



## The SAVIAC Current Awareness Newsletter

The *Current Awareness Newsletter* is one of two vehicles SAVIAC has for communicating with the community, the other being the web site, [www.saviac.org](http://www.saviac.org). The communication is two way, affording members of the community the opportunity to provide valuable information to their peers. As examples, look through this issue. You will find announcements of upcoming short courses and conferences, certification training, and new product announcements. In past issues SAVIAC members have provided technical articles to educate and inform. We have also had articles about companies in the community, providing background and expertise. If you have something you would like

to share with your peers, call SAVIAC at 301 596-0100 or send an e-mail to Lauren at [lauren.yancey@saviac.org](mailto:lauren.yancey@saviac.org).

SAVIAC has set up a ListServ capability to deliver the newsletter electronically. Currently, there are just under 1600 e-mail addresses in the SAVIAC database. Starting with the January newsletter, we will be sending out traditional newsletters and e-mail announcements via the ListServ that the newsletter is available on our web site. Please let us know your opinions of the service s it will guide future decision concerning newsletter delivery.

## Navy Shock Data Base Certification

The Navy Shock Data Base (NSDB) is mandated by NAVSEAINST 9072.1A. In accordance with NAVSEAINST 9072.1A, it is managed by NAVSEA 05P3 and maintained by Naval Surface Warfare Center Carderock Division Philadelphia (NSWCCD SSES) Code 623. The NSDB is a compilation of shock hardness requirement by ship or ship class and a compilation of equipment shock qualification status for both Contractor Furnished Equipment and Government Furnished Equipment. Recent security issues and data integrity issues were the cause of a major overhaul of the NSDB. In order to maintain security and data integrity of the NSDB, this course will be required by any persons requesting read/write access to the NSDB. Those persons requiring read/write access include PARM/LCMs, NAVSEA PEOs, ship builders and contractor support for those activities. Although this course is not required for persons requesting read only access, it is recommended so that they fully understand the working of the data base and can take full advantage of the data in the data base. The course will be taught by Kurt Hartsough.

This Certification will be offered on Wednesday afternoon, February 18, 2004 at The Naval Surface Warfare Center Panama City in Panama City, FL, in parallel with the Winter

Shock & Vibration Seminar. It is anticipated that some people will want to attend the morning session of the Seminar and spend their afternoon in the Certification class. A charge of \$100.00 to handle administrative costs will be assessed. Please RSVP to Lauren Yancey, (703) 892-0060 or [lauren.yancey@saviac.org](mailto:lauren.yancey@saviac.org) to assure your space and make payment arrangements.

Have a safe and  
happy holiday  
season!

from  
The SAVIAC Team

# Call For Papers

## 75th Shock and Vibration Symposium October 17-22, 2004 The Cavalier Virginia Beach, VA

Planning for the 75th Shock and Vibration Symposium is underway. NSWC/Dahlgren Division is the Government Featured Organization and Northrop Grumman Newport News and PCB Piezotronics are the Commercial Featured Organizations. The Cavalier Hotel in Virginia Beach is the location.

The Shock & Vibration Symposium is the oldest continuously held meeting dealing specifically with the shock and vibratory response of air, sea, space, and ground vehicles and structures and blast effects. The Symposium was established as a mechanism for the exchange of information among Government activities, private industry, and academia on current work and new developments. Presentations on work in progress are encouraged. Separate sessions are held for presentation of classified or limited-distribution material.

Presentations in the following subject areas are welcomed:

901D Case Studies	Dynamic Scale Modeling	Product Announcement/Facility
Active Vibration Control	Dynamic Testing	Description
Air Blast	Environmental Databases	Pyrotechnic Shock
Anti-Terrorist Technologies	Finite Element Analysis	Seismic Shock
Ballistic Shock	Fluid-Structure Interaction	Shock Characterization
Biodynamics	Ground Shock	Shock Hardening
Blast Design	Homeland Defense	Shock Qualification by Extension
Blast Effects	Impact/Penetration Mechanics	Shock Test/Equipment Failure Modes
Combined Environments	Infrastructure Protection	Simulation Methods
Computational Structural Dynamics	Instrumentation	Specifications and Standards
COTS	Isolation Systems	Structural Hardening
Crash Dynamics	Large Structures	System Identification
Damage Identification	Live Fire Testing	Test Criteria
Damping	Machinery Diagnostics	Test Tailoring
Data Analysis	Machinery Vibration	Underwater Shock Testing
Dynamic Analysis Methods	Material Dynamic Properties	Vibroacoustics
Dynamic Measurement	Modal Analysis and Testing	

Two categories of presentations will be accepted: full papers, suitable for publication in the Symposium Proceedings; and short discussion topics, consisting of viewgraphs with no written paper. Full papers will have a 15 minute technical presentation time plus 5 minutes for questions, while short discussion topics will have a 10 minute presentation time with no question period.

Presentations will be accepted on the basis of their abstracts, which must be submitted by June 3, 2004. You are encouraged to submit online at [www.saviac.org](http://www.saviac.org), click on 75th S&V Symposium Abstract Submittal. The Program Committee will review the abstracts during the July Program Committee meeting and authors will be notified of acceptance by July 16, 2004. The full paper presentations must meet the following standards: They must be previously unpublished and unrepresented, must be appropriate to community interests and must not be overtly commercial, except for papers in the Product/Facility session. Standards for short discussion topics are similar except that they may include previously presented or published material.

The Proceedings will be published on CD-ROM.

**The paper due-date is October 8, 2004.**

Questions should be directed to Joel Leifer, 301.596.0100 or [joel.leifer@saviac.org](mailto:joel.leifer@saviac.org).

## Conference Announcements

**IMAC XXII: Linking Test to Design**  
*Society for Experimental Mechanics*  
 Dearborn, MI  
 January 26-29, 2004

IMAC is organized by the Society for Experimental Mechanics, which strives to support the modal, civil structures and analytical dynamics communities. This year's conference theme is *Linking Test to Design*, a focus on the shift in the design strategy from test driven design to computational design. Visit [www.sem.org](http://www.sem.org) for more information on IMAC XXII, registration, and pre-conference courses. Also discover what other programs SEM has to offer for the technical community.

**2004 Planetary Defense  
 Conference: Protecting Earth from  
 Asteroids**

*The American Institute of Aeronautics  
 and Astronautics (AIAA)*  
 February 23-26, 2004  
 Orange County, California

The 2004 Planetary Defense Conference: Protecting Earth from Asteroids conference will consider planetary protection from the systems perspective: define the threats, look at deflection options and available technologies, discuss characteristics of candidate missions to mitigate the threats, and consider the policy and disaster preparedness implications. Participants will develop a set of recommendations for improving our ability to successfully defend our planet from possible impact threats.

The mission design aspects of the conference will focus on options for defending Earth from three Defined Threat (DEFT) scenarios – one posed by an approaching comet and two assuming approaching asteroids. Disaster preparedness and policy discussions will consider how we might prepare for the specific threats posed by the DEFT scenarios. Impact Scenarios A panel discussion plus question and answer period will close out the conference on day four. Discussion will center on what should be done in the next four years to increase the likelihood of a successful

mitigation mission. Specific consideration will be given to detection and deflection technology development and demonstrations and to organizational and policy recommendations. Audience participation will be invited. Information and recommendations from this session will be included in the conference White Paper. For more information about this conference, or other AIAA events, please visit <http://www.aiaa.org/calendar/index.htm?cal=1>.

**SAE World Congress 2004**  
*The Engineering Society For  
 Advancing Mobility in Land Sea Air and  
 Space*  
 March 8-11, 2004  
 Detroit, MI USA

SAE 2004 World Congress is home for the global automotive engineering community. With more than 38,000 attendees and 1,000 exhibitors, Congress is densely populated with your peers, your business partners, industry visionaries, technology leaders, educators from around the world.

Like industry, the SAE 2004 program and exhibition is thorough and diverse in technology, global in scope. It is massive. It is targeted. Built from a core outline of technical interests, it is the one annual event that every engineer, manager and executive can count on for the highest quality technical and business information available in this global industry. The SAE 2004

Be sure to check  
[www.saviac.org](http://www.saviac.org)  
 for more  
 information on  
 all of 2004's  
 upcoming events!

World Congress will feature a 1,600 plus Paper Program over 1,000 exhibitor showcases, an AVL Technology Theater, the Dana Technical Innovation Forum, OEM Advanced Technology Displays, a Special Program on High Performance Vehicles and many other special panels and events, and learning and networking opportunities. To register for the conference, please visit <http://www.sae.org/congress/about/register/>.

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## Announcement for International Short Course on

# Response of Marine Structures to Underwater Explosions

March 23-26, 2004

Monterey Beach Hotel

2600 Sand Dunes Drive, Monterey California 93940

## Course Lecturers:

<p><b>Professor Thomas L. Geers</b>  <b>Dept. of Mechanical Engineering</b>  <b>University of Colorado</b>  <b>Boulder, Colorado 80309</b></p>	<p><b>Dr. Young S. Shin</b>  <b>Shock and Vibration Research</b>  <b>Monterey, California 93940</b></p>
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## Course Objective & Overview

### Course Objective:

The purpose of this course is to provide engineers, scientists, and naval architects a discriminating review of underwater explosion phenomena, structural response analysis, fluid-structure interaction, shock spectrum concept, and shock-induced vibration analysis of shipboard equipment.

### Course Overview:

1. UNDERWATER EXPLOSION PHENOMENA: Sequence of Underwater Explosion Events, Hydrodynamic Relations, Underwater Acoustic Waves, Air-Water Interface, Shock Wave Parameters, Bubble Behavior and Bubble-Pulse Loading, Bulk and Local Cavitation, Scaling
2. ELEMENTS OF STRUCTURAL DYNAMICS: Analytical Dynamics, Classical Linear Oscillator, Two-Degree-of-Freedom System, Finite Element Discretization and Modeling, Finite Difference Time Integration
3. FLUID-STRUCTURE INTERACTION: Athwartship Response of Submarine, Vertical Response of Surface Ship, Submerged Plate Oscillator

4. DAA-BASED ANALYSIS: Submerged Spherical Shell, FE/BE Fluid-Structure Interaction, USA-DYNA, USA-NAS-TRAN, etc.
5. FLUID VOLUME DISCRETIZATION: Fluid Cavitation, Validation of Computer Codes
6. MODELING AND SHOCK SIMULATION: Three Dimensional Ship Shock Analysis, Modeling and Approaches
7. SHOCK QUALIFICATION OF SHIPBOARD EQUIPMENT BY DESIGN ANALYSIS: Shock Spectra, Normal Mode Analysis, Response of a Multi-DOF System to Shock Motion
8. DYNAMIC DESIGN ANALYSIS WORKSHOP: Dynamic Design Analysis Method (DDAM), DDAM Step-by-step Analysis Procedure, Design Criteria of Shipboard Equipment Using DDAM
9. APPLICATION TO SHIPBOARD EQUIPMENT USING DESIGN ANALYSIS: Application Problems

## Course Organization

### REGISTRATION FEE

The following registration fee includes the cost of all sessions, coffee breaks, and the course notes.

\$ 1,350 --- if paid by February 22, 2004.

\$ 1,500 --- if paid after that date.

### ACCOMMODATION

A block of rooms has been reserved at special rates for short course attendees at the Monterey Beach Hotel (Rates \$75 single & 95 double). To qualify for these special rates, you must mention that you are attending the "Shock and Vibration Seminar". Attendees should contact the hotel directly to make reservations. The rooms at the special rates will only be held until February 22, 2004.

### COURSE LOCATION

The course will be conducted in Monterey, California, USA;  
 Monterey Beach Hotel  
 2600 Sand Dunes Drive, Monterey, California 93940  
 Phone: (800) 242-8627 or (831) 394-3321  
 Fax: (831) 393-1912

### FOR FURTHER INFORMATION, CONTACT:

Shock and Vibration Research  
 10150 Blue Larkspur Lane  
 Monterey, California 93940, USA  
 Phone/Fax (831) 375-4999, Cell: (831) 277-7117  
 email: yshin99@aol.com

## Announcement for International Short Course on

# Ship-Shock Modeling and Simulation With Applications Using LS-DYNA/USA Code

March 23-26, 2004

Monterey Beach Hotel

2600 Sand Dunes Drive, Monterey California 93940

## Course Lecturers:

<p><b>Dr. Young S. Shin</b> Shock and Vibration Research Monterey, California 93940</p>	<p><b>Dr. John A. DeRuntz, Jr.</b> Unique Software Applications Colorado Springs, Colorado 80906</p>
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## Course Objective & Overview

**Course Objective:** The purpose of this course is to provide engineers modeling and simulation techniques of surface ship to compute the responses of ship structural system and components to underwater explosion. 1-D, 2-D and 3-D demonstration models and ship-shock simulations are reviewed using LS-DYNA/USA code.

### **Course Overview:**

#### 1. THEORETICAL BASIS FOR USA CODE

- Plane Wave Analysis
- Fluid-Structure Interaction Equations
- Augmentation for Unconditional Stability
- Fluid Volume Modeling & Cavitating Fluid Analysis

#### 2. USA (Underwater Shock Analysis) CODE

- Capabilities, Features and Limitations
- Software Organization

Interfaces with LS-DYNA code

Input Deck Setup

#### 3. LS-DYNA CODE FOR SHIP SHOCK MODELING

- Software Organization
- Ship Structure and Surrounding Fluid Modeling
- Radiation Fluid Boundary
- Ship System Damping Modeling & Error Correlation Factors

#### 4. LS-DYNA AND USA INPUT DECK SETUP

- Ship Structures and Surrounding Fluid
- Ship System Damping
- Radiation Boundary and Shock Analysis Geometry

#### 5. SHIP SHOCK MODELING & SIMULATION PROBLEMS 1D, 2D and 3D Model and Analysis

#### 6. QUESTIONS / ANSWERS AND DISCUSSIONS

## Course Organization

### **REGISTRATION FEE**

The registration fee is \$1,000 which includes the cost of all sessions, coffee breaks, and the course notes. Early registration is suggested because enrollment is limited. Please send us email or phone call requesting registration form.

### **ACCOMMODATION**

A block of rooms has been reserved at special rates for short course attendees at the Monterey Beach Hotel (Rates \$75 single & 95 double). To qualify for these special rates, you must mention that you are attending the "Shock and Vibration Seminar". Attendees should contact the hotel directly to make reservations. The rooms at the special rates will only be held until February 22, 2004.

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 10150 Blue Larkspur Lane  
 Monterey, California 93940, USA  
 Phone/Fax (831) 375-4999, Cell: (831) 277-7117  
 email: yshin99@aol.com

# Free Winter Shock & Vibration Seminar

SAVIAC invites you to attend a FREE seminar on Shock & Vibration. The course will be held on Wednesday, February 18, 2004 at The Naval Surface Warfare Center Panama City in Panama City, FL, the day before the SAVIAC Winter TAG Meeting. SAVIAC and the featured experts in their disciplines have organized this seminar to introduce you to the SAVIAC community, while providing a valuable educational experience.

## Agenda

8:00 - 8:30	Registration & Continental Breakfast	
8:30 - 8:45	Introduction to SAVIAC	Joel Leifer, SAVIAC
8:45 - 9:00	Using SAVIAC to Address Your S&V Problems	Joel Leifer, SAVIAC
9:00 - 9:30	MIL-S-901 Requirements/Approval Process	Kurt Hartsough, NSWC/CD
9:30 - 10:00	Overview of Hazard Assessment Testing (HAT) per MIL-STD-2105	Jamie Howell, NSWC/Dahlgren
10:00 - 10:15	Break	
10:15 - 11:15	TBD	Kurt Hartsough, NSWC/CD
11:15 - 11:45	AF Lethality/Vulnerability Methodology Development	Ron Hunt, AFRL
12:00 - 1:00	Lunch (no host)	
1:00 - 1:30	Introduction to Random Vibration	Tom Paez, Sandia National Labs
1:30 - 2:00	TBD	Pat Walter, PCB Piezotronics
2:00 - 2:30	TBD	Eric Rinehart, DTRA
2:30 - 2:45	Break	
2:45 - 3:15	Human Shock & Fatigue	Ron Petersen, NSWC/DD/CSS
3:15 - 3:45	Shock Isolation	TBD, Enidine, Inc.
3:45 - 4:15	Transportation Vibration	Skip Connon, US Army Aberdeen Test Center
4:15 - 4:45	Introduction to Fuzes	Amy Herrmann-Spears, AFRL
4:45 - 5:00	Wrap-up & Questions	All

**Please forward this invitation to anyone you know who may be interested in attending this program.**

The seminar is free, but you must register to attend. Please RSVP to Lauren Yancey, (703) 892-0060 or [lauren.yancey@saviac.org](mailto:lauren.yancey@saviac.org) to assure your space and note packet. SAVIAC reserves the right to substitute topics and/or instructors when necessary. This schedule is subject to change. For more information about SAVIAC and directions to The Naval Surface Warfare Center Panama City, please visit our website at [www.saviac.org](http://www.saviac.org).

# Don't start the New Year without your FREE

## 2004 SAVIAC Calendar!

**Don't miss out on all of the most important shock & vibration events of 2004! To receive your complimentary copy of our calendar, e-mail Lauren Yancey at [lauren.yancey@saviac.org](mailto:lauren.yancey@saviac.org).**

## INDUSTRY NEWS

### High Pressure, High Frequency Pressure Probes

The PPressure Division of PCB Piezotronics, Inc. introduces Series 109 and 119 pressure probes that feature an acceleration-compensated quartz element, high resonant frequency, and a rugged ceramic-coated integral diaphragm. Designed for pressure measurements up to 120,000 psi, with options for high temperature and high shock environments, these sensors will withstand harsh environments. Typical applications include measurement of shock & blast waves, combustion detonation and explosions in closed bombs, ballistics, projectile velocity, free field blast and explosive testing, and squib lot acceptance. For additional information on these sensors, contact the Pressure Division of PCB, toll-free at 888.684.0011, or via e-mail to [pressure@pcb.com](mailto:pressure@pcb.com).

### New Accelerometer Resists Mounting Strain

A novel annular shear sensor element

that has high immunity to base strain and transverse acceleration is an advance design feature of a new triaxial accelerometer from Kistler Instrument. The 8762A series is available in 5g, 10g and 50g ranges with sensitivities from 1000mV/g to 100mV/g respectively. Newly designed electronics provide outstanding phase response to wide frequency range in low impedance, voltage mode output.

The 20mm cube-shaped housing is made of lightweight, hard anodized aluminum and is ground isolated. The accelerometer has three 10-32 tapped holes for secure, stud mounting assuring reliable outputs in the three orthogonal planes. An industry standard 1/4-28, 4-pin connector is used. Typical applications include multi-channel measurements on automotive bodies and aircraft structures as well as general vibration testing. For more information about this or other Kistler products please contact the Kistler Instrument group at 716.691.5100 or by e-mail at [info.us@kistler.com](mailto:info.us@kistler.com).

### Larson Davis Achieves ISO 9001-2000 Certification

December 8, 2003; Provo Utah - Larson Davis, Inc., a PCB Group Company, has been granted ISO 9001-2000 certification from internationally recognized Orion Registrars. Based in Provo, Utah, Larson Davis is the leading US supplier of Sound and Vibration monitors for the acoustic test and measurement, environmental, and worker exposure markets.

## Got News?

Send your organization's  
press releases to:

SAVIAC Attn: Current Awareness  
2421 26th Road South  
Arlington, VA 22206  
703.892.0061 fax

## Short Course Announcements

### Practical Shock Analysis & Design Short Course

*The Shock & Vibration Information Analysis Center*

**Feb 23-27, 2004  
Panama City, FL**

This course will provide a comprehensive treatment of practical shock design and analysis with special emphasis on applications related to the design of ship structures and equipment for shock loads produced by underwater explosions. Participants in this course will have an opportunity to increase their knowledge and understanding of the analytical and experimental tools that are available for shock design and qualification particularly with respect to requirements that are imposed for shipboard equipment. Although this course is aimed primarily at shock design applications on ships, the analysis and design techniques presented are equally applicable to prob-

lems related to design for seismic loads or blast induced ground shock. For all who participate, the course will provide a comprehensive coverage of shock design practice and a solid basis for further exploration of shock technology.

### Random Vibration and Shock Testing Training

*The Equipment Reliability Institute*

**March 9-11, 2004**

**Wyle Labs, Huntsville, AL**

This course is for engineers and technicians who conduct developmental and production vibration and shock tests; by designers of products that must survive tests and rigorous service conditions; by metrologists who measure vibration and shock on automobiles, aircraft, etc; by sales/applications engineers involved in the sales of equipment used in test (shakers, shock test machines, etc.) and measurement (transducers, data acquisition

etc.). Registration and Course details can be found at <http://www.equipment-reliability.com/huntsvil.htm>. To register, visit [http://www.equipment-reliability.com/regist\\_form.htm](http://www.equipment-reliability.com/regist_form.htm).

### Use of the 6DOF SIMPLE Method in the Process for Designing and Assessing Shock Mounted Systems

Instructors: Michael Talley and Bob Krezel. Each person should bring a laptop computer having Windows 95 or higher and a CD or Zip drive. Location: Hilton Norfolk Airport, 1500 North Military Highway, Norfolk, VA 23502. Tel: 757-466-8000. 30 January, 2003 Time: 9:00am to 4:00pm. To register send an e-mail with the names of those attending to [bob\\_krezel@hotmail.com](mailto:bob_krezel@hotmail.com). Cost: \$500.00 per person (includes training, lunch, drinks, and snacks) due on or before 23 January 2003



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Columbia, MD 21044  
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## ***In the December 2003 Current Awareness Newsletter***

***FREE Shock & Vibration Seminar  
Industry News  
Conference & Short Course Announcements  
75th Call for Papers***

The Current Awareness newsletter is published by the Shock and Vibration Information Analysis Center, which is operated by HI-TEST Laboratories, Inc., under contract to the U.S. Army Engineer Research and Development Center.

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