



76th Shock & Vibration Symposium Featured Commercial Companies

SAVIAC is proud to announce that Weidlinger Associates, Inc (poc Dr. Ray Daddazio) and MSC.Software (poc Bart McPheeters) have been selected to be the featured commercial companies at the 76th Shock & Vibration Symposium.

For over half a century Weidlinger Associates, Inc. has coupled evolving and unconventional technology with innovative, yet elegant engineering. Their expertise and involvement within the shock and vibration community is renowned. Weidlinger uses computational tools that they have developed, maintained and, in some cases, licensed to other consultants and government agencies, in defining explosive environments, fragment impact, and progressive collapse of large structures. Weidlinger has assisted in the development of understanding surface ship mine explosions, providing solutions for noise suppression in submarines, dynamic tests on structures and vibration control in surface ships.

76th Shock & Vibration Symposium Note to Presenters

The past two years have shown as explosive growth in the size of the Symposium and this year promises to continue the trend. With the increase in the number of papers presented has come an expansion in the types of forums available to the community to get your message across. In addition to the call for papers, panels and tutorials we have added Discussion Groups, Dedicated Sessions, and the Training Track. In order to manage this growth the SAVIAC web site now has separate submittal forms for each of the major forums. You can reach them by pointing your browser to http://www.saviac.org/76th_symposium/76th_symposium.htm. I've tried to provide clear descriptions for each forum, but if you get confused, please call me at 301 596-0100 and I'll be happy to lead you to the forum that will best serve your purpose. Please do not send me an e-mail for your submittal, it has a good chance of getting misplaced. I want to save e-mail for when you have a question, comment and/or suggestion about your submittal, the program, the Symposium, SAVIAC, or anything else on your mind. Thanks in advance for your cooperation. I look forward to seeing all of you in New Orleans for the 76th Shock & Vibration Symposium.

MSC.Software is a leader in providing simulation technology and services to a broad spectrum of manufacturers and research facilities in the aerospace, automotive, general machinery, medical/biomechanics, rail/transportation, consumer products, and electromechanical industries among others. Their line of virtual product development tools, including simulation software and professional services, help companies make money, save time and reduce costs associated with designing and testing manufactured products.

In the coming year we will be telling you more about both companies. Look for articles by their subject matter experts that will provide valuable tips and techniques that you can use in solving your own problems as well as capabilities that you might want to use for problems that are in areas new to you. Weidlinger Associates and MSC.Software have a lot to offer this community and SAVIAC is excited to be able to feature them this year.

SAVIAC Mentor Program to Debut Soon

Response to the idea of a mentor program briefed at the Opening Session of the 75th Shock & Vibration Symposium was positive so SAVIAC asked Bob Krezel to explore how to start it up. Bob has developed a comprehensive plan that is now undergoing final review before being turned over to the SAVIAC Director for his review and approval. Look for more information on how to be a mentor and how to sign up to be mentee'd in upcoming newsletters and on the SAVIAC web site. My thanks to Bob and all the others who sent in their ideas for the program. We are still accepting suggestions; send them to me at joel.leifer@saviac.org.

SAVIAC would like to wish a belated congratulations to our Director, Dr. Charles Robert Welch and his lovely wife Terry, on becoming grandparents.

People in the News

Congratulations to Maggie Koschnick and John DeRuntz on their upcoming marriage on February 26. John met Maggie at a pot luck dinner on August 13, 2000 and they had their first date two weeks later on August 26. The couple plan to reside in Oregon.

"Sensor Technology Handbook", edited by Jon Wilson, is now available via www.amazon.com. The book covers sensors from A to Z- from basic technological fundamentals, to cutting-edge information. In addition, a CD-ROM accompanies the volume containing a fully searchable pdf version of the text, along with various design tools and useful software.

Free Winter Shock & Vibration Seminar

SAVIAC invites you to attend a FREE seminar on Shock & Vibration. The course will be held on March 2, 2005 at Weidlinger Headquarters in New York in conjunction with the SAVIAC Winter Technical Advisory Group (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

7:30 - 7:45	Registration & Continental Breakfast	
7:45 - 8:00	Introduction to SAVIAC	Joel Leifer, SAVIAC
8:00 - 9:00	A Primer On Explosion Effects In the Air, Water, and Soil	Dr. Bob Welch, SAVIAC Director/US Army Engineer Research and Development Center
9:00 - 10:00	Oklahoma City Bombing - Lessons Learned	Dr. Paul Mlakar, US Army Engineer Research and Development Center
10:00 - 11:00	Blast Analysis and Damage Visualization of Buildings	Dr. David K. Vaughan, Weidlinger Associates
11:00 - 12:00	Introduction to Vulnerability Assessment Software: BEEM, SBEDS, and HAZL	Patrick Lindsey, US Army Corps of Engineers Protective Design Center
12:00 - 1:00	Lunch	Sponsored by NTS
1:00 - 1:30	Aluminized Explosive Modeling	Dr. Eric Rinehart, Defense Threat Reduction Agency
1:30 - 2:00	An Analytic Approach to Airblast and its Effects using a coupled Eulerian/Lagrangian FEM Approach	Bart McPheeters, MSC.Software
2:00 - 2:30	Zero offsets in Accelerometer data: Causes and Corrections	Tim Edwards, Sandia National Labs
2:30 - 3:00	Overview of Mechanical Vibration & Shock Standards Development	Susan Blaeser, Acoustical Society of America
3:00 - 3:30	Navy Hydrocode Development Efforts for Underwater Explosion Effects	Greg Harris, NSWC/IH
3:30 - 3:45	SAVIAC Mentor Program	Bob Krezel, SAVIAC
3:45 - 4:15	Lithium Battery Environmental Testing	Allen Parkes, NSWC/Crane
4:15 - 4:45	Overview of Hazard Assessment Testing (HAT) per MIL-STD-2105	Jamie Howell, NSWC/Dahlgren
4:45 - 5:15	Shock Isolation	Dr. Chris Merrill, CM & A Engineering, PLC
5:15 - 5:30	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 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 Seminar, please visit our website at www.saviac.org.

Explosion Effects and Structural Design for Blast

**A 2-day Training Course
At the Embassy Suites Hotel
St. Louis Airport
February 28 and March 1, 2005**

Instructors: Dr. Sam A. Kiger, PE and Dr. Stan Woodson, PE

Engineers have an opportunity to improve their skills in understanding explosion effects and designing facilities that are safer to occupants by understanding and minimizing the effects of explosive detonations on structures. Architects and builders will also benefit by appreciating the impact of explosive design decisions early in the process. All new government buildings now require some level of blast resistant design and this training will specifically address those requirements.

Course Description:

This course will focus on the fundamentals of explosion effects, determining blast loads on structures, computing structural response to blast loads, and the design and retrofit of structures to resist blast effects. The emphasis will be on terrorist threats from vehicle bombs, but the fundamental concepts can be applied to other explosive scenarios. Currently available software and publications for blast effects and design guidance will be discussed and demonstrated. Much of the design guidance and software is restricted distribution to government agencies and their contractors, however specific information on how to use and obtain the software will be covered in the course. The participant will gain an understanding of how to compute blast loads on a structure, how to compute structural response to blast loading, and practical methods for designing and retrofitting structures to resist blast effects. Participants will be provided with a complete set of class notes. A general background in structural analysis and structural design will be assumed.

Primary Topics Include:

Explosion Effects, Loads on Structures, Behavior of Structural Elements, Structural Dynamics, Response Calculations (approximate methods and computer codes), and Retrofit Techniques.

Course Location:

The course will be held at the Embassy Suites Hotel, St. Louis Airport. For reservations call 1-800-EMBASSY (1-800-362-2779) and ask for the "Blast Design Training" rate of \$102 per night. A full breakfast is included in the room rate.

Course Registration:

Registration Fee is \$895.00 (Includes lunch each day). Your payment, in full, must accompany your registration form.

Course Refund Policy:

Refund of registration fee, less \$50 to cover processing costs, are available upon cancellation notice by the registrant. Notification will be by fax, dated and signed by the person registered, to Dr. Sam Kiger at 573-882-4784. The refund will be by check mailed, within 30 days, to the registrant at the address requested on the fax. No refund will be allowed after five working days before the day the course begins. In the event the course is canceled a full refund will be paid to the individual at the address given at the time of registration. Questions may be directed to Dr. Sam Kiger at kigers@missouri.edu or by calling 573-882-3285.

More information about the instructors, the course, and accommodations can be found at <http://blastdesigntraining.com>. Professional engineers will get continuing education credit of 15 PDH's for the course. On-line registration is available and will ensure your seat is reserved. Questions regarding content and appropriateness can be obtained by contacting Dr. Sam Kiger at 573-882-3285, KigerS@missouri.edu or Stan Woodson at 601-636-4429, WoodsonEng@direcway.com.

Announcement for International Short Course on

Response of Marine Structures to Underwater Explosions

March 22-25, 2005

Monterey Beach Hotel

2600 Sand Dunes Drive, Monterey California 93940

Course Lecturers:

<p>Professor Thomas L. Geers Dept. of Mechanical Engineering University of Colorado Boulder, Colorado 80309</p>	<p>Dr. Young S. Shin Shock and Vibration Research Monterey, California 93940</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 Modelling, 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. MODELLING 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.

\$ 1,620 --- if paid by February 22, 2005.

\$ 1,800 --- 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 05 Seminar". Attendees should contact the hotel directly to make reservations. The rooms at the special rates will only be held until February 22, 2005.

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
 Email: montereybeachresort.com

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: undex05@sbcglobal.net

Announcement for International Short Course on

APPLICATIONS OF LS-DYNA/USA CODE TO SHIP- SHOCK MODELING AND SIMULATION

March 28 - 30, 2005

Monterey Beach Hotel

2600 Sand Dunes Drive, Monterey California 93940

Course Lecturers:

Dr. John A. DeRuntz, Jr.	Dr. Young S. Shin
Unique Software Applications	Shock and Vibration Research
Colorado Springs, CO 80906	Monterey, California 93940

Course Objective & Overview

Course Objective: The purpose of this course is to provide engineers the applications of coupled LS-DYNA/USA code to ship-shock modeling and simulation.

Course Overview:

1. THE PHYSICS OF UNDERWATER SHOCK
2. FLUID-STRUCTURE INTERACTION: Exact Formulations, Doubly Asymptotic Approximations, Interaction Equations, Augmentation For Unconditional Stability
3. FLUID MASS MATRIX DEVELOPMENT: Potential Flow Boundary Element Method, Model Symmetries And Fluid Boundaries, Bottom Effects Model, Surface Of Revolution Models, Fluid Boundary Modes, Rigid Body Added Mass And Rotational Inertia Coefficients
4. CAVITATING FLUID ANALYSIS
5. OVERVIEW OF THE UNDERWATER SHOCK ANALYSIS CODE
6. USING THE USA CODE: Processor Functions, Structural Modeling Preliminaries, Wet Surface Mesh from Structural Model, User Options
7. USING THE USA-CFA CODE: External and/or Internal Fluid Problems, Radiation Boundary Options, LS-DYNA Usage, Fluid Volume Modeling and Stability, Transient Response Analysis and Stability

8. INCIDENT SHOCK WAVE SPECIFICATION: Scaling Laws, Tabular Inputs, Exponential Waves And Double Decay, Built In Explosives, Features
9. BUBBLE PULSE SPECIFICATION: Physical Basis, Hicks Bubble Model, Theory, Units, Options, Features
10. COMBINED SHOCK-BUBBLE SPECIFICATION: Physical Basis, Geers-Hunter Bubble Model
11. Using USA/LS-DYNA: USA/LS-DYNA Processors, Execution of USA/LS-DYNA, Wet-Surface Modeling, LS-DYNA Time Step Control, Hydrostatics, Damping, Resilient Mounts, LS-DYNA Fluid Volume Elements, USA/LS-DYNA Sample Problems
12. OTHER TOPICS: Problem Areas Where More Work Is Needed, Selected USA/LS-DYNA Sample Problems
13. LS-DYNA CODE FOR SHIP SHOCK MODELING: Capabilities, Features and Limitations, Software Organization, Ship Structure and Surrounding Fluid Modeling, Radiation Fluid Boundary, Ship System Damping Modeling & Error Correlation Factors
14. LS-DYNA AND USA INPUT DECK SETUP: Ship Structures and Surrounding Fluid, Ship System Damping, Radiation Boundary and Shock Analysis Geometry
15. SHIP SHOCK MODELING & SIMULATION PROBLEMS: 1D, 2D and 3D Model and Analysis

Course Organization

REGISTRATION FEE

The registration fee is \$1,250 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 garden side). To qualify for these special rates, you must mention that you are attending the "Shock-05 Seminar". Attendees should contact the hotel directly to make reservations. The rooms at the special rates will only be held until 4 weeks before class starts.

COURSE LOCATION

The course will be conducted in Monterey, California, USA;
 Monterey Beach Hotel (email: montereybeachresort.com)
 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: undex05@sbcglobal.net

Call For Papers

76th Shock and Vibration Symposium October 30 - November 4, 2005 The Royal Sonesta Hotel New Orleans, LA

Planning for the 76th Shock and Vibration Symposium is underway, with the selection of the US Army Engineer Research & Development Center and the Defense Threat Reduction Agency as the Government Featured Organizations, Weidlinger Associates, Inc. and MSC.Software as the Commercial Featured Organizations. The Royal Sonesta Hotel in New Orleans, LA 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 Response Spectrum
Combined Environments	Infrastructure Protection	Shock Test/Equipment Failure Modes
Computational Structural Dynamics	Instrumentation	Simulation Methods
COTS	Isolation Systems	Specifications and Standards
Crash Dynamics	Large Structures	Structural Hardening
Damage Identification	Live Fire Testing	System Identification
Damping	Machinery Diagnostics	Test Criteria
Data Analysis	Machinery Vibration	Test Tailoring
Dynamic Analysis Methods	Material Dynamic Properties	Underwater Shock Testing
Dynamic Measurement	Modal Analysis and Testing	Vibroacoustics

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, 2005. You are encouraged to submit online at www.saviac.org, click on 76th 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 15, 2005. 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 7, 2005

Questions should be directed to Joel Leifer, 301.596.0100 or joel.leifer@saviac.org.

Conference & Short Course Announcements

Practical Shock Analysis & Design Short Course

MFPT Society

**February 28-March 4, 2005
Bremerton, WA**

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. The lectures will provide a basic review of vibration and shock theory and will present the analytical and experimental methodology in the context of particular design applications. Analytical lectures will emphasize the physical significance of the results. Examples and case histories will be used as illustrations of design approaches; workshop problems that involve class participation will be used to advantage throughout the course. Class members will be encouraged to propose real design problems. The instructors will provide guidance for solu-

tions or the problems may be used as class exercises. Although this course is aimed primarily at shock design applications on ships, the analysis and design techniques presented are equally applicable to problems related to design for seismic loads or blast induced ground shock. For more information and to download the registration form, visit <http://www.saviac.org/Shock%20Course.htm>.

46th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics & Materials Conference; 13th AIAA/ASME/AHS Adaptive Structures Conference

AIAA

**April 18-21, 2005
Austin, Texas**

The 46th Structures, Structural Dynamics, and Materials (SDM) Conference is sponsored by AIAA, ASME, ASCE, AHS, and ASC. This established conference is a widely acknowledged annual event that provides a unique forum dedicated to the latest development in the collective disciplines of structures, structural dynamics, materials, design engineering, and survivability. This year's conference will also host the 13th Annual Adaptive Structures

Conference, the 7th Annual Non-Deterministic Approaches Forum, the 6th Annual Gossamer Spacecraft Forum, and the 1st Multidisciplinary Design Optimization Specialist Conference. Plenary presentations will be given by well-known, forward-thinking, invited speakers focused on the theme of Bringing SDM Technology to Practice.

Adaptive Structures Conference

The Adaptive Structures Conference, sponsored by AIAA, ASME, and AHS, will be held in conjunction with the 46th Structures, Structural Dynamics, and Materials (SDM) Conference. The Adaptive Structures Conference is the chief conference focused on the advancement of adaptive structures technology and its application to aerospace systems. This conference brings together basic and applied researchers from diverse disciplines; as such, the range of relevant topics is quite broad.

For more information or to register online please visit <http://www.aiaa.org/content.cfm?pageid=230&lumeetingid=1154>.

INDUSTRY NEWS

LMS Obtains Co-financing Support from Belgian Government to Develop Virtual Simulation Solutions for Aerospace; Belgian Government provides Multi-million Euro Co-finance Support from its Airbus 380 Technology Development Program

Leuven, Belgium - LMS International today announced that the Belgian Federal Government recently approved to co-finance the development of LMS Virtual.Lab for Aerospace. LMS Virtual.Lab for Aerospace offers an integrated solution to simulate component and full aircraft performance, and addresses specific development challenges such as the structural integrity of airframe designs, the dynamic performance of landing gear and slat systems or the vibro-acoustic comfort of the aircraft cabin. The co-finance backing from the Belgian Government is part of a large-scale business and technology development program that enables Belgian high tech companies to bridge the considerable pre-investment of participating in the devel-

opment of the Airbus A380 aircraft. Through programs like this, the Belgian Government aims at supporting the growth of the aerospace high-tech industry in Belgium.

Aircraft manufacturers are faced with the challenge of designing systems and components that are safer, more reliable, and cheaper to operate, and have less environmental impact. In case of the Airbus A380 project, the size and the complexity of the aircraft, the extensive use of new construction types and materials, and the historically short development cycle increases the engineering challenge. Based on these rigorous requirements, LMS engaged in the development of a dedicated suite of simulation solutions, LMS Virtual.Lab for Aerospace, that allows engineering teams to systematically analyze the performance, structural integrity, safety, reliability and comfort of the aircraft design. LMS Virtual.Lab enables aircraft designers and engineers to quickly explore multiple design alternatives and optimize the overall

aircraft behavior before committing to prototype building and testing.

For more information, please contact Sarah Zajasz, LMS North America, Tel 248 952 5664, sarah.zajasz@lmsna.com.

Triaxial Underwater Accelerometer

Columbia, MD - Scantek is pleased to announce a new underwater accelerometer set from MMF. This triaxial accelerometer was developed for measuring structural vibration during and after construction of a dam. The pressure-proof case is intended for submersion in liquid concrete. The KS823 features a hook for hanging it up while the concrete hardens. The compact sensing element reaches a sensitivity of 400 mV/g making it possible to detect lowest vibration. The KS823 has a constant current compatible output.

For more information, call (800) 224-3813 or visit www.scantekinc.com.



SAVIAC / HI-TEST Laboratories Inc.

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In the January 2005 Current Awareness Newsletter

***Weidlinger's and MSC.Software Selected to be
Featured***

***New Forms to Submit for Symposium
Mentor Program***

People in the News

Free Shock & Vibration Seminar

***Explosion Effects and Structural Design for Blast
Short Course***

***Response of Marine Structures to Underwater
Explosions***

***Applications of LS-DYNA/USA Code to
Ship-Shock Modeling and Simulation***

Industry News

Conference & Short Course Announcements

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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