



American Physical Society / (301) 209-3280 / <http://www.aps.org/units/gsc/cm/>

**Dates of Interest:**

**SCCM  
Conference**  
June 26-July 1,  
2011  
Chicago, IL.

## Message from the Secretary/Treasurer

This newsletter is posted for record, although it is long-delayed. We expect an autumn 2010 version to be published soon.

In the future we hope to offer information of general interest to the community in these newsletters, and possibly on the SCCM website as well. This would include student funding opportunities, upcoming announcements, workshops or recently published papers, conferences attended, positions available and other activities. As you become aware of any such information, please send it to the current Editor or to me. As well, if you might be interested in assisting with future newsletters, please contact me.

The SCCM11 Organizing Committee remains interested in ideas for invited speakers (but not for focus sessions); please see the article on Page 2 of this Newsletter.

Thank you for your help and have a great year!

Mike Furnish (SNL),  
[mdfurni@sandia.gov](mailto:mdfurni@sandia.gov)  
**Secretary/Treasurer**

**Individual  
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## News and Events

### Governance of the Shock Compression of Condensed Matter Topical Group

With a new year comes the election of new officers. With special thanks to our outgoing officers Mark Knudson (Chair) and Tracy Vogler (Secretary /Treasurer), we welcome in our new officers:

**Chair** (1/1/2010 through 12/31/2010)  
D. S. Moore (LANL), moored@lanl.gov

**Chair-Elect** (1/1/20 - 12/31/2010)  
N. K. Bourne, neil.bourne@mac.com

**Vice-Chair** (1/1/2010 - 12/31/2010)  
D. M. Dattelbaum (LANL),  
danadat@lanl.gov

**Secretary/Treasurer** (1/1/10 - 12/31/12)  
M. D. Furnish (Sandia National Laboratory),  
mdfurni@sandia.gov

### 2011 APS Shock Compression of Condensed Matter Topical Conference

*[Note: At the time of release of this newsletter, all focus sessions are set. Suggestions for invited speakers are still welcome!]* The organizing committee would like to invite proposals for special focus sessions as part of the 2011 APS Shock Conference to be held in Chicago, Illinois, June 26-July 1. Proposed topics should be distinct from the topics included in the 2009 conference (see list below). Our hope for these focus sessions is to bring together researchers from different backgrounds (theoretical, numerical, experimental) to discuss a common problem, material, or regime of interest in a manner that wouldn't happen under the typical conference format.

Please send a one page or less proposal outlining the topic and its motivation as well as a short list of potential participants to Tracy Vogler ([tjvogle@sandia.gov](mailto:tjvogle@sandia.gov)) by March 31. Please also include a short biography for each potential organizer.

For further information on the 2011 Shock Conference, please see the conference website at <http://www.marquette.edu/aps2011/>

Tracy Vogler ([tjvogle@sandia.gov](mailto:tjvogle@sandia.gov))  
Conference Co-Chair  
2011 APS Shock Conference

### Topics from the 2011 Shock Conference:

BG: Biological / Nanomaterials  
BL: Ballistic Studies  
CP: Composites and Polymers  
DC: Detonations and Shock-Induced Chemistry  
ED: Experimental Developments:  
    (i) Diagnostics – PDV  
    (ii) Loading Techniques - ICE  
EM: Energetic Materials  
ES: Equation-of-State  
GS: Geophysics and Planetary Science  
HD: High Energy Density Physics/Warm Dense Materials  
ID: Inelastic Deformation, Fracture, and Spall  
MD: First Principles and Molecular Dynamics Simulations  
MS: Materials Science  
PC: Physics & Chemistry at High Pressure - Static and Low Rate Studies  
PM: Particulate / Porous Materials  
PT: Phase Transitions  
SO: Spectroscopy and Optical Studies  
Poster Session  
Special Sessions



View of the Chicago River and the Renaissance Hotel, site of the 2011 APS-GSCCM Conference

### **Imperial College London Institute for Shock Physics**

#### **Staff appointed**

The AWE-supported Institute for Shock Physics has completed its staff-grade appointments. The director of the institute, appointed last year, is Prof Stephen Rose, an expert in laser-shocks and high-speed diagnostics. Dr. William Proud was appointed as reader in shock physics, leaving the Cavendish Laboratory to take up this post, he will concentrate on gas-gun studies and associated diagnostics. Dr Simon Bland and Dr. Daniel Eakins, of Imperial College London and LANL were appointed as lecturers. The ISP is very much a multi-based organisation with the main centre in Imperial College London but strong links to Cranfield University (Shrivenham), University College London with other organisations soon to join. Dr, David Williamson will take over the leadership of the Fracture and Shock Physics Group in the Cavendish Laboratory ,which will also interact with the ISP.

### **Institute for Shock Physics From Static to Dynamic**

The Institute of Shock Physics, Imperial College London held a 2 day meeting in the Royal Society in London on 22-23 February 2010. The event was invitation only, due to the 100 person capacity of the meeting room. The main aim of the event was to bring together those interested in Shock Physics from within the in the UK scientific community. However, there was a strong presence of speakers from outside Britain; from the USA; Rip Collins (LLNL), Cynthia Schwarz (LANL), Marcus Knudson, (Sandia National Laboratory) and John Borg (Marquette University), Russian speakers; Vladimir Fortov and Gennady Kanel from the Russian Academy of Sciences and Israeli was represented by Yehuda Partom, RAFAEL. UK speakers included David Williamson (University of Cambridge), Peter Gould (QinetiQ), Paul MacMillan (University College London), Eugene Gregoryanz (University of Edinburgh) and Gareth Appleby-Thomas (Cranfield University). The ISP-Imperial College was represented by Gareth Collins (Geophysics), Simon Bland (Pulsed Power), and Bill Proud (Plate Impact). This more than covered the title theme of the conference “Front Static to Dynamic”.

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The meeting was opened by Prof. Steve Rose, Director of the ISP while Prof. John Field of the Cavendish Laboratory gave the after dinner speech concentrating on the many aspects of research in the UK in the high-rate area. The meeting was closed with a talk by Ron Winter of AWE, the organization providing the seed funding for the ISP. As this was very much a UK network building activity the organisers thank all those who attended and we hope this provided an opportunity for all.

Interest in attending was high. As a result there will be a meeting, next year at a larger venue and an open invitation to all interested parties, irrespective of organisation or nationality.

A CD of the talks and poster will be produced and copies can be obtained, free of charge, from Sarah Dodman ([s.dodman@imperial.ac.uk](mailto:s.dodman@imperial.ac.uk))

## **Index of all Shock Conference Proceedings**

The index of all shock conference proceedings was updated Jan 2, 2010. Proceedings can be accessed from the Topical Groups web page at:

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

## Conferences



*[Note: Many of these conferences are past as of the press date of this newsletter.]* **16th International Conference on Composite Structures (ICCS/16)**

University at Porto, Porto, Portugal, June 28-30 2011. <http://paginas.fe.up.pt/~iccs16/index.html>

**8th International Conference "New Models and Hydrocodes for Shock Wave Processes in Condensed Matter"**, Paris, France, May 24-28.

<http://www.shock2010.hebergratuit.com>The Symposium Co-Chairs are Laurent Soulard (CEA, [laurent.soulard@cea.fr](mailto:laurent.soulard@cea.fr)) and Marvin Zocher (LANL, [zocher@lanl.gov](mailto:zocher@lanl.gov)).

**Dynamic Aspects of Mechanics of Deformation and Fracture**

International Conference on Computational and Experimental Engineering & Sciences ICCES'10, Las Vegas, USA, March 28 - April 1, 2010.

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

**15th Int'l EML Symposium on Electromagnetic Launch Technology**

Brussels, Belgium, May 17-20, 2010.

[http://www.abal.rma.ac.be/ABAL/Welcome\\_files/EML\\_Call\\_Abstracts\\_1.pdf](http://www.abal.rma.ac.be/ABAL/Welcome_files/EML_Call_Abstracts_1.pdf)

**18th European Conference on Fracture website, Fracture of Materials and Structures from Micro to Macro Scale**, Dresden, Germany, August 30- September 3, 2010.

[www.ecf18.de](http://www.ecf18.de)

**5<sup>th</sup> International Seminar on Deep and High Stress Mining**

Santiago, Chile, October 6- 8, 2010, in, In the Crowne Plaza Hotel.

**ISWI International Conference**, Cambridge in Sept 2010.

[www.imperial.ac.uk/shockphysics/ISWI2010](http://www.imperial.ac.uk/shockphysics/ISWI2010)

**11th International Conference on Fracture and Damage Mechanics (FDM2010)** Nagasaki, Japan, September 20-22, 2010.

<http://fdm.engineeringconferences.net/new/>

**4th International Conference on Advanced Computational Engineering and Experimenting – ACE-X 2010**, Paris, France, July 8-9, 2010.

<http://www.ace-x2010.com/>

**13<sup>th</sup> International Seminar, "New Trends in Research of Energetic Materials"**

University of Pardubice, Pardubice, Czech Republic, April 21 - 23, 2010.

[www.ntrem.com](http://www.ntrem.com)



**DYMAT 19th Technical Meeting 2010**

Dynamic Mechanical Behaviour of Polymers and Composites, Université de Strasbourg, France, Institut de Mécanique de s Fluides et des Solides

December 2 -3, 2010.

<http://www.dymat.org>

**Fourth International Conference on Engineering Failure Analysis**

Churchill College, Cambridge, UK, July 4–7, 2010.

<http://www.icefa.elsevier.com/>

**The 2010 MRS Spring Meeting**

42 technical symposia spanning a broad range of topics that include: functional materials, nanomaterials , energy materials, soft/biomaterials, and childcare grants. A limited number of childcare grants will be available for



those attending the 2010 MRS Spring Meeting & Exhibit. Moscone West and San Francisco Marriott, April 5-9, 2010.

[http://www.mrs.org/s\\_mrs/sec.asp?CID=25555&DID=292646](http://www.mrs.org/s_mrs/sec.asp?CID=25555&DID=292646)

***Seventh International Symposium on Impact Engineering***

(ISIE2010) Warsaw, Poland, July 4-7, 2010.

<http://isie2010.org>.

***37<sup>th</sup> Solid Mechanics Conference***

SolMech 2010, Warsaw, Poland, September 6-10, 2010.

<http://solmech2010.ippt.gov.pl/>

***International Conference on High Speed Forming (ICHSF)***

Hosted by Dr. Glenn Daehn, a professor in the Department of Materials Science and Engineering, Ohio State University, Columbus, Ohio, March 9<sup>th</sup> to 10<sup>th</sup>, 2010.

[www.omi.osu.edu/ichsf](http://www.omi.osu.edu/ichsf).

***Dynamic Aspects of Mechanics of Deformation and Fracture***

International Conference on Computational and Experimental Engineering & Sciences ICCES'10, Las Vegas, USA, March 28 – April 1, 2010

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

***The 29th International Congress on High-Speed Imaging and Photonics***

Iwate Medical University, Morioka, Japan, September 20-24, 2010.

To increase the congress participant, a workshop on Advanced Sensing and Imaging will also be held, September 20-24, 2010 in the same place. The homepage of the 29th ICHSIP will be published on 8th November 2009.

The meeting will be held in Morioka, Cardiovascular Center (8F and 9F) Iwate Medical University.

<http://physics.iwate-med.ac.jp/ichsip29/>

***2010 International High-Power Laser Ablation (HPLA) Conference***

Santa Fe, New Mexico, April 18-22, 2010.

<http://www.usasymposium.com/hpla/>

***14<sup>th</sup> International Conference on Experimental Mechanics***

Organised under the auspice of EurASEM, Poitiers, France, July 4 – 9, 2010

<http://www.icem14.fr/>

***3<sup>rd</sup> International Conference on Design and Analysis of Protective***

Novotel Clarke Quay, 177A River Valley Road, Singapore, May 10-12, 2010.

<http://www3.ntu.edu.sg/CEE/daps2010/>



**ISWI International Conference  
7-10 September 2010,  
Cavendish Laboratory, University of  
Cambridge, UK**

*[Note: This is recorded for the record.]* This meeting will deal with areas relevant to shock both in the **gas and condensed phases**. Subjects will focus on new research areas, which are becoming increasingly relevant to the Shock Community – these include (but are not restricted to) new material types, medical physics, reaction pathways, granular materials and novel diagnostics. Invited speakers will provide keynote addresses in each of these areas. Contributed papers will form the major part of the conference and will be of approximately 20 minutes length. Poster sessions will be timetabled.

The meeting will take place with the collaboration of the Cavendish Laboratory, the Dept of Experimental Physics of the University of Cambridge. The university was founded in 1209. Cambridge is a world cultural centre and a major tourist destination. The Cavendish laboratory has been involved in research leading to 28 Nobel prizes. There are a large number of scientific activities as well as more leisurely pursuits punting, museums and visiting the many ancient colleges which form part of the academic experience.

The conference website -

[www.imperial.ac.uk/shockphysics/ISWI2010](http://www.imperial.ac.uk/shockphysics/ISWI2010) -  
for all documentation and information and  
contacts.

Abstract can be submitted through this site or by directly contacting [sdodman@imperial.ac.uk](mailto:sdodman@imperial.ac.uk). Selected Papers from the meeting will be published in a special edition of the Shock Waves Journal.

**Local Organising Committee** – Dr. W.G. Proud, Dr. D. M. Williamson, Prof. S. Rose, S. Dodman (Cambridge University and Imperial College London)

**International Committee**

Prof. K. Takayama (ISWI, Japan)  
Prof Y. Horie (AFRL/RW, Eglin AFB, USA)  
Dr. L. Chhabildas (AFRL Eglin AFB, USA)  
Dr. D. Williamson (University of Cambridge, UK)  
Prof. S. Rose (Imperial College London, UK)  
Prof. J.E. Field (University of Cambridge, UK)  
Dr. I. Cullis (QinetiQ, UK)  
Dr. E. Buzaud, (CEA, France)  
Dr. W. Cooper (AFRL/RW, Eglin AFB, USA)  
Prof. B.E. Milton (Univ. of New South Wales, Australia)  
Prof. Rabi Ben-Dor, (Ben-Gurion University, Israel)  
Prof. S. Balachander, (University of Florida, USA)  
Dr. K.P.J. Reddy (Indian Institute of Science, Bangalore)  
Prof. Z. Jiang (Institute of Mechanics, CAS, Beijing China)  
Dr. Fan Zhang (DRDCC, Suffield, Canada)

## For the Bookshelf



### Fast Reactions in Energetic Materials

High-Temperature Decomposition of Rocket Propellants and Explosives  
Shteinberg, Alexander S.  
Original Russian edition published by MAIK Phys Mat Lit, Moscow, 2006  
2008, XIV, 202 p. 115

### Shock, Impact and Explosion

Structural Analysis and Design  
Bangash, M.Y.H.  
2009, XLIV, 1366 p. 695 illus., Hardcover  
ISBN: 978-3-540-77067-1

### Kinetics of Phase Transitions

Sanjay Puri, *Jawaharlal Nehru University, New Delhi, India*; Vinod Wadhawan, *Centre for Advanced Technology, Indore, India*  
Summary  
Providing a Price: \$149.95  
Cat. #: 9065  
ISBN: 9780849390654  
ISBN 10: 0849390656

### Rheophysics, The Deformation and Flow of Matter

Patrick Oswald  
*Ecole Normale Supérieure, Lyon*  
Hardback (ISBN-13:  
9780521883627)

### Ab Initio Molecular Dynamics, Basic Theory and Advanced Methods

Dominik Marx  
*Ruhr-Universität, Bochum, Germany*  
Jürg Hutter  
*Universität Zürich*  
Hardback (ISBN-13:  
9780521898638)

### Image Correlation for Shape, Motion and Deformation Measurements. Basic Concepts, Theory and Applications

Sutton, Michael A., Orteu, Jean-José, Schreier, Hubert  
2009, XX, 364 p. 100 illus., Hardcover  
ISBN: 978-0-387-78746-6

### Viscoelastic Materials

Professor Roderic Lakes  
*University of Wisconsin, Madison*  
Hardback (ISBN-13: 9780521885683)

### Computational Methods for Multiphase Flow

Edited by Andrea Prosperetti, *The Johns Hopkins University*  
Grétar Tryggvason  
*Worcester Polytechnic Institute, Massachusetts*  
[View list of contributors...](#)  
Paperback (ISBN-13:  
9780521138611)

### Lightweight Ballistic Composites: Military and Law-Enforcement Applications

Editor(s): Ashok Bhatnagar, *Honeywell International, USA*  
Price: \$279.95  
Cat. #: WP9119  
ISBN: 9780849391194  
ISBN 10: 0849391199

### Rock Fragmentation by Blasting

Proceedings of the 9th Int. Symp. On Rock Fragmentation by Blasting - Fragblast .  
September 9, 2009, Granada Spain.  
Edited by Jose A. Sanchidrian  
Add to Cart  
ISBN: 978-0-415-48296-7



**Blast protection of civil infrastructures and vehicles using composites**

Edited by N Uddin, University of Alabama at Birmingham, USA

Blast Effects on Buildings, 2nd edition

D. Cormie, G. Mays and P. Smith

Price: £ 65.00

ISBN: 9780727735218

**Shock Waves**

26th International Symposium on Shock Waves

Hannemann, Klaus; Seiler, Friedrich (Eds.)

2009, 800 p. 2-volume-set.

ISBN: 978-3-540-85182-0

**Blast Waves**

Series: Shock Wave and High Pressure Phenomena

Needham, Charles E.

2010, Approx. 330 p. 27 illus. in color.

Hardcover

ISBN: 978-3-642-05287-3

**The Science and Engineering of Cutting**

The Mechanics and Processes of Separating, Scratching and Puncturing Biomaterials, Metals and Non-metals. To order this title, and for more information, click here by Tony Atkins, Professor of Mechanical Engineering and Head of Department, University of Reading, UK.

**Guided Explorations of the Mechanics of Solids and Structures**

Series: Cambridge Aerospace Series

James Doyle. Purdue University, Indiana

**DISLOCATIONS IN SOLIDS, 15**

John Hirth, Hereford, AZ, USA

Ladislav Kubin, Laboratoire d'Etude des Microstructures, CNRS-ONERA, Chatillon Cedex, France

## Opportunities

### **2010 AFRL Munitions Directorate Student Summer Engineering Program.**

The Eglin Civilian Personnel Office is accepting applications for positions in the AFRL student summer engineering program. Positions available under this program are designed to expose college students pursuing a degree in science/mathematics/engineering. Applications can be picked up from your school counselor's office or Civilian Personnel, Bldg 210, Rm 210. Applications will be accepted 1-12 Mar, 0800-1500, Mon-Fri. Mailed applications must be postmarked by 12 Mar. Students should be enrolled at least part-time in a college curriculum in a science/mathematics/engineering discipline. For more information call Ms. Owens, 2-5341. (96 FSS/FSMC, Ms. Beal, 2-6251)

### **2010 AFRL Munitions Directorate High School Apprenticeship Program (HSAP).**

Applications are being accepted from high school students for this program. Eligibility and application requirements can be found at <http://www.eglin.af.mil> by selecting Eglin Units and Air Force Research Laboratory Munitions Directorate. Applications will be accepted only IAW the procedures outlined in the eligibility requirements. For more information call Mr. Deiler, 3-1919. (96 FSS/FSMC, Ms. Beal, 2-6251)

## Obituaries

**In Memory of TMS Fellow John Gilman,  
1925–2009**

*Editor's Note: This tribute was adapted from a submission by Marc Andre Meyers, University of California, San Diego La Jolla, and Stephen Walley, University of Cambridge.*



*Photograph courtesy of the Minerals, Metals, and Materials Society*

John Joseph Gilman passed away on September 10, 2009. He was a formidable thinker and an important figure in Materials Science, to which he contributed for sixty years, his first paper being published in 1949, the last ones still in press. He had an outstanding career and made seminal contributions to dislocation theory, elasticity and plasticity in crystals, radiation damage, fracture, fatigue, shock and detonation phenomena, and the theory of research management. His inquisitive mind sought original approaches to a great number of problems, and this can be exemplified by a recent paper (just published in *Journal of Volcanology and Geothermal Research*) in which he proposed a new theory for the formation of the basalt columns seen in the shores of the United Kingdom and Jeju Island, and other places like Yellowstone. He hypothesized that constitutional supercooling created compositional fluctuations that led to the formation of the massive columns with hexagonal cross sections.

His career straddled academia and industry. His industrial work started at Crucible Steel Company of America and continued at the General Electric Research Laboratory, where he carried out, with W. G. Johnston, the experiments which for the first time laid down the foundations of dislocation dynamics. This paper (*Journal of Applied Physics*, 30(1959) 129) has received over 1000 citations and is one of the classics of Materials Science and Engineering.

He joined Allied Chemical Corporation where he founded the Materials Research Center and directed a broad effort which resulted in the development of the technology to produce metallic glass foil on an industrial scale. He was also Manager of Corporate Research at Standard Oil Company (Indiana). His academic career was carried out at several universities: Illinois Institute of Technology, Rensselaer Polytechnic Institute, Brown University, University of Illinois, and Columbia University. He spent the last years of his life at the University of California, Los Angeles, and remained active until his death.

A number of recognitions were bestowed on him throughout his career, the most prestigious being election to the National Academy of Engineering. Other accolades include the R. W. Raymond Award from AIME, the A. H. Geisler Award from ASME, the Champion Mathewson Gold Medal of AIME, the Campbell Memorial lecture, and the Zay Jeffries Lectures from ASM. He was a fellow of ASM, APS and TMS. He received his BS in Mechanical Engineering from the Illinois Institute of Technology and his PhD in Metallurgy from Columbia University. He will be remembered by us as an original thinker, a dogged debater, an iconoclast, and, above all, a loyal friend whose love and dedication to Materials Science remained vibrant until the end.

September 29, 2009

**American Physical  
Society**

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We're on the Web!

See us at:

**[www.aps.org/units  
/gsccm/](http://www.aps.org/units/gsccm/)**

**EDITORIAL STAFF*****CHANGES TO THE EDITORIAL TEAM***

Welcome to the new editors:

Sunil Dwivedi (U. of Florida)  
Eric Herbold (AFRL-Eglin)  
Eric Chisolm (LANL)

Our full thanks to our departing editors: Eric Brown and  
Jennifer Jordan

Our Current Editors are:

Sunil Dwivedi, [dwivedi@reef.ufl.edu](mailto:dwivedi@reef.ufl.edu)

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This newsletter edited by  
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Mike Furnish, Sandia National Labs, Albuquerque NM USA  
Sunil Dwivedi, University of Florida, Shalimar FL USA

The [APS Topical Group on Shock Compression of Condensed Matter](#) (GSCCM) was founded in 1984 to promote the development and exchange of information on the dynamic high-pressure properties of materials. The Topical Group sponsors biennial technical meetings on shock compression and detonation physics research, including experimental, theoretical and computational studies, and new experimental methods and developments

