

Newsletter of the APS Shock Compression of Condensed Matter Topical Group

Welcome to the sixth issue of the American Physical Society Shock Compression of Condensed Matter Topical Group Newsletter. This quarterly newsletter includes conference announcements, job advertisements, profiles of award winners, obituaries, and articles on the history of the field from the membership. Issues have a revolving Lead Editor, with the current issue being compiled by Dr. Kevin Vandersall. Dr. Eric Brown will serve as the Lead Editor for the next issue, please email comments and contributions at Eric Brown at en_brown@lanl.gov.

Upcoming TGSCCM Election

Colleagues, the Nominating Committee has completed the nomination process for the 2008 election for the Topical Group on Shock Compression of Condensed Matter (TG SCCM). The entire process from the recommendation through selection and to invitation took place from July 14 to September 10. The request for nominations from members of the Topical Group produced a broad response and provided a large number of recommendations, both for the Vice-Chair position and the two of Member-at-Large positions. The Committee is thankful for this very useful input.

The Nominating Committee consisted of:
Kimberly S. Budil (LLNL)
Ronald E. Cohen (CIW-GL)
Zbigniew A. Dreger (WSU) - chair
Jennifer L. Jordan (AFRL)
Suhithi M. Peiris (DTRA) - APS selection

The slate of candidates for this election has been assembled, and we ask for your participation in the upcoming election. The voting will be conducted via e-mail and will be available at the beginning of November.

Zbigniew Dreger
Nominating Committee Chair

Congratulations to Donald Curran, Recipient of the 2009 George E. Duvall Shock Compression Science Award

Please join us in extending our congratulations to Don Curran for having been selected as the 2009 recipient of the APS 2009 George Duvall Shock Compression Science Award. Don Curran was chosen among an outstanding group of candidates for his pioneering contributions to the fundamental understanding of dynamic failure of materials and the development of theories and models of material response.

Donald R. Curran received his Ph.D. in Physics from Washington State University. Following several years of scientific research at the Norwegian Defense Ministry and the Ernst-Mach Institute he joined Poulter Laboratory at SRI International in Menlo Park, California. While at SRI from 1970 to 1997 Don led the Shock Physics and Geophysics Division where he managed programs in developing advanced material models for applications ranging from x-ray effects on space assets to nuclear reactor safety. He also led underground and aboveground tests in experimental and analytical support programs addressing ground shock effects in geologic materials. Don is a Fellow of the American Physical Society; Past Chair of the American Physical Society Topical Group on Shock Compression of Condensed matter; Past member of the DYMAT International Organizing Committee; and co-recipient of the John S. Rinehart Award "for seminal contributions to the understanding and modelling of dynamic fracture, fragmentation, and shear localization." Donald Curran has numerous professional publications and is co-author of three books (Impact Dynamics, John Wiley and Sons, 1982; High Pressure Shock Compression of Solids II, Springer; Spall Fracture, Springer, 2002).

The 2009 Award Selection Committee: Ramon Ravelo (Chair), Malcolm Nicol (Vice-Chair), Dennis Grady ('07 recipient), Gerrit Sutherland, Joe Zaug, Justin Wark

REPORTS ON CONFERENCES OF INTEREST

2009 APS Shock Compression of Condensed Matter

This Conference is planned for June 28 - July 3 at the Gaylord Opryland Hotel, Nashville, TN, and is chaired by William Anderson (LANL), Michael Furnish (SNL) and William Proud (University of Cambridge). In addition to the traditional topical areas, this Conference will include ballistics, dynamic behavior of nano/bio materials, and particulate mechanics. An interesting social and companion program has been laid out to allow an opportunity for conferees to reacquaint themselves with colleagues in the community and for companions to enjoy highlights of the Nashville area. The 12th recipient of the George Duvall Shock Compression Science Award, Don Curran, will present a keynote address. The Gaylord Opryland Resort is a world famous venue that offers many in-house amenities and spectacular indoor gardens, streams, fountains, and waterfalls. In addition, local historical and entertainment offerings are easily accessible. For more information, please visit our website (credit Chris Braithwaite) at:

<http://www.phy.cam.ac.uk/conferences/apssccm2009/>

Technical areas and primary points-of-contact are as follows. Please send suggestions for focus topics or invited talks to these people or to the Conference chairs.

CM: Continuum & Multi-scale Modeling - Mike Winey (WSU)

DC: Detonations & Shock-Induced Chemistry - Laura Smilowitz (LANL)

EM: Energetic Materials - Ruth Doherty (DTRA)

ES: Equation of State - Marcus Knudson (SNL)

ED: Experimental Developments:

(i) Diagnostics - PDV David Holtkamp (LANL)

(ii) Loading techniques - e.g. ICE - Jacques Petit (CEA)

MD: First-Principles & Molecular Dynamics Calculations - Thomas Sewell (U MO)

GS: Geophysics & Planetary Science - Sarah Stewart (Harvard)

HD: High Energy Density Physics/ Warm Dense Matter - Thomas Mattson (SNL)

ID: Inelastic Deformation, Fracture, & Spall - Gennady Kanel (RAS)/Jeremy Millett (AWE)

MS: Materials Science - Philip Rae (LANL)

PT: Phase Transitions - Eric Brown (LANL)

PC: Physics & Chemistry at High Pressure; static and low rate studies - Bill Nellis (Harvard)

SO: Spectroscopy & Optical Studies - Dan Dolan (SNL)

PM: Particulate / Porous Materials - Tracy Vogler (SNL)

BG: Biological / Nanomaterials - M. J. Burchell (Kent)

CP: Polymers/Composites - Dana Dattelbaum (LANL)

BL: Ballistic Studies - Charles Anderson / James Walker (SWRI)

OT: Other topics - Bill Proud / Mike Furnish / Bill Anderson / Jack Wise

Poster Session - Suhithi Peiris (DTRA) / Jennifer Jordan (USAF)

Other members of the Conference committee are:

Treasurer: Jack Wise (SNL)

Publications / Proceedings Editors: Mark Elert (USNA), Billy Buttler (LANL)

International advisor: Tony Zocher (LANL)

Conference Advisor: Jim Asay (SNL/WSU)



The City - Music City, USA. Settled on Christmas Day, 1779. Capitol of the State of Tennessee. Population (2004) City - 595,805, MSA: 1,541,659 Elevation Lowest: 550 ft (168 m) Highest: 1100 ft (336 m) Central Time Zone. Served by 16 Airlines.

The Sights - Outdoor 107 City and County Parks, 7 Municipal golf courses, 9 Greenways, 11 State Parks and 3 National Park Service units within 1 hour. Entertainment, Live music (country, jazz, classical, etc.), Live Theatre, Nashville Zoo. History and Culture - Art Galleries, (Frist Center for the Visual Arts), The Parthenon, Cheekwood Botanical Gardens, The Hermitage (Home of Andrew Jackson), Fort Negley, Stones River National Battlefield

The Venue - Gaylord Opryland Hotel - Largest non-gaming hotel property in the United States. Completely enclosed and climate-controlled complex includes 9 acres of gardens. 10 Restaurants and bars. Two outdoor and one indoor swimming pools. Next to Opry Mills, a 1.2 million sq. ft. entertainment and shopping complex.

2009 APS March Meeting Focus session on Extreme Conditions

Dear Colleagues,

The 2009 APS March meeting will feature a Focus session on Simulations of Matter under Extreme Conditions (17.13.5/19.3.1). A description can be found at the following link:

<http://www.aps.org/meetings/march/focus3.cfm#17.13.5>

While the theme is on simulations, we would also like to encourage experimental talks, especially those that validate or otherwise ground the models in reality.

There is still time to suggest speakers that have done exciting work in rapidly developing and important areas relevant to this session. In particular, we would like to include areas covered in the BES Workshop on Basic Research Needs for Materials under Extreme Environments such as Chemical Stability and Microstructure Stability in Extreme Conditions. More information available at the following link:

<http://www.sc.doe.gov/bes/reports/abstracts.html#MUEE>

For those of you who normally attend the APS March meeting, this focus session may be an excellent forum to present your work.

To nominate someone, feel free to reply directly to us, the session organizers (Jim Belak, belak@llnl.gov and Joel Kress, jdk@lanl.gov), with your candidate's name and contact information, the title of the suggested talk, and a brief justification. (Alternatively, you could use the APS website to submit a nomination; scroll to the top of the above link.)

Thank you very much for your time; we look forward to hearing your suggestions and seeing you next March.

Best regards,
Jim Belak
Joel Kress

2009 SOCIETY FOR EXPERIMENTAL MECHANICS (SEM) International Congress & Exposition on Experimental & Applied Mechanics

Hyatt Regency Albuquerque
Albuquerque, New Mexico USA
June 1-3, 2009

The objective of the symposium is to discuss recent developments in the understanding and modeling of

the high-pressure and shear response of materials. We welcome contributions of basic and applied topics based on experimental, numerical and theoretical approaches. The symposium targets the discussion of recent and current research findings on topics that include, but not limited to:

- Equation of State
- Phase Transitions
- Shock Loading
- Isentropic and Off Hugoniot Loading
- Detonation Properties and Reactive Materials
- Stress-Strength Measurements
- Spall and Damage
- Static Pressure
- Technique Development

Additional details are available at

<http://www.sem.org/CONF-AC-TOP.asp>

Regards,

Darcie Dennis-Koller, Los Alamos National Laboratory,

ddennis@lanl.gov

Tommy Ao, Sandia National Laboratory, tao@sandia.gov

Jeremy Millett, Atomic Weapons Establishment,

Jeremy.Millett@awe.co.uk

DYMAT 2009

The 9th International Conference on the Mechanical and Physical Behaviour of Materials under Dynamic Loading, Brussels, Belgium, September 7-11, 2009, Abstracts Due November 12, 2008. More information at:

<http://www.dymat2009.org/>

FRAGBLAST 9

9th International Symposium on Rock Fragmentation by Blasting, Granada, Spain, September 13-17, 2009. More information can be found at:

<http://www.fragblast.org/index.asp>

NTREM 2009

12th International Seminar on New Trends in Research of Energetic Materials, University of Pardubice, Pardubice, the Czech Republic, April 1-3, 2009. More information located on the web: www.ntrem.com

LWAG 2009

Conference focused on new developments in the context of security and armour systems, held May 18-19, Aveiro, Portugal. Additional details at:

http://www.lightarmour.org/LWAG_2009.html

Recent / Upcoming Publications of Interest

The Detonation Phenomenon

John H. S. Lee
McGill University, Montreal
Hardback (ISBN-13: 9780521897235)
<http://www.cambridge.org/catalogue/catalogue.asp?isbn=9780521897235>

History of Shock Waves, Explosions and Impact

A Chronological and Biographical Reference
Krehl, Peter O.K. 2009, XXII, 1288 p. 1200 illus., 300 in color, Hardcover
ISBN: 978-3-540-20678-1
<http://www.springer.com/physics/mechanics/book/978-3-540-20678-1>

Materials Science: An Intermediate Text

William F. Hosford
University of Michigan, Ann Arbor
Hardback (ISBN-13: 9780521867054)
<http://www.cambridge.org/catalogue/catalogue.asp?isbn=9780521867054>

MATLAB Codes for Finite Element Analysis

Solids and Structures
Series: Solid Mechanics and Its Applications, Vol. 157
Ferreira, A. J. M. 2009, Hardcover
ISBN: 978-1-4020-9199-5
Expected Release: November 2008
<http://www.springer.com/engineering/book/978-1-4020-9199-5>

A special thanks to Steven Walley for suggesting recent book selections!

Job Opportunities:

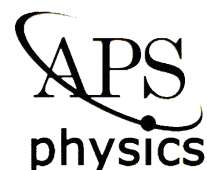
The Department of Energy National Nuclear Security Administration Stewardship Science Graduate Fellowship (SSGF) Program provides outstanding benefits and opportunities to students pursuing a Ph.D. in areas of interest to stewardship science, such as high-energy-density physics, low-energy nuclear science, or properties of materials under extreme conditions. Benefits include full tuition and fees, a stipend, and an allowance for attending conferences or other miscellaneous expenses for up to four years. As part of the program, fellows will complete a 3-month practicum at one of the NNSA laboratories (LANL, LLNL, SNL) in an area related to their field of study. Students may apply during their senior undergraduate year or their first or second year of

graduate study. The on-line application should be available in mid-November. For more information, please see the website at:

www.krellinst.org/ssgf

The Institute for Shock Physics at Washington State University has several positions open for Postdoctoral, Research Scientist, and Research Engineer. Additional details can be found on the web site at:

<http://www.shock.wsu.edu/opportunities.html>



APS SCCM Newsletter Editorial Staff

John P. Borg, Marquette University,
john.borg@marquette.edu

Eric Brown, Los Alamos National Laboratory,
en_brown@lanl.gov

Jennifer L. Jordan, Air Force Research Laboratory,
jennifer.jordan@eglin.af.mil

William Proud, University of Cambridge,
wgp1000@phy.cam.ac.uk

Gerrit Sutherland, NSWC – Indian Head,
gerrit.sutherland@navy.mil

Kevin Vandersall, Lawrence Livermore National Laboratory,
vandersall1@llnl.gov

Tracy Vogler, APS-SCCM Secretary, Sandia National Laboratory,
tjvogle@sandia.gov

This document was prepared as a service to the Topical Group on Shock Compression of Condensed Matter (TGSCCM) community. The opinions of the contributors expressed herein do not necessarily state or reflect those of the American Physical Society and shall not be used for advertising or product endorsement purposes.

Thanks to all who contributed to this Newsletter. Please send any information for the next newsletter to Eric Brown at en_brown@lanl.gov.

Kevin Vandersall
Edition Editor