

H · V · I · S

H Y P E R V E L O C I T Y I M P A C T S O C I E T Y

INSIDE THIS ISSUE

- HVIS Board of Directors Members & Officers
- HVIS 2010 Plans and Organizing Committee
- Committee Activities Since HVIS 2007
- Make Plans for HVIS 2010!
- Alex Charters Student Scholars
- Call for Nominations
- News From Our Members

We want to hear from you regarding HVI-related news in your life.

Send news to:

*Publications Committee Chair
Bill Schonberg
wschon@mst.edu*

WELCOME FROM THE PRESIDENT

Dear Colleagues and Society Members,

Welcome to our Summer / Fall 2008 Newsletter!

As new HVIS-President, I would like to greet both old and new members, inform you about some organizational news, and extend my sincere thanks to several society members who have made significant contributions to our organization.



Tim Holmquist

Here is what you will find in this newsletter:

- What are the Committees of the Society, and what are their responsibilities
- Who are the BoD members and officers through HVIS2010
- Who are the Committee Chairs through HVIS2010
- Some interesting information about HVIS2007
- Some information about the next Symposium, HVIS2010
- A list of the Alex Charters Student Scholars (ACSS) from HVIS2007
- Information about the next ACSS competition

David Dickinson, Leonard Wilson and the team led by Cathy Quinn did a fantastic job in chairing and organizing the HVIS2007 Symposium in Williamsburg. I would also like to thank Bill Reinhart and Masahide Katayama for co-chairing the exhibits, Mike Hopson and Donna Reedal for co-chairing the Poster Sessions, Andy Piekutowski for serving as the Conference Treasurer, and Lalit Chhabildas and Bill Schonberg for serving as the Technical Committee Co-Chairs. Without the support of these volunteers, it would not be possible to hold a Symposium. Thanks again to all who helped make the Symposium such a great success!

The conclusion of another Symposium also saw the departure of several Board Members whose terms have concluded. I would like to thank Stephan Bless, Lalit Chhabildas, Eberhard Schneider, Bill Schonberg and Dennis Orphal for the dedication, leadership and guidance they provided throughout their term. They will be missed.

Lastly, I am very grateful to all HVIS Members who were able to attend HVIS2007, and I look forward to seeing you all in April 2010 for HVIS2010 in Freiburg, Germany.

Sincerely yours,
Tim Holmquist

COMMITTEE CHARGES



H · V · I · S

AND REPORTS

AWARDS COMMITTEE

The Awards Committee administers awards on behalf of the Society in recognition of distinguished service and activity in the field of hypervelocity impact. A Best Paper Award and the Distinguished Scientist Award are presented at every Hypervelocity Impact Symposium.

The Distinguished Scientist Award is given to a single individual or to a research team of two or more individuals for significant and lasting contributions to the field of hypervelocity science. The award consists of a plaque citing the accomplishments of the award winner and a monetary remuneration set by the Board of Directors.

Formal letters of nomination are now invited from the HVIS Membership and anyone who has been involved in hypervelocity impact science and engineering. In preparing the letter of nomination, which should include supporting information about the candidate, nominators should include supporting information about the candidate, address the candidate's technical recognition within the community, the importance of their work and its contribution to hypervelocity science and their personal contribution and service to the Society.

Previous recipients of this award are:

1989:	Alexander C. Charters
1992:	Alois J. Stilp and Volker Hohler
1994:	James R. Asay
1996:	Burton G. Cour-Palais
1998:	Hallock F. Swift
2000:	Charles E. Anderson, Jr.
2003:	Dennis L. Orphal
2005:	Lalit C. Chhabildas
2007:	Gordon R. Johnson

Written nominations can be emailed to Lalit Chhabildas (the Chair of the Awards Committee) at the following email address: lalit.chhabildas@eglin.af.mil. The committee would like to see the widest participation from the Membership in nominating the Distinguished Scientist that recognises the talents of researchers across the world. The closing date for nominations is 1 August 2009.

The Best Paper Award recognizes the best paper presented at a Hypervelocity Impact Symposium and is given at the start of the meeting. The selection criteria are:

- Originality of Research
- Difficulty of Research
- Importance of Research
- Excellence of the Written Paper

The selection of the best paper award will be made following the HVIS2010 manuscript review meeting. If you have any queries about this award, please do not hesitate to contact the Awards Committee Chair.

EDUCATIONAL OUTREACH COMMITTEE

The Educational Outreach Committee administers the HVIS Alex Charters Student Scholar Program, whose purpose is to provide travel reimbursement support for students to attend the Hypervelocity Impact Symposia. Reimbursement is provided for transportation and lodging during attendance at Symposia up to a limit specified by the Board of Directors. Alex Charters Student Scholars are provided complimentary registration and a copy of the proceedings, and are scheduled for a short introductory meeting with the HVIS Board of Directors and the Educational Outreach Committee members at the Symposium. This program is aimed primarily at graduate students who are enrolled in an academic institution at the time of the conference, although currently

enrolled undergraduate students may also apply. The nomination consists of a letter of recommendation, on University letterhead, from the student's academic advisor.

The committee is currently soliciting nominations for the HVIS2010 Alex Charters Student Scholars Program. A copy of the Call for Nominations can be found elsewhere in this newsletter. Society members are invited to post the call for nominations and to encourage eligible students to apply, through their academic advisors, as detailed in the Call for Nominations. Applications go to Sikhanda Satapathy, the Chair of the Awards Committee, at the following address:

Dr. Sikhanda Satapathy
Institute for Advanced Technology
The University of Texas at Austin
3925 W. Braker Lane, Suite 400
Austin, Texas 78759

MEMBERSHIP COMMITTEE

The primary responsibility of the Membership Committee is promoting membership in the Society. The Committee also has responsibility for ensuring that membership dues are collected each year and for keeping the Secretary-Treasurer informed of the current membership of the Society. In recent months, the Committee has been working on a detailed statistical analysis of previous conference attendances. A report of the results gleaned from this exercise can be found in an upcoming issue of this newsletter. The Committee plans to work closely with the HVIS2010 Organizing Committee to better gather and use membership data.

NOMINATIONS COMMITTEE

The Nominations Committee is responsible for nominating candidates for election to the Board of Directors of the Society. Diversity on the Board of Directors is encouraged with respect to such criteria as country of origin, organization or employment, gender, race or ethnicity, and area of specialization in the general area of hypervelocity impact (i.e., space shielding, high pressure equation of state measurements, launcher technology, etc.). It is desired that the Board of Directors reflect and represent the membership and interests of the Society to as great a degree as possible with a limited number of members.

PUBLICATIONS COMMITTEE

The Publications Committee assists in the preparation and dissemination of materials for the benefit of the Society. The Publications Committee Chair serves as editor and publisher the HVIS Newsletter and is responsible for compiling the proceedings of the Symposia.

SITE SELECTION COMMITTEE

The Site Selection Committee is charged with developing prospective hosts for future Symposia. If you or your organization is interested in hosting a Symposium, please contact the Dr. Charles Anderson, Jr, the Site Selection Committee Chair. Charlie can be contacted by email at canderson@swri.edu or by phone at 210-522-2313. We are always on the lookout for new locations and organizations to host our Symposia!

GET INVOLVED!

If you would like to participate on any of these Committees, please contact the appropriate Committee Chair as listed. This is your Society ... we welcome and encourage your participation!

HVIS Board of Directors Members and Officers

President

Tim Holmquist
timothy.holmquist@swri.org

Past-President

Michel Lambert
michel.lambert@esa.int

Secretary/Treasurer

David Dickinson
NSWC / Dahlgren Division

Member

Charlie Anderson
canderson@swri.edu

Member

Frank Schäfer
frank.schaefer@emi.fraunhofer.de

Member

James Walker
james.walker@swri.org

Member

Leonard Wilson
NSWC / Dahlgren Division

HVIS Committee Chairs

Awards

Lalit Chhabildas
lalit.chhabildas@eglin.af.mil

Educational Outreach

Sikhanda Satapathy
sikhanda@iat.utexas.edu

Membership

Donna Reedal
NSWC / Dahlgren Division

Nominations

Gunnar Recht
grecht@ara.com

Publications

Bill Schonberg
wschon@mst.edu

Site Selection

Charlie Anderson
canderson@swri.edu

HVIS 2007 Alex Charters Student Scholars

The following is a list of students who were selected as Alex Charters Student Scholars for the 2007 Hypervelocity Impact Symposium.

Please remember that these students and others like them are the future of our profession and our Society. The Board of Directors and the Program Selection Committee work very hard to send as many deserving students as possible to our Symposia. If you or your organization wish to get involved by sponsoring qualified students or if you know about funding opportunities that can be leveraged to secure additional support for deserving students, please contact the Committee Chair ... the Society can always use additional financial support for this program!



2007 ALEX CHARTERS STUDENT SCHOLARS

NAME	INSTITUTION	COUNTRY
Shannon Ryan	Ernst-Mach-Institute	Germany
April Bohannon	University of Texas at Austin	United States
Katarina Mikjovic	The Open University	United Kingdom
Alberto Betella	Università degli Studi di Padova	Italy
Brooke Myers Corbett	University of Denver	United States
Murat Buyuk	George Washington University	United States
Robert J. Moore	University of Louisiana.	United States
Nicholas Chambers.	Mississippi State University.	United States
Tomoya Nakamura.	Kyushu Institute of Technology	Japan
Kazunori Ohkubo.	National Defence Academy	Japan
Mark Dickey.	Mississippi State University.	United States



ALEX CHARTERS STUDENT SCHOLARS PROGRAM CALL FOR NOMINATIONS

The Hypervelocity Impact Society is pleased to announce a call for nominations for the Alex Charters Student Scholars Program. This program provides partial travel reimbursement support to selected students for attendance at the 2010 Hypervelocity Impact Symposium. Students are selected through a competitive evaluation of nominations submitted by their academic advisors. The symposium will be held the week of April 11, 2010 at the Fraunhofer Ernst-Mach-Institute in Freiburg, Germany.

ELIGIBILITY

Students enrolled in an academic institution at the time of the conference and interested in hypervelocity impact phenomena are eligible for nomination to the Alex Charters Student Scholars Program. This program is aimed primarily at graduate students, although undergraduate students may apply.

AWARD PACKAGE

Students selected as Alex Charters Student Scholars will receive travel reimbursement support for attendance at HVIS 2010 (transportation and lodging expenses only), up to a limit of one thousand dollars (US) per student. Alex Charters Student Scholars will receive complementary conference registration and a copy of the conference proceedings.

NOMINATION PROCEDURE

The nomination must be submitted by the student's academic advisor, on the letterhead of the academic institution, by mail to the postal address shown below under "Schedule". The nomination is limited to a maximum of three pages, and must include the following items: (1) name, address, email address, and telephone number of both the student and the advisor, (2) a brief overview of the student's academic background and record, (3) a description of future academic work to be pursued by the student, and (4) a discussion of why the symposium would be helpful to the student. Nominations submitted by electronic mail or exceeding the three page limit will not be considered.

SCHEDULE

The nominations must be received not later than July 31, 2009 at the mailing address shown below. Announcement of the Alex Charters Student Scholars for HVIS 2010 is expected to occur six (6) months prior to the start of the conference.

Dr. Sikhanda Satapathy
Institute for Advanced Technology
The University of Texas at Austin
3925 W. Braker Lane, Suite 400
Austin, TX 78759

Alex Charters Student Scholars will be selected based on a review of the nominations by the HVIS Educational Outreach Committee. Questions on the program may be directed to the committee chair, Dr. Sikhanda Satapathy (sikhanda@iat.utexast.edu).

• PLEASE PRINT AND POST THIS PAGE •

HVIS 2007 – WHAT A SYMPOSIUM!!!

The Hypervelocity Impact Society is devoted to the advancement of the science and technology of hypervelocity impact and related technical areas required to facilitate and understand hypervelocity impact phenomena. Topics of interest include experimental methods, theoretical techniques, analytical studies, phenomenological studies, dynamic material response as related to material properties (e.g., equation of state), penetration mechanics, dynamic failure of materials, planetary physics and other related phenomena.

The objectives of the Society are to foster the development and exchange of technical information in the discipline of impact phenomena, promote technical excellence, encourage peer review publications, and hold meetings on a regular basis. It was sometime in 1985, and partly in response to the Strategic Defense Initiative (SDI, also often referred to as the STAR WARS) that a small group of visionaries decided that a conference or symposium on hypervelocity science would be useful and began the necessary planning. A major objective of the first Symposium was to bring the scientists and researchers up to date by reviewing the essential developments of hypervelocity science and technology between 1955 and 1985.

The 2007 Hypervelocity Impact Symposium (HVIS 2007) was the tenth in the “modern” series and was held September 24–27, 2007 at the Williamsburg Lodge in Williamsburg, Virginia. All the papers presented at HVIS 2007 were peer reviewed and are being published as a special volume of the archival journal *International Journal of Impact Engineering*. The nine previous HVIS proceedings contain nearly 8,000 pages of peer reviewed



hypervelocity research articles. HVIS 2007 followed the same high standards and its proceedings will add to this enduring body of work.

Total attendance at HVIS 2007 was 180 from over 15 countries from around the world, which included 11 students who received “Alex Charters Student Scholarships” (ACSS) of up to \$1000 to help pay for travel expenses. In addition, these students also received

- complementary registration (\$900 per student);
- admission to all technical sessions (54 oral and 19 poster papers were presented);
- admission to all commercial exhibits;
- admission to all social functions including meeting breaks, buffet breakfasts, lunches, registration reception, banquet, and business luncheon; and,
- full membership in the Hypervelocity Impact Society.

In addition to the ACSS students, 9 other students attended and were given the reduced registration rate (\$450) for students. All students will receive the special volume of the archival journal *International Journal of Impact Engineering* that will contain the proceedings of the symposium.

Nearly 150 abstracts were initially received by the Society for presentation consideration. The Technical Committee recommended 129 abstracts for further consideration, and 89 papers were subsequently received. These manuscripts were peer-reviewed for publication in the *Journal*; as a result of the review, only 76 papers were ultimately accepted for presentation at HVIS 2007 and for publication in the *Journal*.

Following the tradition that was started in 1989, the opening keynote address was given by the recipient of the Society's 2007 Distinguished Scientist Award, Dr. Gordon R. Johnson. Gordon's talk was entitled,

"Numerical Algorithms and Material Models for High-Velocity Impact Computations." Plenary talks leading off the other days of the Symposium were given by Mark Boslough of Sandia National Laboratories (*Low-altitude Airbursts from Small Asteroid Impacts*), Rebecca Brannon of the University of Utah (*To Question What is Known... A Survey of Tenuous Assumptions in the Solid Mechanics of High-Rate Fracture and Failure*), and by Peter Schultz of Brown University (*Probing Planetary Surfaces with Hypervelocity Impacts*).

The Hypervelocity Impact Society is grateful for the support provided by the Army Research Office, the Naval Surface Warfare Center, the Fraunhofer / Ernst Mach Institute, the Institute for Advanced Technology, Sandia National Laboratories, and the Southwest Research Institute. The support provided by these organizations allowed for active and meaningful participation by the students and all attendees, and helped ensure the overall success of the symposium!



SOCIETY AWARDS

According to the Society's Constitution,

"The Board of Directors may establish an Awards Committee to administer awards and recognition for service to the field of hypervelocity impact. In general, an award for best paper and the Distinguished Scientist Award are presented every two to three years at an HVIS meeting."

Here is some more information about these two important awards and how they are determined and administered.

DISTINGUISHED SCIENTIST AWARD

This award is given to a single individual or to a research team of two or more individuals for significant and lasting contributions to the field of hypervelocity science. The award consists of a plaque citing the accomplishments of the award winner and a monetary remuneration set by the Board of Directors. The recipient also becomes a lifetime member of the Society.

The process for selection is based on a list of candidates that has been generated by members of the Board of Directors and by the Awards Committee. The Chair of the Awards Committee also solicits input from the HVIS membership at large. This can be done through a formal mailing or through the HVIS Newsletter and is typically done about a year before the award is made. Each nomination must consist of a formal letter of nomination with supporting information about the candidate.

Once a complete set of candidates is identified, the Awards Committee goes through several rounds of voting to identify the winner. The criteria for selection include:

- technical recognition;
- importance of work;
- scope of work;
- current work and level of activity; and,
- service to the Society



The selection of the Distinguished Science Award recipient is typically completed at least three months prior to the next HVIS meeting in order to give the recipient sufficient time to prepare an acceptance keynote speech at the Symposium.

BEST PAPER AWARD

An award for the best paper presented at the Hypervelocity Impact Symposium and published in the proceedings is also given at each Hypervelocity Impact Symposium. The selection criteria for this award are:

- originality;
- difficulty of research;
- importance of research; and,
- excellence of the written paper.

Candidates for the Best Paper Award are nominated by the Chairs of the technical sessions to be held at the upcoming Symposium. This is typically done at the manuscript review meeting. The nominations are presented to the Awards Committee for final selection. The Committee members rank order each of the nominees and identify a final selection for the Best Paper Award. Once a selection is made, the Society President is notified for concurrence, but the authors of the paper are not notified until the Award is actually announced at the Symposium.

“The Board of Directors may establish an Awards Committee to administer awards and recognition for service to the field of hypervelocity impact. In general, an award for best paper and the Distinguished Scientist Award are presented every two to three years at an HVIS meeting.”



Welcome to Freiburg and the 2010 Hypervelocity Impact Symposium!

The excitement is growing!

Fraunhofer / EMI is proud to be the host of the 11th Hypervelocity Impact Symposium! It will be held in Freiburg im Breisgau, Germany at «Konzerthaus Conference Center» during April 11–15, 2010.

Freiburg is the perfect place for hosting the 11th Hypervelocity Impact Symposium: the city combines living traditions and the latest ecological thinking through high-tech research at worldwide renowned institutions, including a distinguished university and 5 Fraunhofer and Max-Planck Institutes. The University of Freiburg, with its large Faculty for Applied Sciences and R&D institutes, comprises about 20% of its total population of 200,000. Naturally and beautifully landscaped, Freiburg is the sunny capital of the Black Forest, is at the center of Europe, and is culturally cosmopolitan by being close to the French and Swiss borders.

The Hypervelocity Impact Symposium is a biennial event that is dedicated to enabling and promoting an understanding of the basic physics of high velocity impact and related technical areas. This international event provides a forum for researchers to share and exchange a wealth of knowledge through oral and poster presentations, and commercial exhibits. All papers presented at the symposium will be published in the conference proceedings, with a subset of the articles — as recommended by the Technical Committee following peer review — will be published in a special issue of the *International Journal of Impact Engineering*.



Photos © FWTM/Raach

PLANNED TOPICS INCLUDE:

- Hypervelocity Phenomenology Studies
- High Velocity Launchers and Diagnostics
- Spacecraft Meteoroid/Debris Shielding and Failure Analyses
- Spacecraft Shielding
- Spacecraft Studies Space Debris Environment
- Material Response (including EOS)
- Fracture and Fragmentation
- High Velocity Penetration Mechanics and Target Response
- Armor / Anti-armor
- Impact and Penetration
- Analytical and Numerical Techniques
- Asteroid Impact and Planetary Defense Technology
- Penetration Mechanics of Shaped Charges and EFPs



The 11th Hypervelocity Impact Symposium

Photos © FWTM/Raach

«KONZERTHAUS CONFERENCE CENTER»

The «Konzerthaus Conference Center» is conveniently located 5 to 10 minutes from the historic center of Freiburg and situated next to the main train station. It is a modern conference center, and boasts an inspiring architecture. The technical sessions will take place in the “Round Hall”, which can accommodate up to 290 participants and is furnished with the full suite of modern technical equipment that would be needed for any conference. Commercial Exhibits will be on display in the exhibitors’ area, which has up to 230m² of exhibit space next to the Round Hall.

COMMERCIAL EXHIBITS

Commercial Exhibits will be on display during the entire symposium giving attendees ample time to meet with company representatives. There will also be an opportunity during the symposium for the representatives to provide a brief oral overview. Companies interested in exhibiting should look for the Commercial Exhibit link on the symposium web page.

COMPANION PROGRAM

The companion program will cover many interesting activities, as Freiburg and the southwestern part of Germany are rich in tourist highlights. Freiburg’s historic center with the “Münster” and many other historically significant buildings as well as shops and museums is highly inviting for a city ramble. The famous “Freiburger Bächle” —the city’s small medieval canals — bestows a particular charm upon the beautiful city center with a number of restaurants, street cafés and shopping facilities. Numerous museums and theater programs add to the city’s cultural variety.

Because of the city’s central position in the Black Forest and its close proximity to France and Switzerland, there are opportunities for a number of day-trips. The mountains “Schauinsland” and “Feldberg” close by as well as the Rhine Valley and its vineyards which lend themselves for hiking and biking tours. A number of impressive castles are also found in this region: Castle Rötteln near Lörrach and the “Haut Koenigsbourg” in Alsace are both interesting places for excursions. Lazy relaxation can be enjoyed in big hot spring baths like the Caracalla SPA in Baden-Baden or the Vita Classica in Bad Krozingen.

Roller coasters and other attractions in the theme park “Europa Park” in close vicinity and offer fun and amusement for the entire family. Strasbourg (home of the European Parliament), Colmar’s picturesque Little Venice in neighbouring France, and Basel, with its famous museums and varied cultural scene in Switzerland, are also suitable day-trip destinations.

Watch for additional information on the symposium website!

SYMPOSIUM CHAIRS

Frank Schäfer
Fraunhofer EMI (Ernst-Mach-Institute)
Phone: +49 (0) 761 / 27 14-421
E-mail: frank.schaefer@emi.fraunhofer.de

Stefan Hiermaier
Fraunhofer EMI (Ernst-Mach-Institute)
Phone: +49 (0) 761/2714-395
E-mail: stefan.hiermaier@emi.fraunhofer.de

SYMPOSIUM COORDINATOR

Birgit Bindnagel
Fraunhofer EMI (Ernst-Mach-Institute)
Phone: +49 (0) 761 / 27 14-366
E-mail: birgit.bindnagel@emi.fraunhofer.de

CONTACT INFORMATION

Web: www.HVIS.org
E-Mail: HVIS2010@emi.fhg.de

Membership Benefits

Didja Know ...?

... that as a member of the Society, you receive two important members-only benefits?

The first is access to the DTX Ballistics Database that is provided only to Society members. The first distribution of the DTX database was made following HVIS2003; an updated version was distributed to all Society members in April 2007. The searchable database consists of titles, authors, affiliations, abstracts, and citation of all International Ballistic Symposia papers, all Hypervelocity Impact Symposia papers (including the original symposia), and the 1969 AIAA symposium. The latest distribution contained the abstracts of 3668 papers from 16 hypervelocity impact symposia and 22 international ballistics symposia!

The second is an electronic copy of all of the unclassified papers in the original series of 8 hypervelocity impact symposia, beginning with the RAND Symposium in 1955 and ending with the 1969 AIAA hypervelocity impact symposium. These papers are a treasure trove of facts, figures, data, and lots of information on experimental techniques, analytical models, early numerical analyses, etc. They trace the development of the field of hypervelocity impact from its infancy through what can be thought of, perhaps, as early adolescence. These papers provide insights and information that heretofore were nearly impossible to obtain ... and now you, as members of the Society have access to all of it with just the click of a mouse!

Naturally, the expenses associated with preparing these archives are non-trivial. Your membership dues contributed, in part, to covering the costs of preparation, indexing, mailing, etc. We hope that you will find these archives enjoyable, and useful to you in your work!