SAVIAC
Shock and Vibration Information Analysis Center

Current Awareness
September 2006

77th Shock and Vibration Symposium - Monterey, CA - October 29 to November 2, 2006

The 77th Shock and Vibration Symposium is a few weeks away! A record 28 tutorials are being offered in addition to over 175 technical papers. There are many dedicated or "special" sessions on this year's agenda including MIL-S-901D Panels, Lutjens Shock Trials and DYSMAS (U.S. - German Joint Session), Electronics' Survivability and Component Fragility Under High-g Effects, and many more. Our featured organizations are ABAQUS, Spectral Dynamics, NAVSEA (NUWC Keyport), Idaho National Laboratory, and Naval Postgraduate School.

This month's feature article comes to us from Naval Postgraduate School in Monterey, CA.
In addition to being a featured organization for the symposium, NPS will also be hosting the classified sessions during this year's program.

Naval Postgraduate School (NPS)

NPS at a Glance

The School: The Naval Postgraduate School is an academic institution whose emphasis is on study and research programs relevant to the Navy's interests, as well as to the interests of other arms of the Department of Defense. The programs are designed to accommodate the unique requirements of the military. NPS is located in Monterey, California, on the Pacific Ocean 120 miles south of San Francisco, the Naval Postgraduate School campus covers 627 acres of land. The site, which has been home to NPS since 1947, houses state-of-the-art laboratories, numerous academic buildings, a great library, government housing and impressive recreational facilities.

The Students: Nearly 1,500 students attend the Naval Postgraduate School. The student body consists of officers from the five U.S. uniformed services, officers from approximately 30 other countries and a small number of civilian employees. Selection of officers for fully funded graduate education is based upon outstanding professional performance as an officer, promotion potential and a strong academic background.

The Faculty: The faculty, the majority of whom are civilians, are drawn from a broad diversity of educational institutions and represent a prestigious collection of scholars. Faculty/student interaction is high. Every class is taught directly by a faculty member -- over 99% of whom have a Ph.D.

The Degrees: The Naval Postgraduate School offers classes leading to advanced degrees in a variety of fields such as Master of Arts Degree: [National Security Affairs]; Master of Business Administration Degree: [Defense-Focused (MBA), Executive (EMBA), Joint (JMBA)]; Master of Science Degree: [Applied Mathematics, Applied Physics, Applied Science, Astronautical Engineering, Computer

Science, Contract Management, Defense Analysis, Electrical Engineering, Engineering Acoustics, Engineering Science, Information Technology Management, International Resource Planning and Management, Leadership and Human Resource Development, Management, Materials Science and Engineering, Mechanical Engineering, Meteorology, Meteorology and Physical Oceanography, Modeling, Operations Research, Physical Oceanography, Physics, Program Management, Software Engineering, Systems Engineering, Systems Engineering Management, Systems Technology, Virtual Environments and Simulation]; Engineer Degree: [Astronautical Engineer, Electrical Engineer, Mechanical Engineer]; Doctor of Philosophy: [Astronautical Engineer, Applied Mathematics, Applied Physics, Computer Science, Electrical Engineering, Engineering Acoustics, Mechanical Engineering, Meteorology, Operations Research, Physical Oceanography, Physics, Systems Management, Software Engineering]; Doctor of Engineering: [Astronautical Engineer, Engineering Acoustics, Mechanical Engineering].

A Short History of NPS

The idea for a graduate education program for naval officers first emerged in the late 19th century but, initially, the concept found few advocates. With Marconi's invention of the "wireless" in 1901, the Wright brothers' flight in 1903, and the global trek of the steam-powered White Fleet from 1907 to 1909, belief that advanced education for U.S naval officers could be intrinsically valuable to the Navy gained support.

On June 9, 1909, less than four months after the completion of the record-setting world cruise of the Great White Fleet, Secretary of the Navy George von L. Meyer signed General Order No. 27, Establishing a school of marine engineering at Annapolis.

This small program, consisting of 10 officer students and two Navy instructors, would later become today's Naval Postgraduate School. The Navy Secretary's order placed the fledgling school under the direction of the Naval

Academy superintendent, who was charged with "securing ample use of the educational plant of the Naval Academy to students and instructors of the school without interfering with the instruction of midshipmen." This translated into two attic rooms being set aside for classroom and laboratory space for the school.

Within three years, Meyer agreed to a proposal to change the school. On October 31, 1912, he signed Navy General Order No. 233, which renamed the school the Postgraduate Department of the Naval Academy. The order established courses of study in ordnance and gunnery, electrical engineering radio telegraphy, naval construction, and civil engineering as well as continuing the original program in marine engineering. With the additional curricula, enrollment increased to 25. Officers who attended the school finished their academic programs at civilian institutions such as Yale, Harvard, the Massachusetts Institute of Technology, and Johns Hopkins and Columbia universities.

During World War II, Fleet Admiral Ernest King, chief of naval operations and commander-in-chief of both the Atlantic and Pacific fleets, established a commission to review the role of graduate education in the Navy. The recommendations from this group, the Pye Commission, were regarded highly within the Navy and Congress. In 1945, Congress passed legislation to make the school a fully-accredited, degree-granting graduate institution. Two years later, Congress adopted legislation authorizing the purchase of an independent campus for the school.

A post-war review team, which had examined 25 sites nationwide, had recommended the old Hotel Del Monte as a new home for the Postgraduate School. The Navy had come to Monterey during World War II, leasing the Hotel Del Monte in early 1943 for a preflight training school, and subsequently using the facility for other training programs. Negotiations with the Del Monte Properties Company led to the purchase of the hotel and 627 acres of surrounding land for $2.13 million.

In December 1951, in a move virtually unparalleled in the history of academe, the Postgraduate School moved lock, stock and wind tunnel across the nation, establishing its current campus in Monterey. The coast-to-coast move involved 500 students, about 100 faculty and staff and thousands of pounds of books and research equipment. Rear Adm. Ernest Edward Herrmann supervised the move that pumped new vitality into the Navy's efforts to advance naval science and technology.

Since that time, the student population at the Postgraduate School has grown to 1,500, with students coming from all service branches of the U.S. defense community, as well as from the Coast Guard, the National Oceanic and Atmospheric Administration, and the services of more than 25 allied nations. Today, the school provides more than 40 programs of study, ranging from the traditional engineering and physical sciences to the rapidly evolving space science programs.

Modeling & Simulation of Ship Shock Trials

Over the past decade, Dr. Young Shin, his graduate students, and small staff of researchers at the Naval Postgraduate School's Shock and Vibration Computational Laboratory (SVCL) have been using computer modeling and simulation to investigate the effects of underwater shock on naval surface combatants.

In the past, full ship shock trials conducted at-sea have been the standard way of shock testing the first of class ships as they join the U.S. Navy Fleet. Yet mounting concerns over the environmental impact of such tests coupled with their escalating costs and operation schedule impact in times of high tempo deployments, have forced the Navy to look for other methods of ensuring that their newest combatants are shock hardened and ready to fight.

NPS Shock Group review cylinder implosion results in the Laboratory. (Left to Right, Dr. Young Shin, Mr. Jarema Didoszak, Mr. Tom Christian, LCDR Hal DuBois, USN, and LTjg Hakan Ucar, Turkish Navy) Photo by: Javier Chagoya

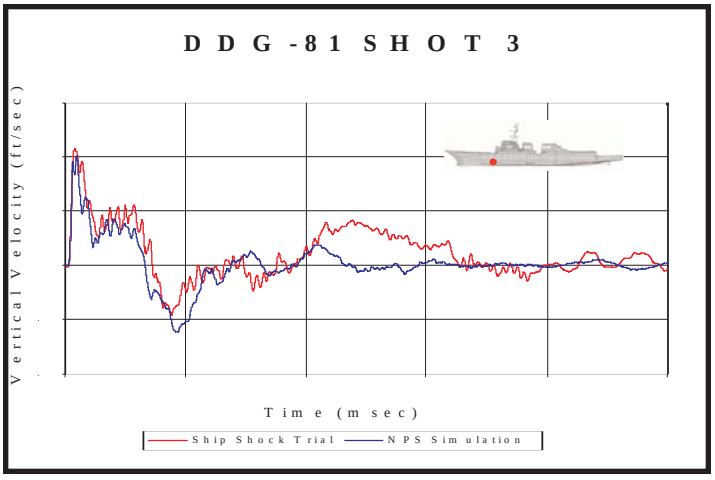
In the future, modeling and simulation may be able to replace, or at least offset some of the expense in conducting the congressionally mandated ship shock trials required for each new class of ship, such as the DDG-1000, which is currently in the design phase. With funding from Naval Sea Systems Command and assistance from Gibbs & Cox, Inc. and Electric Boat, Distinguished Professor of Mechanical

Finite Element Mesh Overlay of the Coupled Ship Structure and Fluid Volume for DDG-81 Shock Trial

Engineering, Young Shin and his team have created a computer based modeling approach that simulates the whole ship shock trial event in a virtual environment.

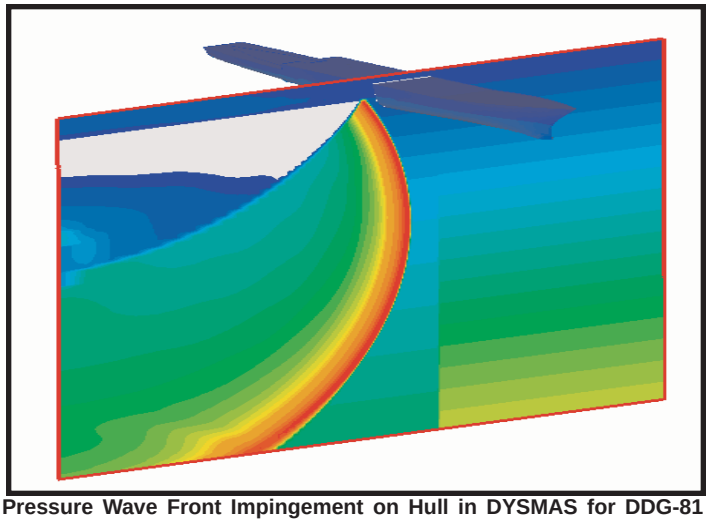
First implemented in conjunction with the USS John Paul Jones (DDG-53) shock trial conducted in 1994, the highly successful underwater explosion (UNDEX) modeling and simulation process developed by Dr. Shin has been continually refined and improved upon over the past decade through numerous research projects targeting such critical issues as ship systems damping, elastic-plastic response and explosive shock scaling. In June 2001, the USS Winston S. Churchill (DDG-81) underwent a series of three explosive shots in order to verify the shock hardening of major design alterations made to the original Arleigh Burke Class destroyers. Structural response predictions made prior to the at-sea testing resulted in excellent comparison between the NPS simulations and the physical sensor data recorded during the shock trials, confirming the validity of using such a technique. The NPS shock team recently completed work involving the modeling and simulation of the LPD-17 full ship shock trials scheduled for 2007. The preliminary predictions calculated in this effort were accomplished as a means of further validating their methodology across various ship types.

In addition to using the LS-DYNA/USA fluid island approach implemented in previous shock trials, the staff and students



DDG-81 Vertical Velocity Comparison of NPS Simulation and Trial Data

of the SVCL are currently researching other finite element analysis packages used in the modeling and simulation of underwater shock events. These investigations are focused on those computational solvers capable of dealing with the unique fluid-structure interaction problem posed by an UNDEX event, both in the far field standoff range as well as in close proximity to the ship. One of the codes being applied to the ship shock trial event is Dynamic System Mechanics Advanced Simulation (DYSMAS), a coupled Eulerian-Lagrangian hydrocode developed by Naval Surface Warfare Center- Indian Head. ABAQUS is another nonlinear finite element analysis code that is being explored by one of Dr. Shin's present graduate students for use in mutli-hull underwater shock applications.



Pressure Wave Front Impingement on Hull in DYSMAS for DDG-81 Shock Trial Simulation

The ultimate goal of ship shock trial modeling and simulation is to deliver the best possible ship system, capable of withstanding severe UNDEX events at the least overall cost. Through repetitive simulations of coupled fluid-structure finite element models, valuable shock and vibration information can be gathered during the ship design phase, thus impacting the final ship design. By using UNDEX modeling and simulation methodologies such as the ones developed here at the Naval Postgraduate School to "test" the ship in a virtual shock environment, the limited live fire resources currently used for full ship shock testing can be better redistributed for the specific testing of more threat realistic UNDEX scenarios, such as near field shock events. Strategically combined with live fire testing, ship shock trial modeling and simulation is poised to ensure survivability of the next-generation multi-mission surface combatants that will be soon joining the Fleet.

Panels, Meetings, Committees, and Discussion Groups at the 77th S&V Symposium Monterey, CA - Oct. 29 to Nov. 2, 2006

Monday (10/30/06)

ASME Standards Committee

DTE-019 Vibration Controller Selection Committee

DTE-022 Multi-Shaker Test and Control Committee

WG-13 ANSI Standards Shock Test Requirements for Equipment in a Rugged Shock Environment Workgroup (Closed Session)

MIL-STD-810G Discussion Group

Tuesday (10/31/06)

MIL-S-901D Subsidiary Component Testing on Alternate Test Vehicles

MIL-S-901D Testing Lessons Learned

MIL-S-901D Qualification of COTS Equipment

ABAQUS Users Group Meeting

LS-DYNA Discussion Group

NEINASTRAN Users Group Meeting

New Engineers' Forum

Wednesday (11/01/06)

Pyroschock Discussion Group

SAVIAC Town-Hall Meeting

Thursday (11/02/06)

WG-13 ANSI Standards Shock Test Requirements for Equipment in a Rugged Shock Environment Workgroup (Open Session)

77th S&V Symposium Exhibitors

Exhibits open this year on Tuesday, Oct. 31st, at 11:50 a.m., following the Opening Session, for the Exhibitors' Luncheon, and will remain open until 6:00. Tours of the Exhibits can be combined with lunch in the Exhibit Hall from 11:50 a.m.-1:00 p.m. The Exhibit Hall opens on Wednesday, Nov 1, at 7:30 a.m., and will remain open through the social event that evening. To date, the following companies and organizations will provide Exhibits (descriptions may have been edited by SAVIAC):

ABAQUS,Inc- Is the world's leading provider of advanced Finite Element Analysis software and services that are used to solve real-world engineering problems, such as, Static or dynamic stress and displacement, viscoelastic and viscoplastic response, as well as coupled field analysis including, thermo-mechanical, pore fluid flow-mechanical, and structural acoustics, shock and underwater explosions. The ABAQUS software suite has an unsurpassed reputation for technology, quality, and reliability and provides a powerful and complete solution for both routine and sophisticated linear and nonlinear engineering problems.

Aberdeen Test Center-Is a Major Range and Test Facility Base (MRTFB) responsible for planning, instrumenting, conducting, analyzing and reporting on projects supporting research, development, operational, experimental, test and evaluation design, engineering production and surveillance test for DoD agencies, other government agencies, foreign governments, private industry, and academia. ATC is a world leader for integrating test, training and logistic support to the war fighter and is DoD's lead tester for ground vehicles, direct fire munitions and weapons and congressional mandated Army Live Fire Testing. ATC provides support in vulnerability/ lethality testing, ballistic shock, climatic and vibration testing,

Alion Science and Technology- A world leader in the area of shock, ballistics, acoustics and vibration analysis, modeling, and qualification. In addition to performing as a key player in the shock and vibration programs of nearly every current US Navy ship and submarine design, Alion is leading the way in the areas of full-ship shock modeling, simulation, analysis and testing including alternative testing methods (DockShock) and also ballistics applications for personnel protection through the design and verification of vehicle armor systems."

Baker Engineering & Risk Consultants- A technology leader with the most advanced methodologies and tools to predict potential consequences, provides services to industrial companies and government organizations around the world to assess the consequences and risks associated with potentially catastrophic events including explosions, fires and toxic material releases.

Bruel & Kjaer- Bruel & Kjaer, North American- A world leader in sound and vibration test equipment. Since 1942 Bruel & Kjaer has been helping engineers worldwide solve tough sound and vibration problems. From microphones to accelerometers, single channel handheld meters to 1000+ channel lab systems, Bruel & Kjaer is truly your complete supplier of sound and vibration gear.

CMT- Leaders in the design, manufacture, and application of shock and anti-vibration mounts. Specializing in Naval applications, they are the major manufacturer worldwide of the British MoD approved range of shock mounts, including the well known Type 'X' leaf spring mount. Aerospace and industrial applications are also served.

Data Physics Corporation-Will exhibit its SignalCalc Dynamic Signal Analyzers, SignalStar Vibration Control Systems and SignalForce Electrodynamic Shakers. Data Physics has been supplying high performance test and measurement solutions for over 20 years. With the addition of a full line of electrodynamic shakers to complement its vibration controllers and dynamic signal analyzers, Data Physics is a total solution supplier for noise and vibration applications

DTRA- Experiments, analyzes, and proposes to our armed services new employment schemes validated during our testing programs that include dual and multiple weapons delivery, ship-bomb into tunnels, fuse optimization, bunker response, and limit of collateral effects.

Endevco Corporation -A Meggitt group-company, a leading designer and manufacturer of dynamic instrumentation for vibration, shock and pressure measurement. The company's comprehensive line of piezoelectric, piezoresistive, ISOTRON® and variable capacitance accelerometers are used to solve measurement problems in a wide variety of industries including aerospace, automotive, defense, medical, industrial and marine.

Enidine Inc.- Will be on display with the industry's broadest array of shock absorption and vibration isolation products for defense applications, including hydraulic, elastomeric, wire rope, and mechanical designs. Enidine can solve your shock and vibration isolation problems in the areas of shipboard shock, mobile electronics, engine isolation, noise attenuation, transportation/shipping and more. Let our world-class engineering and innovative designs "make your ride a little smoother".

Garwood Laboratories, Inc.- Provides shock, vibration and acceleration testing services per MIL-S-901, MIL-STD-167, MIL-STD-202 & MIL-STD-810. We also provide full climatics and EMI/EMC testing support. Garwood Labs is ISO 9001:2000 registered, NAVSEA approved, DSCC-VQ suitable, A2LA & NIST/NVLAP accredited.

General Dynamics, Electric Boat Corp- Is the world's premier designer and manufacturer of nuclear submarines. E.B is a technology-oriented corporation that supports shock design, analysis and qualification of all major submarine systems with a variety of recent engineering, design testing, construction and/or technology development activities that Electric Boat has performed for the U.S. Navy.

HI-TEST Laboratories, Inc.- Has been a leader in the shock and vibration community for over 30 years. HI-TEST is the nation's only facility that provides the full range of NAVSEA approved MIL-S-901D shock testing (lightweight, medium weight, heavyweight) as well as MIL-STD-167 vibration testing all at one location. Our focus on delivering high caliber customer service in the field of shock and vibration make us a leader in the industry.

Idaho National Laboratories,Inc.- Is the nation's lead laboratory for nuclear energy research, development, and demonstration. In support of this mission, INL performs comprehensive physical security research and development including work in explosives analysis. Our researchers and scientists are recognized leaders in physical security protection and perform

77th S&V Symposium Exhibitors (cont d)

work for the departments of Energy, Homeland Security, Defense, and other government agencies. The laboratory's isolated desert terrain and dedicated explosives test range is an ideal location for performing advanced research, development, and demonstration of emerging technologies to counter the threats of explosive devices.

Kistler Instrument Corp. -Has designed and manufactured shock and vibration sensors and instrumentation in the USA for nearly 50 years. It is now based in Switzerland with world wide distribution. Sensing element technologies include, piezoelectric, piezoresistive, strain gage, and variable capacitance. ISO 9001 certification was received in 1994.

Lansmont Corporation- Field-to Lab Solutions facilitate effective, efficient product and package designs by directly linking captured distribution dynamic inputs to actual laboratory simulation and validation tests. Lansmont's family of SAVER instruments provide the basis for dynamic testing performed in laboratories equipped with Lansmont's shock, drop, impact, vibration, and compression test systems.

LMS- LMS delivers a unique combination of virtual simulation software, testing systems, and engineering services. We focus on the critical performance attributes in key manufacturing industries, including structural integrity, handling, safety, reliability, comfort and sound quality. With over 26 years of experience, LMS is the partner of choice for leading manufacturing companies.

M+P International, Inc- Is a worldwide provider of systems and software for noise and vibration measurement and analysis, emission testing and process monitoring. From production to research, 1 channel to 192 channels control, acquisition or analysis, Windows NT/2000/XP or Unix, M+P has your system and software solutions. Available for demonstration, will be M+P's complete line of vibration control, data acquisition and analysis system including the new Smart Office NVH software.

Martec Limited-Is a world leader in blast research - the physically accurate simulation of explosions, combustion, shock waves and target response. Our scientists are experts in the research and development of state-of-the-art engineering simulation of shock in air, UNDEX, land mines, dynamic structural response, and human vulnerability to blast.

MTS Systems Corporation-Obtain more reliable and repeatable test results with MTS laboratory-based blast simulation technology and expertise from the world's premier supplier of civil structural testing solutions. Developed in close partnership with the UC San Diego, the blast simulation system offers an economical and safe laboratory-based alternative to conventional field blast testing with explosives.

National Technical Systems (NTS) - Provides a full spectrum testing and engineering , including vibration, shock and acceleration to standards including MIL-S-901D, MIL-STD's 167-1, 810, and 202, GR-63, and IEEE-344 . In addition, NTS offers a full line of shock isolators and specialized testing including pyro-shock, modal analysis, dual shaker and multi-axis vibration.

Naval PostGraduate School-Is an academic institution whose emphasis is on study and research programs relevant to the Navy's interests, as well as to the interests of other arms of the Department of Defense. The programs are designed to accommodate the unique requirements of the military. NPS is located in Monterey, California, on the Pacific Ocean 120 miles south of San Francisco, the Naval Postgraduate School campus covers 627 acres of land. The site, which has been home to NPS since 1947, houses state-of-the-art laboratories, numerous academic buildings, a great library, government housing and impressive recreational facilities.

NAVSEA Warfare Center- is part of an elite team of the Naval Sea Systems Command (NAVSEA) activities that serve the Fleet. The Warfare Center's role is to provide the right technology, the right capabilities, and the specialized research and development facilities to support all aspects of surface and undersea warfare.

Noran Engineering- Provides a wide range of industry proven finite element solutions for marine applications that enable our customers to evaluate and optimize many performance and reliability aspects of their designs and manufacturing processes. We invite you to visit our booth and attend our presentations at the Tutorial Session. Visit www.NENastran.com or call 1-800-Nastran.

Northrup Grumman/Newport News - Manufactures the C-Worthy S&V Isolation Mounts, which allows the use of COTS electrical and electronic equipment on board Navy ships. C-Worthy Mounts provide superior characteristics to include a higher dampening factor and better balance between tensile and compressive deflection regimes. With the C-Worthy Mount we provide expert application engineering services as part of our business model to ensure that each mount isolation selection performs consistent with customer objectives

NUWC (Keyport Division)-Naval Undersea Warfare Center (NUWC) Division, Keyport, one of eight Divisions of the NAVSEA Warfare Center Enterprise, provides test and evaluation, in-service engineering, maintenance and repair, Fleet readiness, and industrial base support for undersea warfare systems, countermeasures, and sonar systems. We are Keeping America's Navy #1 in the World.

PCB Piezotronics, Inc- Designs and manufactures a complete range of accelerometers, microphones, pressure sensors, force sensors, load cells, and torque transducers utilizing, piezoelectric, capacitive, strain gage, and piezoresistive, sensing technologies. PCB also offers TEDS sensors and accessories and precision condenser, prepolarized, array, and special purpose microphones for acoustic measurements

Precision Filters, Inc- Specializes in a broad range of high performance instrumentation for test measurements including signal conditioning for bridge, strain, dynamic strain, charge/IEPE w/ LD-TEDS, thermocouple, frequency and others. The all new PF-1U System provides 16 channels of fully programmable filter/amps in a compact 1U (1.75") package complete with Ethernet interface.

Society for Experimental Mechanics - (SEM) Composed of international members from academia, government and industry who are committed to interdisciplinary application, research and development, education and active promotion of experimental methods to: (a) increase the knowledge of physical phenomena; (b) further the understanding of the behavior of materials, structures and systems; and (c) provide the necessary physical basis and verification for analytical and computational approaches to the development of engineering solutions."

77th S&V Symposium Exhibitors (cont d)

Spectral Dynamics-Is a technically innovative company that has served the Shock and Vibration community continuously for 45 years. Whether it's true Sine control of challenging tests, innovative MIMO control of multiple shakers, unique Shock data capture at 5 Msample/s/channel or accurate Phase-locked acquisition of hundreds of channels of data, Spectral Dynamics uses mathematics effectively to reduce the total costs of dynamic testing.

Taylor Devices, Inc. -Since 1955, Taylor Devices has been the world leader in the design and manufacturing of innovative fluid products for shock and vibration control. Our technology base includes shock absorbers, shock and vibration isolators, dampers, liquid springs, and seismic protection products. Available output forces range from one pound to four million pounds, with complete in-house simulation and full scale component testing available. Taylor Devices can solve your shock and vibration problems . . . quickly, cost-effectively, and permanently.

Team Corporation-Supplying high performance servohydraulic test systems for over 50 years to military and aerospace programs, has achieved two significant milestones this year. A 3DoF system with over 300,000 lbs of peak force, 6 inches of stroke and controllable performance to 500 Hz is in support of the FCS program. The system will be used to advance the reliability enhancement program for the Non Line of Sight Cannon and Mortar, driving a payload of 20,000 lbs to 4 Grms. Raytheon Corporation will receive multiple systems in support of the DD(X) program, reproducing measured shock transients experienced by COTS products mounted in isolated electronic cabinets. The SSTS can address through our rigorous engineering eval and application of proven servohydraulic components.

Weidlinger Associates, Inc.-Is a multi-disciplinary consulting engineering firm specializing in applied science, structural, civil, transportation, and forensic engineering. Advancing the technology for blast, shock, impact and vibration effects since 1949, our computational tools are continually validated with physical testing. We adapted these cold war technologies to antiterrorist design and our services include the definition of explosive environments, prevention of progressive collapse, and blast resistant facade systems. This expertise is applied to courthouses, airports, embassies, and commercial buildings.

"PADFOLIOS" TO REPLACE BAGS FOR THE 77th S&V SYMPOSIUM

Padfolios will be given to all registered attendees this year at the 77th S&V Symposium, in Monterey, CA. The logos of this year's five "Featured Organizations" adorn the front of the padfolio. Inside the the zippered folio is a 8.5 x 11 writing pad, business card holders, and a pocket for storing the program and abstract book. We hope this will be a welcomed replacement for the bags you may have received from past symposia.

77th Shock and Vibration Symposium

Hyatt Regency Monterey
Monterey, CA

October 29 - November 2, 2006

Registration

$745 Early Registration Until September 29, 2006
$845 Registration After September 29, 2006

Tutorials

Sunday and Monday (Oct 29 & 30, 2006)
$25o per Tutorial (for registered symposium attendees)
$350 per Tutorial (for those not attending symposium)

Hotel

$139 per Night - SAVIAC Symposium Rate
Hyatt Regency Monterey - Monterey, CA

Reservations:
1-800-233-1234 or book on-line at www.saviac.org

Exhibiting

32 Exhibitors Registered
Potential Exhibitors - Please Call (804) 282-5570 for Availability and Details

Current Program Contents

110 Unlimited Presentations/Papers
60 Limited Presentations/Papers
15 Classified Presentations/Papers
15 Meetings, Panels, Committees, & Discussion Groups
28 Tutorials
13 Trainings
3 Guest Program Tours

SAVIAC Symposium Information:

www.saviac.org

(804) 282-5570

Conference & Short Course Announcements

"24th Space Simulation Conference"
IEST
November 6 - 9, 2006
Annapolis, MD
A major international forum in space hardware environmental testing for research and development and qualification. It provides a unique opportunity for engineers, technicians, and scientists from industry, government, and academia to present and exchange information and ideas on simulating the space environment to develop and test space mission hardware. The 24th Space Simulation Conference is hosted by the Institute of Environmental Sciences and Technology (IEST) and co-sponsored by NASA, AIAA, ASTM, Canadian Space Agency (CSA), and Johns Hopkins University Applied Physics Laboratory (JHUAPL).IEST is an ANSI-accredited standards-developing organization; Secretariat of ISO/TC 209 Cleanrooms and associated controlled environments; Administrator of the ANSI-accredited US TAG to ISO/TC 209; and a founding member of the ANSI-accredited US TAG to ISO/TC 229 Nanotechnologies. For conference and exhibit information, visit www.iest.org.

"Instrumentation for Test and Measurement" - Course No. 163
TTI
October 23-25, 2006
On-line
Course 163 presents basic information on selection, application, calibration and usage of modern measurement systems to measure electrical, environmental and dynamic phenomena. The course emphasizes a non-mathematical approach to understanding concepts and mechanisms. A variety of measurands and transducer types is covered, as well as signal conditioning, recording and analysis. Participants are encouraged to bring a specific measurement problem to class for use as a case study. The instructor will introduce one or more student problems (and/or a preselected case) on the first day. Each day's course material will further develop the case study. A solution will be given at the end. Please contact Technology Training, Inc's Vice President Brian P. Slattery toll-free at 866-884-4338 (866-TTi-4edu) or e-mail:brian@ttiedu.com. Additional information available at http://www.ttiedu.com.

"Designing Reliable &Rugged Electronics"
ERI
December 5-7, 2006
Las Vegas, NV
A three-day interactive workshop aimed at shortening the time required for reliable electronics design, vibration testing and (when weaknesses are found) corrective action. The course will be taught by John Starr, a professional engineer with 35 years of continuous and varied structural design experience in Nuclear, Chemical, and Defense industries. Designers, developers, producers and vibration test personnel, etc. seeking an immediate answer to an in-service failure, or otherwise involved with electronics printed wiring boards (PWB) subject to vibration. who review designs and need to predict lab and field survivability. Those who examine failed hardware, identify weaknesses and need to strengthen it for survivability.To register, visit http://www.equipment-reliability.com/regist_form.htm . Course details can be found at http://www.equipment or contact Wayne Tustin at Equipment Reliability Institute by phone @ (805) 564-1260.

Industry News

High Sensitivity Acoustic Pressure Sensors for Automotive and Aerospace Testing Applications
PCB Piezotronics, Inc.
Depew, NY
Series 103B ICP® Acoustic Pressure Sensors from the Pressure Division of PCB Piezotronics, Inc. measure pulsating, transient, and turbulent acoustic phenomena on transportation vehicles and other structures. These low-profile, high-sensitivity sensors are ideal for applications such as automotive and aerospace wind tunnel testing, aerodynamic testing and analysis, aircraft cabin and cockpit noise testing, and acoustic fatigue testing on airframes. ICP® style sensors feature built-in signal conditioning microelectronics to produce clean, low-impedance voltage output signals, and are offered in three configurations; pigtail wire solder connection, 10-32 top connector, and 3-56 side connector. For additional information, contact the Pressure Division of PCB Piezotronics, Inc. at 888-684-0011 (in the U.S. and Canada) or 716-684-0001; fax 716-686-9129; email: pressure@pcb.com, or visit PCB's web site at www.pcb.com.

Portable Accelerometer Calibrator
VIP SENSORS
San Juan Capistrano, CA -
VIP SENSORS introduces the new Model 5900, a portable accelerometer calibrator which measures and displays the output of Piezoelectric (PE), Piezoelectric with Integral Electronics (IEPE, constant current) and voltage accelerometer types when subjected to a known excitation. A built-in shaker and reference accelerometer provides a known vibration input signal. The vibration amplitude is adjustable from 0.02 g to 2 g and is accurately shown in the 4 digit display. The user has the option to use the internal sinusoidal oscillator set at 100 Hz or to use an external oscillator with frequencies from 50 to 2 KHz. Maximum weight of the accelerometer under test is 7 ounces (200 grams) for 1 g excitation. This instrument is perfect for those who want a portable device to quickly ascertain the sensitivity of the accelerometer they are about to use on a test.For more information, contact: Danny Uehara at 949-429-3558, or via email @ danny@vipsensors.com. Web site: www.vipsensors.com.

Larson Davis Names Gregg Novak North American Sales Manager
PCB Piezotronics, Inc.
Depew, NY
Larson Davis, a division of PCB Piezotronics (PCB®), has named Gregg Novak as North American Sales Manager. In this position, Gregg will be responsible for all Larson Davis sales activities in the United States, Canada and Latin America, managing all Direct Sales, representatives and distributors of the division's Industrial Hygiene and Acoustic Test product lines.
Mr. Novak brings to his new position more than fifteen years of Sound and Vibration applications engineering experience. He began his career as an Applications Engineer for PCB®, and -in a series of successive management roles -served as Vibration Product Manager and PCB® National Sales Manager. He returns to PCB® after several years as an independent sales representative based in Phoenix, Arizona. For more information, please contact Larson Davis toll-free at 888-258-3222, email sales@larsondavis.com, or visit www.larsondavis.com.

SAVIAC / HI-TEST Laboratories Inc.
8100 Three Chopt Road Suite 110
Richmond, VA 23229
ADDRESS SERVICE REQUESTED.

In the September 2006 "Current Awareness" Newsletter

FEATURE ARTICLE
-Naval Postgraduate School (NPS)

77th S&V Symposium Updates and Information
-Panels, Meetings, Committees, and Discussion Groups Listing
-Exhibitor Descriptions
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Industry News

Conference & Short Course Announcements

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