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Preface: Shock Compression of Condensed Matter - 2011

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Preface: Shock Compression of Condensed Matter – 2011

The Seventeenth Biennial International Conference of the APS Topical Group on Shock Compression of Condensed Matter was held at the Renaissance Chicago Downtown Hotel in Chicago, Illinois, USA, from June 26 to July 1, 2011. Chicago was chosen because it is a vibrant metropolis with easy access for attendees from all over the world. The conference provided a wide-ranging forum to exchange ideas and technical information relevant to shock wave loading. The 659 scheduled presentations, many with visionary themes, were organized in 17 topical areas and included contributed (509), invited (37), and plenary (5) lectures, as well as a posters session (108). Theoretical, computational, and experimental results described the physical, chemical, structural, mechanical, and optical response of condensed materials. The invited papers were chosen from many nominations and were scheduled so that it was possible to attend all of them without any conflicts of timing.

Six hundred and twenty-six scientists and engineers from 16 countries registered for the conference, including 89 students from 10 countries, the largest overall attendance in the history of this meeting. The countries represented were Argentina (2), Canada (12), China (24), France (25), Germany (2), Israel (13), Italy (4), Japan (15), Netherlands (1), Portugal (2), Russia (43), Singapore (1), South Korea (3), Spain (1), the United Kingdom (49), and the United States of America (428). Attendance by forty-three of the students was supported in part by the SCCM Topical Group.

The conference entered the age of the smart phone as a conference app was available for iPhone / iPod Touch and Android phones. The free program, which had only been used at three APS meetings earlier in the year, allowed attendees to download the latest program updates, browse the program, and plan the talks they wanted to attend, all from their smart device. We expect some form of app to be a feature of future conferences.

One of the highlights of the conference was a tour of the Advanced Photon Source at nearby Argonne National Laboratory. This tour provided the opportunity to visit a world-class facility for static high pressure sciences, a field closely related to shock physics.

James N. Johnson received the 2011 George E. Duvall Shock Compression Science Award at the conference. He presented a plenary lecture entitled, “The Role of the Gibbs Function in Solid-Solid Phase Transformations Under Nonhydrostatic Stress Conditions,” which constituted one of the five plenary sessions.

The Conference Organizing Committee was:

John P. Borg, Marquette University, Conference Co-Chair
Jennifer L. Jordan, Air Force Research Laboratory, Conference Co-Chair
Tracy J. Vogler, Sandia National Laboratories, Conference Co-Chair
Mark L. Elert, U.S. Naval Academy, Publications Co-Chair
William T. Buttler, Los Alamos National Laboratory, Publications Co-Chair
Sunil K. Dwivedi, Georgia Institute of Technology, Conference Treasurer
Marvin A. Zocher, Los Alamos National Laboratory, International Advisor
Haibo Hu, Institute for Fluid Physics, China, International Advisor
Evgeny Kozlov, VNIITF, Russia, International Advisor
Dana M. Dattelbaum, Los Alamos National Laboratory, Student Outreach Co-Chair
Michael Hopson, Naval Surface Warfare Center, Student Outreach Co-Chair

Sunil Dwivedi, Conference Treasurer, was a virtual fourth co-chair of the Conference. In addition to his efforts to keep the budget under control, he was closely involved in all of the conference planning.

The Technical Program Committee was composed as follows:

Biological Materials - Horacio Espinosa (Northwestern University)
Ballistic Studies - David Lambert (Air Force Research Laboratory)
Polymers and Composites - Clive Sivoir (Oxford University)
Detonations and Shock-Induced Chemistry - Joel Carney (NSWC) / Elizabeth Glascoe (LLNL)

Experimental Developments - Tom Ao (SNL) / Fabrice Llorca (CEA) / Kathy Prestridge (LANL) / Gilles Roy (CEA)
 Energetic Materials - Dan Hooks (LANL) / Richard Lee (NSWC)
 Equation of State - Lorin Benedict (LLNL)
 Geophysics and Planetary Science - Kanani Lee (Yale University) / Seiji Sugita (University of Tokyo)
 High Energy Density Physics and Warm Dense Matter - Michael Desjarlais (SNL)
 Inelastic Deformation, Fracture and Spall - Dan Casem (ARL) / Thibaut de Resseguier (CNRS, Institut Pprime)
 First-Principles and Molecular Dynamics - Ivan Oleynik (University of South Florida)
 Material Science - Ellen Cerreta (LANL)
 Physics and Chemistry at High Pressure - Choong-Shik Yoo (Washington State University)
 Particulate and Porous Materials - William Cooper (AFRL)
 Phase Transitions - Geoff Cox (AWE)
 Spectroscopy and Optical Studies - Evan Reed (Stanford University)
 Special Session on Turbulence at the Meso and Macro Scales - Suhithi Peiris (DTRA) / D. Scott Stewart (University of Illinois)
 Focus Session on High Pressure Strength of Materials - Jim Asay (SNL) / G.T. Rusty Gray (LANL) / Adam Schwartz (LLNL) / Russ Hemley (Carnegie Institute of Washington)
 Poster Session - Eric Herbold (LLNL) / Nicola Bonora (University of Cassino, Italy)

During 2011, the American Physical Society Topical Group Officers were:

Neil K. Bourne, Atomic Weapons Establishment, Chair
 Dana M. Dattelbaum, Los Alamos National Laboratory, Chair-Elect
 Tracy J. Vogler, Sandia National Laboratories, Vice-Chair
 David S. Moore, Los Alamos National Laboratory, Past Chair
 Michael D. Furnish, Sandia National Laboratories, Secretary/Treasurer
 Ellen K. Cerreta, Los Alamos National Laboratory, Member at Large
 Daniel E. Eakins, Imperial College, Member at Large
 Elizabeth A. Glascoe, Lawrence Livermore National Laboratory, Member at Large
 Suhithi Peiris, Defense Threat Reduction Agency, Member at Large
 E. Ray Lamar, Naval Surface Warfare Center, Webmaster

We would like to express our appreciation to the many people who contributed to the success of the conference: the plenary and invited speakers, the session chairs, the authors, the participants, and the members of the Topical Group who nominated invited speakers. Sponsorship for the conference was provided by Los Alamos National Laboratory, Lawrence Livermore National Laboratory, and Sandia National Laboratories. The editors (ME and WB) are especially grateful to those who reviewed the manuscripts, and would also like to thank Sarah Elert for graphic design assistance. The Conference Co-Chairs (JB, JJ, TV) also thank the many who willingly gave their time, talent, support, and encouragement throughout this conference. We thank Tony Zocher for his tireless effort and support of the international participants as well as Dana Dattelbaum and Michael Hopson for arranging the educational outreach. Support for the educational outreach program was provided by the Defense Threat Reduction Agency and Los Alamos National Laboratory. Many of the student participants assisted in the loading of presentations onto the conference computers. Luyang Gao and Annette Wolak at Marquette processed preregistration forms and prepared conference materials. Amy Lucero Seaborn, Amy Rohrbacker, and Megan Judge staffed the registration desk. Vinaya Sathyasheelappa (APS) arranged the one-day abstract sorter's meeting at APS Headquarters and brought the online program and conference bulletin to final form. Bill Reinhart handled arrangements for the company showcase. On behalf of the many conferees and companions who enjoyed the highly successful companions' program and the boat trip on Lake Michigan on Chicago's First Lady, we thank Linn Furnish for developing, organizing and running these programs. Finally, we thank Vicky Cass, Jeff Ferda, and their staff at the Chicago Renaissance for their professional assistance and attention to detail.

MARK ELERT
 WILLIAM BUTTLER
 JOHN BORG

JENNIFER JORDAN
 TRACY VOGLER