



HYPERVERLOCITY IMPACT SOCIETY

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NEWSLETTER

FROM THE PRESIDENT

It is a pleasure to address you from the first issue of the HVIS Newsletter. The Newsletter will be issued on a regular basis to keep you informed of developments in hypervelocity research throughout the international community. Our thanks go to Dr. Charles E. Anderson, Jr., for editing and publishing the Newsletter.

There have been several developments in the Hypervelocity Impact Society since the last symposium. In addition to the continuing committees which are listed elsewhere in the Newsletter, we have added three new committees. These include an Educational Outreach Committee, chaired by Dr. Gordon Johnson, Mr. Bill Isbell, and Dr. Peter Schultz, to encourage more university and student participation; an International Advisory Board, chaired by Dr. Alois Stilp and Mr. Bill Isbell, to promote broader international involvement, and a Publication Committee, chaired by Dr. Charles Anderson, to edit and publish the proceedings of the HVIS Symposia and the HVIS Newsletter.

Preparations for the 1994 HVIS to be held in Santa Fe, New Mexico, October 16-16, 1994, are proceeding very rapidly. We received a record 183 abstracts for publication at the Symposium, with almost a third of those from countries outside the U.S. The abstracts that were selected represent a broad and interdisciplinary range of topics, which should result in a very exciting symposium. We have also arranged three exciting plenary talks, including a presentation of results from the Shoemaker-Levy comet impact with Jupiter by Dr. Gene Shoemaker; a discussion of shock-wave methods to aid the development of advanced x-ray lithography for semiconductor applications by Dr. Timothy Trucano; and a discussion of combined gun and rocket technology for launching payloads into low earth orbit by Dr. John Hunter.

Registration materials are now being prepared and will be sent to all who have expressed interest in attending the 1994 HVIS. I hope to see you there.

Jim Asay
President

THIS ISSUE'S FEATURE FACILITY OVERVIEW

Current Material Research at EMI

The research program of the Institute concentrates on the simulations and analysis of high speed mechanical and thermodynamic processes. It involves the following areas of work:

- Interior ballistics
- Terminal ballistics and impact physics
- Fluid dynamics
- Detonics
- Safety technology
- High speed measurement techniques.

Within these areas, there arise many needs to study material properties and behavior under high dynamic loads. Present investigations are concerned with the study of metals, ceramics, composite materials, glass, minerals, and concrete with respect to:

- equation of state
- Hugoniot data
- shock wave propagation
- elastic-plastic response at high strain rates ($10^3 \text{ s}^{-1} < \dot{\epsilon}, 10^7 \text{ s}^{-1}$)
- fracture mechanics
- microstructural effects under shock loading
- quasi-static material testing ($\dot{\epsilon} < 10^{-1} \text{ s}^{-1}$)

The main experimental methods are planer plate impact, instrumented (reverse) Taylor anvil, and split-Hopkinson bar tests. All methods are supported by:

- VISAR techniques
- stress and strain gage application
- flash X-ray diagnostics
- high-speed photography
- SEM and optical microscopy
- X-ray microanalysis.

The test facilities permit soft sample recovery for post-test analysis or post-loading material investigations.

Dr. A. J. Stilp
Fraunhofer-Institut für Kurzzeifdynamik
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Eckerstraße 4, 79104 Freiburg/Br.
Germany

NOTE FROM THE EDITOR

Journal Subscriptions

As a service to our membership, we have negotiated a special subscription price for the *International Journal of Impact Engineering*. The Journal is now being published six times a year. The subscription cost for HVIS members is \$85.00 for 1994; this is approximately one-third the regular subscription costs. If you are not already signed up for the journal, please remit a check for \$85.00, payable to the Hypervelocity Impact Society, and send the check with the mailing address for where you want to receive the Journal to:

Mr. John P. Riegel, III
Southwest Research Institute
Division 07
P. O. Drawer 28510
San Antonio, TX 78228-0510.

You will receive all issues for the current year with your subscription.

Note to Authors—Color Figures

It is often desirable, particularly with computational results, to use color to enhance and clarify technical information. Color figures are possible for the 1994 HVIS proceedings that will be published as a volume of *International Journal of Impact Engineering*. However, there are additional cost requirements that must be met by the author or his/her institution. Since each figure must be processed separately, the cost is per figure, even if more than one figure is published on the same page. The cost per figure of color artwork is \$576.00 (US), payable to the Hypervelocity Impact Society at the time the final mats are submitted. Color figures will be located in the middle of the relevant paper; thus, they could be out of sequence with regard to other figures in the paper. The price of reprints is not affected.

SOCIETY NEWS

Scholarships

A limited number of Student Grants are available for the *1994 Hypervelocity Impact Symposium* in Santa Fe. These grants are being made available by the Hypervelocity Impact Society to encourage student interest and participation in this technology.

The Student Grants cover transportation and lodging for the symposium, up to a limit of \$1000. Free registration and a copy of the proceedings will be provided. In addition, the students will be hosted by an HVIS member who will introduce them to other HVIS members and answer questions regarding hypervelocity impact.

The student grants are available to students interested in hypervelocity impact. It is intended that these grants will be primarily for graduate students, although undergraduate students may apply. The application will consist of a letter of recommendation from the Student's Advisor. This letter should be limited to a maximum of three pages, and should include the following:

- Names, address, and telephone numbers of both the Student and the Advisor
- A brief overview of the student's academic background and record
- A description of future academic work to be pursued by the student
- A discussion of why the symposium would be helpful for the student.

Selections will be made by the HVIS Educational Outreach Committee. The applications must be received by 1 August 1994. Selection and notification will be made by 1 September 1994. The application should be sent to:

Dr. Gordon R. Johnson
Alliant Techsystems, Inc.
Mail Station MN11-1614
600 Second Street NE
Hopkins, MN 55343
USA

HVIS STANDING COMMITTEES

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CALENDER OF RELATED CONFERENCES AND SYMPOSIA

Meeting	Location	Dates
FAA/NASA Int. Symp. on Advanced Structural Integrity Methods for Airframe Durability and Damage Tolerance	Hampton, VA	May 4-6, 1994
ADPA Bombs and Warheads Meeting	Eglin AFB, FL	May 17-18, 1994
3rd Int. Conf. of Structures under Shock and Impact (SUSI 94)	Madrid, Spain	June 1-3, 1994
19th Army Science Conference	Orlando, FL	June 20-24, 1994
12th US National Congress of Applied Mechanics	University of Washington, Seattle, WA	June 27-July 1, 1994
30th COSPAR Scientific Assembly	Hamburg, Germany	July 11-21, 1994
International Conference on Shock Waves in Condensed Matter	St. Petersburg, Russia	July 18-22, 1994
DOD Explosive Safety Seminar	Miami, FL	August 16-18, 1994
1st Int. Conf. on Composites Engineering (ICCE/1)	New Orleans, LA	Aug. 29-Sept. 1, 1994
Euro DYMAT	Oxford, England	September 26-30, 1994
AIAA Space Program & Technologies Conference	Huntsville, AL	September 27-29, 1994
Paper Selection, 15th Int. Ballistics Symp.	Haifa, Israel	October 3-7, 1994
Aeroballistic Range Association	Huntsville, AL	October 10-14, 1994
3rd Int. Symp. on Structural and Functional Gradient Materials	Lausanne, Switzerland	October 10-12, 1994
Society of Engineering Science Conference	Texas A&M University College Station, TX	October 12-14, 1994
Hypervelocity Impact Symposium	Santa Fe, NM	October 16-20, 1994
NADR Meeting	Ft. Walton Beach, FL	October 1994
ASME Winter Annual Meeting	Chicago, IL	Nov. 6-11, 1994
7th Int. Symp. on Interaction of the Effects of Munitions and Structures	Mannheim, Germany	April 24-28, 1995
15th International Symposium on Ballistics	Jerusalem, Israel	May 21-24, 1995
EuroPyro 95	Tours, France	June 5-9, 1995
EXPLOMET™ '95	El Paso, TX	August 6-10, 1995
APS Topical Meeting on Shock Waves	Seattle, WA	August 13-19, 1995

1994 HVIS



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**Santa Fe, NM
October 16-20, 1994**