharing the latest advances in the field of inertial confinement fusion and related areas such as laser, target, and diagnostic developments, beam-plasma interaction and radiative hydrodynamics, high energy density science and high-field physics, and Z-pinches as well as ion accelerator developments. Overall, 151 oral presentations and 286 posters were scheduled during the Conference week. The 186 proceedings collected in this volume underwent a rigorous (and lengthy!) peer-review process for which the Editors are thankful to the many referees it implied, TPC members and external experts alike.

Understandably, the National Ignition Campaign on NIF (Livermore, California) was high in the list of topics discussed during the Conference. Impressive progress and detailed measurements NIF teams, including two-axis VISAR diagnostic on the *Keyhole* platform, polar and azimuthal symmetry control with wavelength separation tuning between cones of beams, higher implosion velocity with Si-doped instead of Ge-doped plastic ablator… However, optimism regarding the short term achievement of ignition on NIF was also tamed by consistent evidence of capsule velocity deficit at the end of the implosion – a situation that the first 1.6 MJ NIF shot, performed during the Conference, would not solve either.

In the meantime, numerous progress in other programs were also reported. The French ignition (LMJ) and petawatt (Petal) projects at CEA/CESTA were reviewed, and Conference attendees had the opportunity to tour both facilities. Advances in the Japanese (Firex), British (Orion), Chinese (Shenguan III) and European (Hiper) projects were reported, including significant new fast ignition results from the Firex team using two beams of the LFEX laser and improved diagnostics. Direct-drive ICF was reported on by American and European groups, with a particular focus on shock ignition. Collisionless shock experiments at the laboratory scale with astrophysical relevance were also found to draw attention from several groups. Finally, a significant number of contributions addressed Inertial Fusion Energy in its various dimensions, from driver technology to target fabrication to blanket study.

The American Nuclear Society Teller Award is traditionally bestowed during IFSA on two key contributors to ICF science. The 2011 recipients were Bruce Remington (LLNL) and Christine Labaune (LULI), acknowledging the impetus they gave respectively to hydrodynamic instability and laser-plasma interaction studies. Together with Keynote and Plenary talks, their proceedings form the first section of this volume. The following 18 sections are classified according to the IFSA 2011 topic list, ranging from the principles of ICF to specific applications of laser-produced plasmas.

On behalf of its various Committees, we are glad to thank again each and every one who helped make IFSA 2011 a success, and look forward to the 8^{th} IFSA Conference in Nara (Japan), in September 2013.

Patrick Mora

Erik Lefebvre

Philippe Labeyrie©