

NOISE/NEWS

INTERNATIONAL

Volume 13, Number 4
2005 December

*A quarterly news magazine
with an Internet supplement published
by I-INCE and INCE/USA*



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INTER-NOISE 2005 Report

NOISE-CON 2005 Report

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INTERNATIONAL

Volume 13, Number 4

2005 December

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Cover Photos:

Cute white hibiscus. The hibiscus has many types of flowers, but white hibiscus is native to Hawaii.
• Photo courtesy of Hawaii Visitors and Convention Bureau

I-INCE president, Hideki Tachibana, left, and INTER-NOISE 06 General Chair David Holger appear to be Hawaii bound. • Photo courtesy of George Maling

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NOISE/NEWS

I N T E R N A T I O N A L

The printed version of Noise/News International (NNI) and its Internet supplement are published jointly by the International Institute of Noise Control Engineering (I-INCE) and the Institute of Noise Control Engineering of the USA (INCE/USA).

I-INCE

The International Institute of Noise Control Engineering (I-INCE) is a worldwide consortium of societies concerned with noise control and acoustics. I-INCE, chartered in Zürich, Switzerland, is the sponsor of the INTER-NOISE Series of International Congresses on Noise Control Engineering, and, with the Institute of Noise Control Engineering of the USA, publishes this quarterly magazine and its Internet supplement. I-INCE has an active program of technical initiatives, which are described in the Internet supplement to NNI. I-INCE currently has 46 Member Societies in 39 countries.

INCE/USA

The Institute of Noise Control Engineering of the USA (INCE/USA) is a non-profit professional organization incorporated in Washington, D.C., USA. The primary purpose of the Institute is to promote engineering solutions to environmental noise problems. INCE/USA publishes the technical journal, *Noise Control Engineering Journal*, and, with I-INCE publishes this quarterly magazine and its Internet supplement. INCE/USA sponsors the NOISE-CON series of national conferences on noise control engineering and the INTER-NOISE Congress when it is held in North America. INCE/USA Members are professionals in the field of noise control engineering, and many offer consulting services in noise control. Any persons interested in noise control may become an Associate of INCE/USA and receive both this magazine and *Noise Control Engineering Journal*.

NNI Internet Supplement

www.noiseneewsinternational.net

- Links to the home pages of I-INCE and INCE/USA
- Abstracts of feature articles in the printed version
- Directory of the Member Societies of I-INCE with links, where available, to the Member Society Profiles and home pages
- Links to I-INCE Technical Initiatives
- Calendar of meetings related to noise—worldwide
- Links, where available, to NNI advertisers
- Links to news related to the development of standards
- Link to an article “Surf the ‘Net for News on Noise,” which contains links to noise-related sites—worldwide

Activities Within INCE/USA

As my year as President of INCE/USA draws to a close, it is comforting for me to report that the Institute continues to have many on-going noise control activities and initiatives. There is good stability within the organization; student membership has grown slightly; *Noise Control Engineering Journal (NCEJ)* is seeing an increase in papers; INCE/USA members are becoming more active in USA noise policy issues; and there were two very successful noise conferences held in 2005. INTER-NOISE 2005 took place in Rio de Janeiro during August, and NOISE-CON 2005 was concurrent with the 150th Meeting of the Acoustical Society of America (ASA) held in Minneapolis, Minnesota in October. There were nearly 200 papers presented and published in the NOISE-CON Proceedings. The strong collaboration with ASA is very evident in that many of these papers came from special noise sessions jointly organized by the ASA Technical Committees on Noise, Architectural Acoustics, and Structural Acoustics. The remaining sessions were organized by the INCE/USA Technical Activities Board, which is chaired by Patricia Davies, and who also served as co-Technical Chair (with Stuart Bolton) of NOISE-CON 2005; the General Chairs of the conference were Daniel Kato and Robert Bernhard. The Technical Chairs teamed with George Maling to produce one of the most comprehensive Proceedings CD-ROMs ever! It contains the NOISE-CON Proceedings for 2005, 2004, 2003, 2001, 2000, 1998, 1997, and 1996. Also included are the Proceedings of the Sound Quality Symposia of 1998 and 2002, and a select set of papers that deal with both national and international noise policy.

The Board of Directors of INCE/USA has accepted the offer from the Australian Acoustical Society to hold ACTIVE 2006 at the University of Adelaide in September; INCE/USA will co-host INTER-NOISE 2006 with INCE/Japan in Honolulu in December; NOISE-CON 2007 is tentatively planned for Santa Clara, CA in early fall; NOISE-CON 2008 will be in the Ann Arbor, Michigan area; and a formal proposal to I-INCE to hold INTER-NOISE 2009 in Ottawa, Canada is presently under review.

The plan to publish *NCEJ* electronically, along with the traditional paper copy for libraries only, has been approved. The American Institute of Physics will handle the electronic publishing of the journal, which will eventually include all past issues. Members and libraries can expect to begin receiving CD-ROMs of *NCEJ* in 2006 July. The January/February 2006 issue of *NCEJ* will be a special issue devoted to fan noise. It will contain several expanded papers from the I-INCE 2003 Fan Noise Symposium, which took place in Senlis, France under the organization of Alain Guedel and Jean Turret.

As reported in earlier issues of *Noise/News International*, the technology and policies of noise control engineering in the USA is the subject of a study being conducted by the National Academy of Engineering (NAE). I would like to take this opportunity to recognize and thank founding INCE/USA members George Maling, Bill Lang, and Leo Beranek for their effort in bringing the issues of noise and noise policy to the attention of the Academy and others in the USA federal government. Through their direction of a steering committee (chaired by George Maling) consisting of practicing noise control specialists, the NAE held a very successful workshop in September 2005. Many INCE/USA members gave keynote addresses at this workshop, in addition to participating in working groups to define appropriate courses of action in the areas of noise control engineering cost-benefit analysis, demand, and education; new technologies; improved occupational noise controls and community noise metrics; public awareness; and government coordination and assistance. The study is expected to continue for at least two more years. The goals are to summarize the current state-of-the-art of noise control engineering, to recommend policies and practices for government agencies, and to develop an expanded research and education agenda. Surely INCE/USA members will be contacted for participation in this continuing study that will lead to an improved soundscape for the world in which we live.

continued on page 129



Gerald C. Lauchle
2005 INCE/USA
President

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Coming to Grips with Traffic Noise

Traffic noise is one of the most unique environmental noises afflicting modern man. Although it can be high in level in some cases—such as next to a busy freeway—its real uniqueness stems not so much from the level of noise, but rather its omnipresence. Adding to its uniqueness is often the dispersion of authority or responsibility, confounding efforts to do much about it. Finally, like no other type of transportation noise, motor vehicle noise enters that realm of individual versus collective rights as some operators insist on making even louder “sounds” with their vehicle. It is no wonder that the United States as well as probably other countries of the world have a difficult time with developing a rationale plan to produce real improvement.

In the modern environment, motor vehicle noise is virtually inescapable. This is largely due to the great freedom in mobility that motor vehicles provide. They can travel in great packs producing high levels due simply to their numbers such as along our freeways, or singly where their level may not be high, but stands out relative to low background noise levels. Even away from identifiable packs of vehicles on roadways, the background noise frequently is set by the presence of many, many of them operating at varying distances away. Just based on this exposure model, it is clear that there is no single noise control “fix” that will address all situations.

But there are fixes available and if they all could be applied in a rational manner, real improvement could be made. Many of these can be found in the Final Report by the I-INCE Working Party on the Effect of Regulations on Road Vehicle Noise as published in the September 2001 issue of this magazine. One positive step is the changes taking place in the ISO 362 passby noise test procedure, which will soon include tire noise dominated cruise conditions as part of the reported emission level. This will at least bring lower speed emission levels more in line with actual lower speed operating conditions. Other fixes on the source side include the use of quiet pavements to reduce tire/road noise particularly for motorways and freeways. Depending on the initial pavement, reductions of 5 to 10 dB can be

achieved by pavement selection. Also, on the source side, is the issue of quieter tires. Although more typical passenger car tires may show only a range in A-weighted level of a few dB, when “off-road” 4x4 tires are included, this light vehicle range can become significant. For truck tires, a spread of more than 10 dB exists between those used on the steering and trailer axles and some of those used on the drive axles. Then there is the whole issue of poorly maintained or intentionally modified cars and trucks. As a result, the range in level for highway passby conditions for light vehicles is typically 8 dB and 7 dB for trucks. On the path side of the equation, of course, there is the ever-popular sound wall that may yield a 8 to 15 dB reduction, at least close by.

Although there is a good list of potential fixes, the problem comes when you look at who is responsible for what and who is there to bring it all together. For new vehicle regulation, a federal governmental authority is typically responsible for setting the allowable noise level and manufacturers for the implementation. For this to be effective, the levels should be rational and relate to real world noise exposure. But as the I-INCE Working Party found, these may not be effective if done in a vacuum. That is, the low emission levels may be negated by the first after-market tire purchase or by transverse texturing of local highway surfaces. For trucks, tire noise is further complicated because truck manufacturers do not specify the tire type, but instead it is left to the purchaser. In the US, pavement type is a state or local highway agency’s decision, and its use as a noise abatement strategy is not yet supported by the Federal Highway Administration. Federal support goes only to the construction of sound walls and only then when at least a 5 dB reduction can be achieved. The final element is in-use control and enforcement. In the U.S., this is unpopular with the taxpayers who fund the enforcement and unpopular with those who want to get the “right sound” from their exhaust system or lower back-pressure for their “big-rig” truck.

Can we get a grip on traffic noise? Perhaps it can be if we use three or four hands and have a head to coordinate them. 



Paul Donovan
*Pan-American
News Editor*

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Institute of Acoustics— United Kingdom

A founding member of European Acoustics Association and a longtime member of the International Institute of Noise Control Engineering, the Institute of Acoustics is the United Kingdom's premier organization for professionals working in acoustics, noise, and vibration. The group was formed in 1974 from an amalgamation of the Acoustics Group of the Institute of Physics and the British Acoustical Society.

The Institute now has about 2,500 members from professions as diverse as engineering, science, education, law, architecture, and environmental health. The majority of members (about 900) are employed in industry, commerce, and consulting although a significant number work in education and research (400 members) as well as in public agencies (500 members). The Society's multidisciplinary culture embraces a range of interests as varied as the group's membership. IOA members are involved in numerous aspects of acoustics, including aerodynamics, building acoustics, electroacoustics, engineering dynamics, noise and vibration, hearing, speech, and underwater acoustics, to name a few. Specialist groups have been formed around many of these topics.

IOA has three corporate grades of membership (Honorary Fellow, Fellow, and Member) and four non-corporate grades (Associate Member, Technician Member, Affiliate, and Student.) The numbers in each are steady or growing; the most recent breakdown gives the following picture of IOA membership: Honorary Fellows, 21; Fellows, 196; Members, 1371; Associate Members, 714; Affiliates, 96; Technician Members, 10; and Students, 49.

The work of the group, guided by an elected Council and Executive Committee, relies heavily on the volunteer efforts of its members, many of whom serve on one of several standing committees focused on educational efforts, medals and awards, meetings, membership, publications and other topics. The accomplishments of the standing committees are well documented. According to the Institute's most recent annual report, for example, members of

the medals and awards committee have successfully enhanced IOA's prestigious recognition program. Two new awards have

been added, one that celebrates the innovative work of young people in acoustics and another that honors efforts to promote acoustics to the general public.

Education is the core component of the Institute's activities. The group regularly hosts conferences, workshops, and one-day meetings. Their next event will be a spring conference in April 2006 focusing on the twin themes of research and employment in acoustics.

The Institute publishes a bimonthly bulletin containing articles of professional, academic, and technical interest, and coordinates proceedings that record more than 200 papers presented annually at formal meetings. Some of the Institute's publications, including its most recent Annual Report and bulletin, are available on-line. One of the IOA's most recent and significant undertakings has been the completion of a new Web site (www.ioa.org.uk).

The Institute has close ties with the Association of Noise Consultants, the Chartered Institute for Environmental Health, the British Society of Audiology, and the National Society for Clean Air and Environmental Protection. The Institute is represented on the Department of the Environment's Noise Forum.

Contact information for the Institute of Acoustics—UK follows.

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Web: www.ioa.org.uk



This is the 52nd in a series of articles on the Member Societies of International INCE.

inter.noise 2006

Engineering a Quieter World



The 2006 International Congress and Exposition on Noise Control Engineering



Honolulu, Hawaii, USA



Sheraton Waikiki



3–6 December 2006

Inter-Noise 2006, the 2006 International Congress and Exposition on Noise Control Engineering, will be held at Sheraton Waikiki, Honolulu, Hawaii, USA, on 2006 December 3-5. This will be the 35th annual congress and expo sponsored by the International Institute of Noise Control Engineering (I-INCE). Organizers are the Institute of Noise Control Engineering/Japan and the Institute of Noise Control Engineering/USA. Congress co-presidents are David Holger, Iowa State University, and Sonoko Kuwano, Osaka University.

Inter-Noise 2006, which is expected to draw as many as 1000 participants, follows the joint ASA/ASJ meeting at the same venue. Registration for Inter-Noise 2006 is now available on-line at www.internoise2006.org. Cost is \$525 for registrations received before 18 August, \$575 for registrations received between 18 August and 18 November, and \$625 on-site. The fee includes the Welcome Reception, Expo Reception, Closing Reception, Congress packet with Program Book and CD of Proceedings. There are separate fees for accompanying persons and the Congress Banquet.

Congress Schedule

The Congress will begin with an Opening Ceremony and Reception at the hotel Sunday, 3 December, starting at 1600. This event will feature a perspective of 35 years of Inter-Noise Congresses. Guests will also have an opportunity to sample Hawaiian food and entertainment.

Three plenary speakers have been scheduled:

Monday, 4 December

Tjeert ten Wolde.....**Noise Policy**

Tuesday, 5 December

Tatsuo Maeda.....**Railway Noise**

Wednesday, 6 December

Gilles Daigle.....**Sound Propagation**

The Congress will also include technical papers in all areas related to noise and vibration control with a special emphasis on the theme *Engineering a Quieter World*.

The social program includes the Opening Ceremony and Reception, the Exposition Opening Ceremony (4 December), Congress Banquet, (5 December), and Closing Ceremony and Reception (6 December). A full program is also planned for accompany persons.

Please review this entire article for additional information on Congress presentations and social events.

<http://www.internoise2006.org>

Jointly organized by INCE/USA and INCE/Japan • Sponsored by I-INCE

Technical Program

Technical papers in all areas related to noise and vibration control will be presented. The broad theme of the Congress is "Engineering a Quieter World," and papers of specific relevance to this theme are especially encouraged. A number of technical tracks and special sessions are being organized in the following categories: sound quality; noise policy; sound propagation; aircraft and airport noise control; highway, automobile, and heavy vehicle noise; railway noise; machinery noise, fan noise and aeroacoustics; active noise and vibration control; vibroacoustics and vibration; building acoustics; barriers; noise control materials; environmental noise and soundscapes; numerical simulation, prediction, and modeling; measurements and instrumentation; community noise; effects of sound on humans; effects of vibrations on humans; low frequency noise and infrasound.

Details of some special sessions are still being finalized. Extensive information is available on the Web site. Go to www.internoise2006.org and click on the "Technical Program" link.





Transportation to Hawaii

Congress organizers are pleased to announce that United Airlines is offering special discounts for Inter-Noise 2006 participants and their guests. This offer is available for tickets booked through United's Special Meeting Desk as well as those ordered on-line. Discounts for flights to and from the U.S. range from 2-15% off the lowest applicable fares, depending on type of fare (first class, economy, etc.) and when the fare is purchased. Special discounts are available to international travelers, as well.

Travel dates for the discounted fares are 30 November 2006 through 13 December 2006. Travel can occur anytime during this time period, subject to availability.

Making reservations by telephone

Reserve your flight by phone and receive a 2-10% discount off applicable fares, including First Class. Simply call (or have your travel agent call) United's Special Meeting Desk at 1-800-521-4041 and refer to "meeting ID number 564HA." If you purchase your ticket at least 30 days prior to travel, you will receive an additional 5% discount. This special offer applies to travel on domestic segments of all United Airlines, United Express, TED and United code share flights (UA*) operated by US Airways, US Airways Express and Air Canada. There are no fees for using this service.

Making reservations on-line

Purchase your ticket online at www.united.com and receive a 10% discount off the lowest applicable fares. After you link to www.united.com, enter your origin and destination, travel dates and your promotion code number, 564HA. All available flights will be displayed; flights that qualify for the discount will be clearly identified with a green star symbol, which means that the itinerary is "electronic certificate eligible". When you select an electronic certificate eligible flight, your discounted fare will be automatically calculated and presented. This special offer applies to flights to or from the U.S. only. There are no fees for booking on line. Note the code 564HA is case sensitive and the characters need to be capitalized.

Reservations for International Travelers

International attendees will receive a 10% discount off the lowest applicable fare (excluding First Class), or a 15% discount off the fully refundable, unrestricted coach fare when they call their local United Airlines reservation number and refer to meeting ID number 564HA. An additional 5% discount will apply when tickets are purchased at least 60 days in advance of your travel dates. Discounts apply to United and Lufthansa (code share) flights.

Exposition

A large Expo with displays of materials, instruments, and services in noise and vibration control engineering will be held at the Congress venue. The Expo will open Monday with a special reception for Congress and Expo participants.

Expo manager is Rich Peppin (PeppinR@ScantekInc.com). Following is a list of exhibitors to date:

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Acticut International
AMF-Ultrascreen
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CYRO Industries
Data Physics Corp
DataKustik GmbH
Dodge-Regupol Inc.
Eckel Industries Inc, Acoustic Division
G.R.A.S. Sound and Vibration.
HEAD acoustics, Inc.
IAC America
Microflown Technologies
National Instruments
Overly Door Company
PAC International, Inc.
PCB/Larson Davis
Polytec, Inc
Precision Filters
Pyrok, Inc.
Quest Technologies, Inc.
RION CO. LTD
Scantek, Inc.
Sound Fighter Systems, L.L.C.
Soundown Corporation
SoundPLAN LLC
Svantek Ltd.
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Transportation in Hawaii

The hotel is easily accessible from Honolulu International Airport. There are two options for traveling from the airport to the hotel.

Ilima Waikiki Tours and Transportation: This service uses mid-to-large size vans of up to 20-25 passengers. It makes stops at all four Sheraton Hotels in Waikiki but may include other stops as well. Estimated travel time from airport is 35-55 minutes depending upon traffic conditions, passenger count and stops. Cost is 10 USD per person and arrangements can be made in advance. • **Taxi:** There are taxi dispatch personnel meeting all arriving flights. Taxis range in size from sedans to vans. Estimated travel time from airport is 25-45 minutes. Cost is 25 USD but additional fees may apply for extra passengers, luggage and waiting time.

Congress Organizers have negotiated an agreement with the Hertz Corporation for discounted rental cars during the Congress. Please check the Congress Web site for details.

Congress Venue

The Congress venue is the 31-story Sheraton Waikiki. Occupying a half-mile of beach, it offers majestic views of the Diamond Head crater and the Pacific Ocean. The hotel has superior meeting and exhibition space. All space is on one floor, which will be devoted exclusively to INTER-NOISE meetings and sessions. There are rooms for up to 11 breakout sessions with 10 rooms accommodating from 75 to over 900 participants (the 11th room holds 60). A variety of guest rooms will be available to Congress participants. Rates are based on several factors, including view. Following is a list of room types and rates per night:

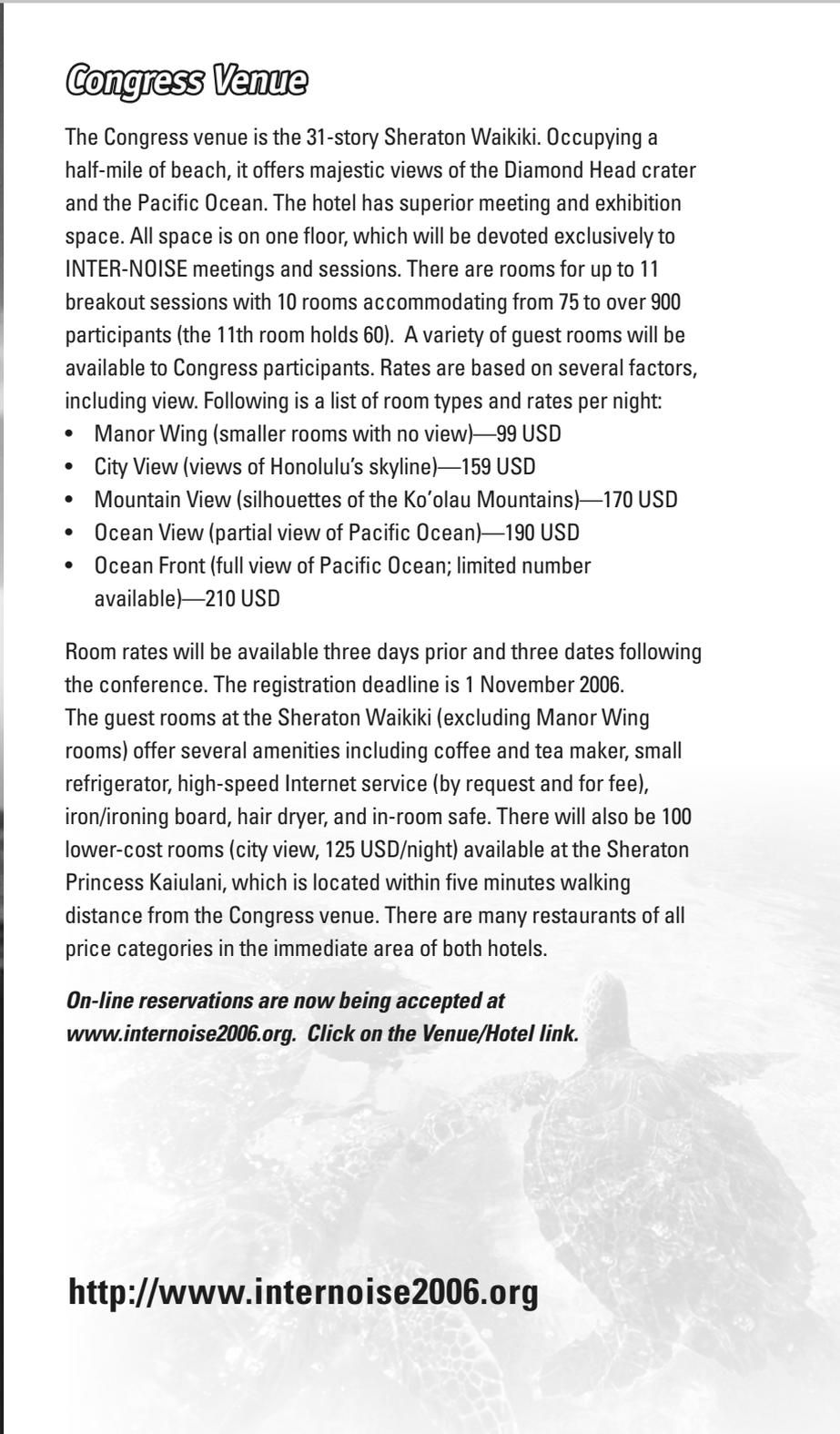
- Manor Wing (smaller rooms with no view)—99 USD
- City View (views of Honolulu's skyline)—159 USD
- Mountain View (silhouettes of the Ko'olau Mountains)—170 USD
- Ocean View (partial view of Pacific Ocean)—190 USD
- Ocean Front (full view of Pacific Ocean; limited number available)—210 USD

Room rates will be available three days prior and three dates following the conference. The registration deadline is 1 November 2006.

The guest rooms at the Sheraton Waikiki (excluding Manor Wing rooms) offer several amenities including coffee and tea maker, small refrigerator, high-speed Internet service (by request and for fee), iron/ironing board, hair dryer, and in-room safe. There will also be 100 lower-cost rooms (city view, 125 USD/night) available at the Sheraton Princess Kaiulani, which is located within five minutes walking distance from the Congress venue. There are many restaurants of all price categories in the immediate area of both hotels.

On-line reservations are now being accepted at www.internoise2006.org. Click on the Venue/Hotel link.

<http://www.internoise2006.org>





General Conference Information

Congress Secretariat

The INCE/USA Business Office will serve as Congress Secretariat. Many questions about travel, deadlines, and other details can be answered by them. The secretariat can be contacted by telephone (+1 515 294 6142), e-mail (ibo@inceusa.org), or regular mail (210 Marston Hall, Iowa State University, Ames, IA, 50011-2153, USA).

Banquet (Congress Banquet)

Congress participants are invited to enjoy the music, dance, and food that have influenced the unique Hawaiian culture at a traditional luau. The event will be Tuesday 5 December 2006 at the Royal Hawaiian Hotel adjacent to the Sheraton Waikiki. Weather permitting, the luau will be held outdoors.

A separate ticket is required for this event. The cost is 75 USD (per person) in advance and 100 USD on-site. Tickets can be purchased on the conference registration link.

The evening begins with guests being greeted with leis and refreshing drinks on the lawn. It continues under the stars with a feast of foods like teriyaki beef, Hawaiian-style roast pork, island-style fish, poi, fresh pineapple and other sliced fruits, plus side dishes and desserts. The evening concludes with a 90-minute show of native music and dance.

Any trip to Hawaii must include a luau. To miss it would be like going to Paris and not visiting the Eiffel Tower. Reserve your ticket today.

Accompanying Persons Program

Accompanying persons may register with the Congress participant. The per person fee is 50 USD before 18 August, 75 USD between 18 August and 18 November, and 100 USD on-site. This fee covers

three receptions—Welcome, Expo, and Closing—and a light continental breakfast Monday-Wednesday.

A separate schedule of social activities for accompanying persons is also being planned. Optional activities include a southeastern coastline/Honolulu city tour (Monday, 4 December), a trip to the famed Polynesian Cultural Center (Tuesday, 5 December), and a Hanauma Bay snorkeling tour (Wednesday, December 6). There will be additional fees for these activities. More information on the accompanying persons program is available on-line at the Congress website.

Climate and Clothing

INTER-NOISE 2006 is scheduled during Hawaii's "winter" season. Congress participants and their guests can expect average daytime temperatures of 26°C (78°F) and ocean temperatures of 24°C (74°F). Casual business attire is appropriate for Congress sessions; suits and ties are not necessary. You may wish to pack a lightweight jacket or sweater; evening temperatures can be cool.

Currency and Credit Cards

The unit of currency in Hawaii is the U.S. dollar (USD). Foreign currency and traveler's checks can be converted at banks. Exchange counters are located throughout the airport and at many major hotels. Internationally recognized credit cards are accepted at most hotels, shops, and restaurants.

Electricity

Almost all hotel outlets will be 110 volts, 60Hz. Always check the line voltage and frequency before using electrical equipment such as computers, irons, and hairdryers.

Gratuities (Tips)

Restaurants and bars generally do not add service fees (tips) to the bill. The exception is larger parties. Most restaurants include service fee information on their menus.



Photos courtesy of Hawaii Visitors and Convention Bureau

About Hawaii

Located on the island of Oahu, Honolulu is home of the world-famous Waikiki Beach. The island offers warm weather year-round, scenic views, and hospitable residents eager to share their culture. Participants may wish to add extra travel days to their schedules to experience some of these sights, before or after the Congress.

Diamond Head is Oahu's largest crater formed over 100,000 years ago by an active bubbling volcano. Nineteenth century British sailors nicknamed the crater Diamond Head when they mistook the calcite crystals for diamonds. A well-graded trail leads you up the 230-meter summit to a World War II bunker with a bird's eye view of Honolulu.

One of Oahu's natural wonders, Hanauma Bay is a world-class nature preserve and home to a huge assortment of sea life from colorful rainbow parrotfish, convict tangs, trumpetfish, mullet, squid and living coral reefs. The area includes a new Marine Life Education Center with interactive exhibits, displays and video presentations.

Test your wind stamina at Nuuanu Pali, where periodic wind gusts make it difficult for visitors to walk to the lookout point. Perched 914 meters above Windward Oahu, Nuuanu Pali is the site of a famous Battle of Nuuanu led by Kamehameha I in 1795 when he drove hundreds of warriors over the cliff.

The Polynesian Cultural Center, located on Oahu's north shore, brings together the history and cultures of Hawaii, Fiji, New Zealand, Marquesas, Samoa, Tahiti and Tonga in authentic recreated villages covering over 42-acres. Learn first-hand how Pacific islanders build houses with no nails, expertly spear fish, climb 15-meter trees for coconuts, pound bark into cloth, carve fishhooks, weave mats and cook with "hot rocks" in an imu (underground oven). A trip to the Polynesian Cultural Center is an accompanying persons optional tour.

Pearl Harbor is Hawaii's largest harbor and the nation's only naval base designated as a National Historic Landmark with three significant memorials: the USS Arizona Memorial, honoring the 1,100 men of the Pearl Harbor attack; the Battleship Missouri Memorial, a living museum of the most celebrated and last-built battleship; and the USS Bowfin Museum, featuring a World War II submarine, a Japanese mini submarine and extensive submarine history.

Language

English is the official language of the Congress. All abstracts, papers, presentations, posters, lectures, and ceremonies will be conducted in English. The hotel has staff fluent in other languages. Most hotel signs are printed in English and Japanese.

Official Invitation

On request, the Organizing Committee will be happy to send a personal invitation for participation in the Congress. It must be understood that such an invitation is only to help visitors obtain funds for travel or accommodation or a visa and is not a commitment on the part of the organizers to provide any financial support. Please contact the Congress Secretariat for these letters.

Taxi Service

Travel time by taxi from Honolulu International Airport is 30–45 minutes, depending on traffic. Cost is about 25 USD, but additional fees may apply for extra passengers, luggage, and waiting time. A shuttle service from the airport to the Sheraton Hotels is also available. Cost is 10 USD; estimated travel time is 35–55 minutes.

Time Difference

Relative to Greenwich Mean Time, Hawaii is -10 hours.

Visa

Requirements for entry into the state of Hawaii from foreign destinations vary according to country. Please check with the nearest U.S. Embassy or consulate for passport and visa information.

<http://www.internoise2006.org>



INTER-NOISE 2005 Report

Samir Gerges, President of INTER-NOISE 05, the 2005 International Congress on Noise Control Engineering, opened the conference on Sunday, August 7, 2005 in Rio de Janeiro, Brazil. He reviewed briefly the history of acoustics activities in Brazil. He said that SOBRAC, the “Sociedade



Samir Gerges, President of INTER-NOISE 05, opens the congress.

Brasileira de Acustica”, began in 1982 and gradually acquired new members. In 1992 the Ibero-American Federation of Acoustics (FIA) was formed and there are now seven societies in that organization consisting of both Portuguese- and Spanish-speaking societies.

They are Argentina, Brazil, Chile, Peru, Mexico, Spain, and Portugal. There is a FIA meeting every two years (Brazil 1998, Spain 2000, Cancun 2002, Portugal 2004 and Chile 2006), and now INTER-NOISE 05 for the first time in South America. This is, he said, a fulfillment of our dreams. He said that the meeting has been designed to be very competitive with other congresses around the world in order to attract a large number of registrants and allow developing countries, especially South America to participate. The registration fees, he said, are 30% lower; and the hotel rates are much lower than other congresses. The highlight of course, he said, was on the technical level where there will be 529 papers, including 64 posters. Earlier in the day, he said, three short courses were held. He said that there will be more than 800 participants at the congress, from which 300 students paying 25% of the fees, from 43 countries, and that 27 sponsors have assisted with the financial arrangements for the congress. He showed statistics of

the participants at past INTER-NOISE congresses and gave thanks to the companies participating, the authors who have submitted papers, and the participants in Rio. He also thanked the Organizing Committee for the meeting, especially the group from Florianopolis (UFSC), Rio de Janeiro (INMETRO and COPPE) and recognized the group from the podium.

President Gerges then introduced Professor Hideki Tachibana, president of International INCE, who gave good wishes for the next three days in Rio. He reviewed the technical study groups of International INCE and, in particular, showed information on the Technical Study Group 5 report on Global Noise Policies. He also described the technical divisions that International INCE now has and then showed a chart of the environmental noise system (sources—propagation—immission) and said that it is very important to identify all of the steps clearly before doing any noise control engineering and setting noise policy.

President Samir then introduced Antonio Perez Lopez, president of the Iberoamerican Federation of Acoustics, who gave a warm welcome to all participants and wished everyone success in both technical and social activities.

Six awards were then given by SOBRAC. Three were given to Tor Kihlman, Bill Lang, and George Maling for their valuable contributions to stimulate acoustical activities in South America, and the other three awards were given to Brazilian pioneers in acoustics, Fernando Henrique Aidar, Schaia Akkerman and Perides da Silva.



The keynote speaker for INTER-NOISE 05 was Tor Kihlman, past president of International INCE and professor at the Chalmers University of Technology. He spoke on “Sustainable Development in an Urbanizing World—the Noise Issue.” He pointed out that Rio de Janeiro was the venue for the World Summit on Sustainable Development in 1992; and, considering the theme of INTER-NOISE 05—Environmental Noise Control—and the venue, Rio, the topic of “Sustainable Development in an Urbanizing World” is a natural choice for a keynote lecture. He limited his discussion to road traffic noise. He showed a chart of the distribution of global populations over the period 1950 to 2003 and projected to the Year 2030. It was clear from the data that the urban population is growing very rapidly, and that the population densities and the urban population densities in less developed regions is growing much more rapidly than the urban population in developed regions. He discussed the concepts of emission and immission and pointed out that the concept of noise immission derives from Roman law. He said that many environmental noise problems can be solved, at least partially, by emission reductions; but this is not the case for noise problems. Reduction of noise emissions, he said, is a very difficult and time-consuming process; and, therefore, noise problems have to be approached both through reduction of the noise emissions of the source and techniques to reduce noise immission.



Left: Hideki Tachibana, President of International INCE officially opens INTER-NOISE 05

Middle: Antonio Perez Lopes, President of the FIA, brings greetings from the Federation to the delegates at INTER-NOISE 05.

Right: Tor Kihlman delivers the opening plenary lecture at INTER-NOISE 05.

He mentioned several of the specific health effects that have been identified: interference with communication, annoyance response, effects on sleep, psycho-physiological symptoms, performance, productivity, and social behavior. Sustainable development, he said, demands that these adverse effects must be reduced to a minimum. He showed some guidelines from the World Health Organization (WHO) and said that, for negligible effects, the equivalent level, L_{eq} , must be below 45-50 dB. To emphasize that these are very ambitious guidelines, he also showed some Swedish guideline values set more than 30 years ago. He said that these levels are set too high.

He showed the flat-city model of noise in urban areas and pointed out that sprawl is not the solution to lower noise levels because a spread-out area is not necessarily quieter than a compact city. Sprawl, he said, creates its own environmental problems.

He then reviewed the distribution of calculated traffic noise levels for sites in Gothenburg, Sweden, and said that there is a gap between even the Swedish long-term goals and the actual situation. He said that the gap is approximately 10 dB. He then turned to traffic noise levels in two less well-developed regions, the city of Curitiba south of Rio in Brazil and Cairo, Egypt. He showed the distribution of L_{eq} , two-hour levels in the daytime for 1,000 sites in Curitiba (due to Zannin). From the data he concluded that the city is approximately 10 dB noisier than Gothenburg. This is true even though the noise limits set by the authorities in Curitiba are as ambitious as those in Sweden.

A similar situation, he said, exists in Cairo, Egypt, where the noise limits are as ambitious as those in Sweden. But measurements by Ali *et al.* in Cairo indicate that the noise levels in Cairo are even higher than those in Curitiba.

He pointed out that the very noisy situation in Curitiba (as well as other large cities in Brazil) can be explained by the following factors:

1. The bad conditions, in general, of the urban streets.
2. The poor maintenance of the circulating vehicles (cars, buses, motorcycles, etc.) it is not rare to find circulating vehicles with a damaged exhaust system—or even without one.
3. Old circulating vehicles. The average age of Brazilian vehicles is 14 years.
4. The bad habits, in general, of Brazilian drivers:
 - a. Using the horn for greeting his friends (which from sound quality point of view is not a noise, but a pleasant social custom!!)
 - b. Accelerating the vehicle during traffic jams or while waiting for a green light,
 - c. High-speed driving inside urban regions. It is not rare to find people driving over 80 km per hour.

In conclusion, he said, it will be a struggle to produce lower levels. He said that emission levels are too high and that there is no balance between emission levels and immission requirements. There is, he said, no lobbying from local authorities for lower emission levels. Therefore, it seems that we must wait for lower emission levels. He said that we need attractive and quiet public transportation, and we must be sure not to spoil quiet areas where they exist. Good planning is needed, he said; and advance planning is much less expensive than repair of the damage.

Delegates were then privileged to hear a concert of Brazilian popular music. Moyses Zindeluk described the history of Brazilian music, especially “choro,” a



Right: The group “Rabo de Lagartixa” entertains the congress delegates.

Left: Moyses Zindeluk was the host for the performance and explained Brazilian music to the congress delegates.

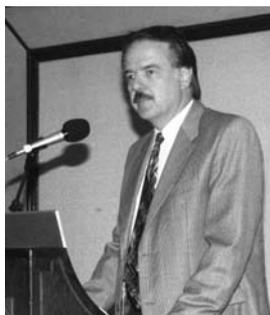


classical form of Brazilian popular music, in serenade/chamber style, which originally was a Brazilian way of playing European dance music. With strong Afro-Brazilian influence, of the then recently freed slaves (second half of 19th century), this form of melodic-rhythmic composition and interpretation, full of improvisation, has some similarities with, but preceded North-American jazz by some 50 years. The two main currents, “choro” and “samba” (the very popular music style which is the basis for Brazilian Carnival) are still very alive. In the 1940s, they gave birth to a soft samba, called “samba-canção” (samba song) and in the late fifties, along the beaches of Copacabana and Ipanema, to the refined and minimalist “bossa nova” (new style), which is now worldly appreciated. To the enjoyment of the audience, further explanations of composers and typical compositions were presented in slides, while Daniela Spielmann and her group “Rabo de Lagartixa” (Gecko’s Tail) were playing them live. (see www.danielaspiegelmann.com).

After the musical performance there was a very nice reception for all delegates in the exhibition area.

On Monday morning, August 8, the second plenary lecture was given by John G. Casali of the Auditory Systems Laboratory, Virginia Polytechnic Institute and State University. The title of his talk was “Advances in Hearing Protection: Technology, applications, and challenges for performance testing and product labeling.” He said that there were two main objectives to his paper. The first

John Casali presents the second plenary lecture.



to provide a technical and performance overview of augmented hearing-protective devices and, secondly, to identify the attenuation testing needs which currently do not exist for these devices. Also, the presentation should provide a critique of the available testing standards for *augmented hearing-protective devices* and how their performance could be quantified by existing standards. He remarked that hearing-protective devices are not substitutes for engineering noise control. He said that these devices are not the answer to all problems involving hazardous noise. He first described the classic hearing-protective device where the attenuation does not depend on the level of the sound. The attenuation does, however, increase as a function of frequency. These classic devices may improve the ability of persons to hear, but the hearing-impaired may be at a disadvantage. He said that there is a dilemma with regard to hearing-protective devices; if an individual is under protected, he or she may lose their hearing. On the other hand, over protecting an individual may be the cause of an accident. This is an impetus for the development of augmented hearing-protective devices. He said that the augmentation can take several forms; for example, adjustable-vent leakage paths may be provided to have adjustable attenuation HPDs. Frequency-selective filters can be incorporated to aid speech communication, and other devices such as active noise reduction can be included to improve signal-to-noise ratios. It is true, he said, that some of the advantages of these devices are not always realized. He quoted a 1966 paper by Casali and Berger on the advantages of augmented HPDs.

He discussed three basic approaches to determination of the attenuation of HPDs:

1. The real-ear attenuation at threshold (REAT) measured according to ANSI S12.6-1997. He pointed out that this method has advantages and disadvantages and is not applicable to new technologies.

2. The physical method according to ANSI S12.42-1995. This method uses a microphone in the ear canal and is good for protective muffs. This method also has advantages and disadvantages.
3. Physical method using a head and torso simulator (HATS). Again, this method has advantages and disadvantages.

He then turned to a discussion of the technology of augmented HPDs:

1. A musician’s plug. This type of device is pre-molded and has a flattened frequency response (uniform attenuation).
2. Noise-level-dependent devices, both active and passive. One example is a Combat-Arms™ plug which is a dual-purpose device. Such a device has a yellow (level-dependent end) and a conventional (green) so that the device has a dual purpose. Such a device is also available commercially. The device has a passive, non-linear orifice. There are issues, he said when the REAT method is used for evaluation; the REAT method being that required by the U.S. Environmental Protection Agency (EPA).
3. Active hearing protectors. These protectors can either be a muff or an opened-back device with no passive attenuation. There is no way to test such devices for a noise-reduction rating (NRR).

He then discussed some of the operating characteristics of electronic (active) devices and showed that they have good attenuation at low frequencies (up to about 500 Hz and maximum 1000 Hz). He discussed the applications of various types of devices, for example, those for use in small airplane cockpits. He said there was a potential for industrial noise markets for these devices but questioned whether a noise-reduction rating is needed. He then went on to a discussion of adjustable-attenuation ear plugs and how to perform REAT testing with these. He discussed, in general, testing issues for active

and passive level-dependent hearing-protective devices and said that there are many technical challenges involved in developing new standards.

Ten parallel sessions continued through the morning.

The third plenary lecture was given in the afternoon on Monday, August 8. The paper was presented by Thais C. Morata from the Division of Applied Research and Technology of the National Institute for Occupational Safety and Health in the United States. The title of the paper was "Health Effects of Noise Interactions at Work, Leisure, and Home." In most studies of health effects, noise is treated alone, and the combined effects of noise and some other agent are not always considered, and the effects of a combined exposure are not always predicted from each agent acting alone. The National Institute for Occupational Safety and Health (NIOSH) began a program in 1966 on research on mixed exposures, and there is at the NIOSH website a research agenda for mixed exposure for the year 2005. She said that noise interactions at home are the most likely for disturbance and that non-auditory effects are known, for example, because of metabolic changes from the release of stress hormones. She said that the information conveyed by noise is often more important than the level itself and that transportation noise has the most effect for people at home. She cited several effects of noise and the relevant references. These include exposure to traffic noise which can be perceived as a potential danger and thus result in an increase in stress hormones. She said that there is a relationship between high annoyance and



Thais Morata presents the third plenary lecture.

heart disease and also that skin disease can be related to increased levels of noise and air pollution. In schools, there are known learning disorders caused by noise, and she said that many leisure activities are affected by noise. Most recently, she said, there is an interaction between noise levels and lead related to firearms and that, in the motor sport area, noise and vibration levels can combine with other chemicals to produce toxic effects. She next turned to noise interactions at work and said that work is the setting where noise exposures can be higher and more consistent than in any other setting. She discussed some of the endogenous factors that can have a combined effect with noise. These include age, body temperature, stress activity, and others. She said there are also exogenous factors which include smoking, vibration, ambient temperature, use of medicines, and exposure to chemicals. The new European Community (EC) directive on noise (2003/10/EC) requires that the interaction between noise and oto-toxic chemicals be taken into account in the risk assessment of exposed populations.

How did we get where we are, she questioned? She said it was through non-auditory effect of noise and vibration, including whole body vibration and hand-arm vibration through the white-finger syndrome and through hearing loss. The history of these combined effects begins in the 1980s, although there were only isolated reports and no systematic studies. During the 1980s some initial results from Sweden were available and seminal papers were published. NIOSH became interested in this problem in 1988, and many of the NIOSH publications of the 1990s are online.

She cited other situations in Canada and Korea where carbon monoxide intoxication has affected farmers and pesticides to the point where farmers have more hearing

loss than the general public. She said that she had published evidence in 1993 of the interactions between noise and solvents.

*... work is the setting
where noise exposures
can be higher and more
consistent than in any
other setting*

She cited recommendations by the American Conference of Governmental Industrial Hygienists (ACGIH) that caution that one should pay attention to exposure to various chemicals when considering the effects of noise. The U.S. Army also requires consideration of oto-toxic chemical exposures when dealing with hearing loss.

She concluded by saying that many of these effects of combined exposures are not taken into account in many studies and that one should take a medical history, a history of chemical exposure, and other factors when studying the effects of noise on hearing.

Ten parallel sessions continued through the afternoon.

The next distinguished lecture was by Michael Vorländer of the Institute of Technical Acoustics, Aachen University in Germany on Tuesday morning, August 9. The title of his presentation was "Engineering Acoustics Meets Annoyance Evaluation." He pointed out that many of the daily problems in engineering acoustics use single-number criterion for their solution. However, he said, one must consider such things as sound quality and sound as a carrier of information as well as who creates the sound. Thus, engineering acoustics must involve both single-number criteria and some sort of simulation and



Michael Vorländer presents the fourth plenary lecture.

auralization to take these psycho-acoustic factors into account. The basic model, he said, is the characterization of the source; a set of measurements; modeling and simulation; and, finally, the noise effects which depend on the character and the “quality” of the noise. He offered examples of noise immission in offices from both inside and outside sources. He also discussed noise in rail-bound vehicles. He said that various single-number rating methods such as L_{Aeq} dB(A), NC, RC, etc., are essential to have a common language; but that these parameters do not always fully characterize a noise situation. He gave one example of a typical discussion between an acoustician and a client involving technical terminology, the disconnect between what the client desires and what various single-number ratings mean, and said that auralization improves the communication between a client and an acoustician. He questioned whether knowing the properties of insulation materials as currently understood were sufficient for doing calculations of, for example, speech intelligibility. He also discussed classroom acoustics and how the properties of insulating materials may be missing and that in most classroom acoustic situations interference from adjacent classrooms must be considered. He gave another example of auralization where the work performance of individuals in remembering a sequence of numbers was tested for both silence, noise, and interference in various languages. The results were somewhat inconclusive. He concluded this section of the talk by saying that auralization in building acoustics is a very useful technique, but there are many specific issues that are not yet solved. He said that it is quite a challenge to create models for auralization based on standard measurement data.

He gave further examples of noise in rail-bound vehicles where there are multiple paths (airborne and structure-borne) and said that experiments with actual and synthetic sound give comparable results,

but one can work with manufacturers to vary the source characteristics. These are most easily varied using modeling techniques. Examples are tones and other sounds in the spectrum of power electronics, and that it is sometimes possible to choose the tonal frequencies to make the sound pleasant. Thus there is a major challenge to go from straightforward measurements of A-weighted levels to psycho-acoustic evaluations. He said that an interdisciplinary dialog is needed in order to effectively do engineering acoustics. Auralization, he said, is a very good tool to communicate the effects of sound and noise effects between the psycho-acoustic researcher and the acoustical engineer.

Ten parallel sessions continued through the morning.

The fifth distinguished lecture was “Predicting the Response Statistics of Uncertain Structures Using Extended Versions of SEA,” and was presented on Tuesday



Robin Langley presents the fifth plenary lecture.

afternoon, August 9. The paper was presented by Robin S. Langley of the Department of Engineering, University of Cambridge, United Kingdom. The overall content of his presentation dealt with analysis of structures at low frequencies using finite-element analysis, description of mechanical systems at high frequencies using statistical energy analysis (SEA). Then he extended the techniques of finite element analysis to higher frequencies and the techniques of statistical energy analysis towards lower frequencies in order to have computational methods that could deal with intermediate frequencies. He said that for a problem, with 2 million or more

degrees of freedom, that the calculation of a response curve could take eight hours. But if a relatively small change in parameters takes place, a different response curve is obtained. However, he said that the mean and variance responses are well-predicted. He gave another example of a single plate with springs and variable masses placed at random. He said that there is remarkable agreement, especially at high frequencies, between the response for random placement of these springs and masses and that predicted by statistical energy analysis. He then went into a highly-mathematical presentation on how one can extend statistical energy analysis to lower frequencies by taking advantage of the properties of some practical structures. For example, in aircraft and in automotive structures some elements of the structure may have a large number of modes and a high degree of modal overlap so that statistical energy analysis is applicable; but other aspects of the structure, such as frames, may have fewer modes and less modal overlap. This fact allows some elements of statistical energy analysis to be combined with some elements of finite element analysis to predict responses at frequencies below that for which statistical energy analysis is valid. He gave examples of a framed “house” and a frame with plates mounted on it. Finite element analysis can be used for analysis of beams, and statistical energy analysis for bending modes.

Ten parallel sessions continued through the afternoon.

The congress banquet was held in PORCAO Resturante where a typical Brazilian welcome CAPERINHA drink (a mixed of cachasa alcohol, sugar, lemon and ice) was offered. A tropical barbecue was served of different first quality meats, with hot and cold plates in a very generous and delicious style. The guests also participated in a typical SAMBA dance with a musical group of seven talented women.



Stuart Bolton presents the sixth distinguished lecture.

The sixth and last distinguished lecture was given on Wednesday morning, August 10 by J. Stuart Bolton, Purdue University, who spoke on “Porous Materials for Sound Absorption and Transmission

Control.” He described various types of porous materials and the sources of dissipation of energy within those materials. He then turned to sound propagation in porous materials. He described the longitudinal waves and possible transverse waves that can exist in materials and said that different mounting conditions (for example with a membrane) can product a dramatic difference in the normal incidence absorption coefficient. He described three types of materials—rigid materials in which the solid portion of the material does not move, a limp material where the stiffness of the material is much lower than that of air, and elastic materials where the frame bulk modulus is about the same as in air. He discussed measurement of flow resistance and the tortuosity of a material.

He said that in modeling of porous materials, the biggest prediction problem is to go from the microstructure of the material to the macroscopic properties that generally are used in models of sound transmission. He discussed the approaches of Allard and Biot to porous materials and discussed his own theory of sound propagation through these materials. He concluded by discussing multi-layer aircraft applications, the optimization of foam wedges, and future challenges with regard to sound propagation in porous materials. He said that, in general, material properties have been greatly simplified in order to complete the analysis of sound propagation; but the “real world” properties of materials make predictions much more difficult.

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Ricardo Musafir, left, presents one of the student awards to Daniel F.P. Pazos.

At the closing session, Ricardo Musafir presented awards to the following two participants: Daniel F. P. Pazos and Iraides Baffa.

David Holger, president of the INTER-NOISE 2006 Congress then gave a presentation on planning for the congress – which will be held in Honolulu, Hawaii, USA on 2006 December 3-6. He introduced the team that will organize the meeting on behalf of INCE/USA and INCE

Japan. Travel planning information for the congress appears on page 116 of this issue.

The Congress received Brazilian Educational support from UFSC, INMETRO and COPPE and Brazilian Government support from CAPES, FINEP and FAPERJ.

Exhibitors at INTER-NOISE 05 were:

- Sound Plan LLC.
- Saint Gobain Vidros S.A.
- Brüel & Kjær
- ACO Pacific, Inc.
- Data Physics Corporation
- CESVA Instruments S.L.
- 01dB METRAVIB
- GfaI
- Quest Technologies
- National Instruments do Brasil
- GROM Equipamentos Eletromecânicos, ESI Group, HEAD acoustics and Microflown Technologies
- Illbruck Sonex Industrial Ltda.
- NORSONIC AS.
- Cambridge Collaborative



The team which will organize INTER-NOISE 06. Left to right, David Holger, Scott Sommerfeldt, Sunoko Kuwano, Ichiro Yamada, and Hiroaki Takinami.

The Proceedings of INTER-NOISE 05 contains 529 papers, and is available on CD-ROM for 140 EUR. An order form is available at www.internoise2005.org.br/cdrom_order_form.aspx. Order from The Brazilian Acoustical Society – SOBRAC, Federal University of Santa Catarina (UFSC), Laboratory of Acoustics and Vibration (LVA), Campus Universitário – S/N – Trindade Florianópolis – SC – BRAZIL, CEP: 88040-900. Tel: +55 – 48 – 3234.4074; Fax: +55 – 48 – 3269.9882. Orders may be submitted to the above Fax number.

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President's Column *continued from page 111*

In summary, INCE/USA continues to make important contributions to the noise control engineering profession through its educational programs, conferences, publications, certification procedures, and participation in national and international programs. I wish to thank the officers, staff, members, and friends of INCE/USA for your support and encouragement during my one-year term as President of the Institute. Our next President will be Paul Donavan, who, as you may recall, served as the 2001 President. I wish to further note that Paul will be serving a two-year term – 2006 and 2007, pending final approval from the Board of Directors. This change in term length has been predicated by a need for the President to have more time to become familiar with the many activities and inner workings of INCE/USA so that more efficient and proper presidential actions can be performed. Please visit our website www.inceusa.org, or write to me directly at president@inceusa.org for further information on our activities or policies. 

NOISE-CON 05 Report

NOISE-CON 05, the 2005 National Conference on Noise Control Engineering was held jointly with the 150th meeting of the Acoustical Society of America (ASA). The meeting was held on October 17-19, 2005. Dan Kato from Cummins Engine and Robert Bernhard from Purdue University were the co-chairs for the meeting. The technical program co-chairs were Patricia Davies and Stuart Bolton, both from the Ray W. Herrick Laboratories at Purdue University. The conference was held at the Hyatt Regency Minneapolis, Minneapolis, Minnesota, USA.

Daniel Kato opened the meeting on October 17 and pointed out that, although the two societies which have organized the meeting are different, they have many similarities. Many of the attendees are members of both ASA and INCE/USA, but many are not. Thus, he said, there is an opportunity for cross-fertilization of ideas from those who may be able to offer solutions to noise problems but are in related fields. He said that there are three types of sessions: NOISE-CON sessions joint with the ASA Technical Committee on Noise, ASA noise sessions that are joint with NOISE-CON, and other ASA sessions. All sessions are open to all attendees for the conference fee. He announced that the exhibition would open on October 17 at 5 p.m. with a reception in the exhibition area. Dan Kato then introduced Gerald C. Lauchle, 2005 president of INCE/USA, who welcomed all of the delegates. Professor Lauchle explained that there would be a workshop on noise policy held in conjunction with NOISE-CON and that many of the speakers would be individuals involved in the noise project initiated by the National

Academy of Engineering in Washington, DC. He said that the Academy held a workshop in Washington in September and that some of the results from that workshop would be discussed at the workshop in conjunction with NOISE-CON.

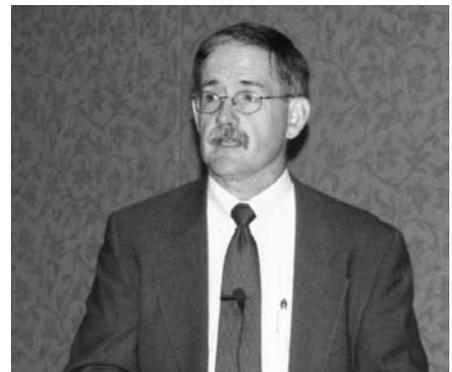
The first plenary talk was given by Carl Bureson of the Federal Aviation Administration (FAA). The title of his paper was "Perspectives on Noise in the Menu of Environmental Issues and the Role of Technical Solutions Relative to Policy Approaches." He opened by saying that aviation noise has a very long history. The year 2003 was the 100th anniversary of the first powered flight and also the 92nd anniversary of what he believed to be the first published editorial complaining about aircraft noise. The good news was in spite of a long history of complaints, he said, the air transportation system in the world today carries more passengers than the entire population of the earth in 1903. He then showed a chart which showed that there have been dramatic improvements in the noise emission of aircraft over the years. He said that, if one compares the Nation's programs in improving clean water with those in noise, there has been more progress in noise than with clean water. Despite this success, aircraft noise remains a serious challenge to expanding the capacity of the U.S. aviation system. He showed a chart that indicated that noise is the No. 1 problem in the air transportation system now and will also be the No. 1 problem in the future. Air quality, he said is No. 2. Thus environmental problems are not only about noise. The three big issues are: community noise, air quality, and global climate change. He showed a chart which illustrated the reduction in



Dan Kato, co-General Chair of NOISE-CON 05 opens the conference on October 17.



Jerry Lauchle, 2005 President of INCE/USA addresses the delegates and reviews the new noise initiative of the National Academy of Engineering.



Carl Bureson of the Federal Aviation Administration presents the first plenary lecture at NOISE-CON 05.

takeoff noise over the past years, and the projection of future trends based on the historical trend. The chart also described the future goals laid out by the National Aeronautics and Space Administration (NASA) in the past. NASA's goals for

2007 are well below the historical trend line; about 6 EPNdB in 2007 and 12 EPNdB in 2025.

He said that the current air transportation system in the United States is currently in a significant transition. A large fraction of the capacity is in bankruptcy, and there is financial stress everywhere. He suggested that there may be new business models in the future, including small jets and possibly supersonic jets. Plans are underway to grapple with a projected three-fold growth of the system in the next twenty years.

There are a number of new tools, he said, that will assist in the reduction of noise emissions in the future. Since the environmental problem is not only noise, it is important that any noise-reduction techniques also have benefits in other areas, for example, in fuel consumption and NOx emissions. He suggested five methods that may reduce future aircraft noise emissions: the continuous descent approach, modifications to the engine nacelle, modifications to increase the engine pressure ratio and temperatures (for environmental issues other than noise), an increase in the engine bypass ratio, and improved aerodynamic efficiency and reduced weight.

He said that new approaches are needed to mitigate the environmental impact of aviation and described three programs that will assist in the assessment of design and operational changes. The first is the Environmental Design Space (EDS), second is the Aviation Environmental Design Tool (AEDT), and the third is a tool that will assist in producing cost-effective solutions to environmental problems. That

is the Aviation Environmental Portfolio Management Tool (APMT). These will give government, industry, and other stakeholders better information on the trade-off between various environmental factors in the design and operation of aircraft and the aviation system as well as assistance in focusing on cost-effective solutions.

He then described the activities of the Joint Planning and Development Office. This organization has produced a report called "Next Generation Air Transportation Systems" which establishes national goals and creates a model for cooperation between agencies and organizations to plan for the U.S. aviation system of 2025. A report was delivered to the Congress in 2004, and one of the primary strategies-reducing environmental effects to allow sustained aviation growth- is described in that report. It may be downloaded from www.jpdo.aero.

He then turned to new research issues and impacts and described the PARTNER Center of Excellence (<http://web.mit.edu/aeroastro/www/partner>) that will help to define the effects of noise, flight procedures, land-use management, and other issues related to the environment and aircraft noise. Sponsored by FAA, NASA and Transport Canada, PARTNER will not only provide enhanced research of issues and new approaches and solutions, he said he is hopefully it will help address the development of the next generation workforce of graduate students to make an impact on public policy in this arena. He pointed out the innovative work achieved in tests at Louisville, Kentucky using continuous descent approaches which reduced noise by 4-6 dB as well as reduced fuel burn and emissions. He

mentioned several key research projects that PARTNER is currently working on, including low-frequency noise, metrics and health, land-use planning, and sonic boom. He closed by saying that solving environmental issues are critical to the future of the nation's air transportation system, that there are many interdependencies to be considered, and that partnership among all affected parties is essential to success.

The plenary speaker on Tuesday, October 18, was Paul Donovan from Illingworth-Rodkin, Inc. He spoke on "Tire/Pavement Noise and the Potential Impact of Quiet Pavement Technology."

He began by describing recent activities related to the design of quiet highways: the establishment at Purdue University in 1998 of the Institute for Quiet, Safe, and Durable Highways; the transfer of pavement noise technology to pavement engineers beginning in 2002; and the 2004 scanning tour of Europe for quiet pavement technologies followed by the first comparative testing of quieter roadways in the United States and Europe. The scanning tour was sponsored by the Federal Highway Administration (FHWA) and the American Association of State Highway and Transportation Officials (AASHTO) while the comparative testing was funded by the California Department of Transportation and the FHWA .



Paul Donovan of Illingworth Rodkin, Inc. presents the second plenary lecture at NOISE-CON 05.

He said that there are over 1,800 km of noise barriers in the United States. California far exceeds any other state in the construction of barriers which, in California, cost approximately 800,000 USD per km. There are other disadvantages besides cost to noise barriers, and there is a significant amount of public concern. He said that the current FHWA noise policy includes the following:

- The barrier installed must produce an improvement in noise levels of at least 5 dB.
- Porous pavements cannot be considered as a noise-abatement measure.

He pointed out that in light vehicles, tire noise is prominent over a very wide range of speeds and that the character of the pavement may make quite a difference in the noise level—especially in the mid-frequency range. Questions, he said, about the use of porous pavements for noise reduction are “Does it last?” and “Does it work for a mix of traffic?” He reviewed a porous pavement project on Route I-80 in California that involved a porous overlay put down in 1998. He showed data on noise reduction over seven years. The average was about 6 dB with dramatic reductions in noise levels for frequencies greater than about 1,000 Hz.

He then described techniques for measurement of tire/pavement noise. He described the close proximity (CPX) sound pressure procedure and the on-board, sound-intensity (SI) method, the latter producing a signal-to-noise ratio about 10 dB better than for sound pressure measurements exposed to airflow. He discussed the application of the intensity method to highway noise and said that there was good correlation when the SI-method is compared with controlled pass-by measurements.

He then described a project on Route I-280 near San Francisco where a 6 dB reduction was obtained with a more porous, rubberized asphalt concrete. He said there

was a major project in Arizona where 185 km of roadway were also paved with a similar rubberized asphalt. He said that 8-12 dB of noise reduction was achieved depending on distance from the roadway; and, for other sites, with different initial pavement types, he said that reductions of 5-10 dB were achieved.

He then turned from noise near interstate highways to roads in communities where he said reductions of about 6 dB have been obtained. He discussed the use of modifying concrete pavement textures on bridges and showed improvements for a variety of conditions. He then reviewed briefly the NITE project (Noise Intensity Testing in Europe) comparing data in California and Europe, and he said that there is good correspondence between the quietest pavements in those two areas (*See Noise/News International, 2005 June, pages 46-53.—Ed.*). He said there is continuing work on porous pavements including the parameters that control noise, sound absorption, and the effects on truck noise (intensity information on some truck tires not providing as much noise reduction as passenger car tires). He described propagation experiments over porous and non-porous pavements, and test track measurements to identify various kinds of noise sources on trucks. He concluded by saying that recent studies have shown that quieter pavements can be achieved and that sound intensity has proved to be a useful tool for quantifying the source levels. He said that the use of quieter pavements should be considered as an alternative approach to reducing traffic noise levels.

The third plenary lecture was given on October 19 by James E. West of the Johns Hopkins University in Baltimore, Maryland, USA. The title of his presentation was “Hospital Noise, its Role in Patient Well-being and the Challenges for Noise Control Engineers.” He divided his talk into three areas: existing literature, motivation, and measurements. He said that as early as 1859 Florence Nightingale

recognized that unnecessary noise in hospital environments was bad. He said there have been some studies all over the world and in all sizes of hospitals, but there are no studies reporting noise control approaches. The current literature deals with administrative controls; and the papers are all by doctors, not acousticians. He said that the guidelines of the World Health Organization (WHO) recommend a maximum level of 40 dBA and 30 dBA in rooms. The EPA levels document indicates that the L_{dn} in hospital areas should not exceed 45 dBA. However, he said that measured levels as much as 20-40 dB higher than the suggested WHO value of 40 dB have been reported, and that there are other requirements (for example, ANSI S12.2) that contain recommended levels that are rarely met.

He said that we should be motivated to reduce hospital noise levels for several reasons:

- It increases stress in the hospital staff.
- There is evidence from animal tests that noise levels can affect the speed of wound healing.
- Studies show that there is a longer stay in hospitals from cataract surgeries when the hospital stay has construction noise present.
- Patients require more medication when sound levels are greater than 60 dB.

He said there is not much data on the effects of noise in hospitals on performance of the staff but that studies beginning in 1960 show that levels in hospitals are increasing at the rate of 0.3 dB per year. None of these levels comply with WHO



James E. West of Johns Hopkins University presents the third plenary lecture at NOISE-CON 05.

guidelines. He said that the night levels have increased similar to the day levels but at a rate of about 0.4 dB per year.

He said that we should care about noise levels for several other reasons: speech interference, recovery of patients, safety (noise may create medical errors), and that some staff members become prematurely deaf.

He then turned to his own recent work on hospital noise which has been to characterize the noise and to examine several noise issues including architectural design, privacy, and speech communications. He showed many measurements in hospitals with typical levels in the range of 65 dBA with very few breaks. He said that there are several sources of noise in hospitals. These include pumps, warning signals, impulsive noise from doors closing, instrument alarms, individuals talking, and noise generated by various metal-to-metal contacts. He said that hospitals need a much better paging system than those that exist in today's hospitals. He said that the main goals in hospitals should be to reduce noise because:

- There is distraction of the hospital staff.
- There is a need to improve communications.

He discussed a small paging unit that produces an improvement in environmental noise levels of about 5 dB but is not capable of alerting as many persons as do current systems. He said that there are problems in hospitals with acoustical materials mainly because of the need for bacterial control, and said that we must improve our acoustical materials. He concluded that hospitals are noisy and are getting more so. There is little work on the quieting of hospitals and little data on the performance of the staff.

(Editors note: The written paper appears in the Proceedings of NOISE-CON 05. It is interesting to note that none of the 17 references to technical papers refer to

either the Journal of the Acoustical Society of America or Noise Control Engineering Journal. A rough search by the editor for proceedings papers on hospital noise in 2002 turned up very few papers. Most of the references in Dr. West's paper are in journals related to medicine.)

The searchable CD-ROM contains 198 papers presented at the joint NOISE-CON 05/ASA 150th meeting as well as 749 papers from the NOISE-CON conferences held in 1996, 1997, 1998, 2000, 2001, 2003, and 2004 as well as the papers from the Sound Quality Symposia held in 1998 and 2002. All papers are PDF files.

Several papers are taken from sessions organized by the Noise, Architectural Acoustics and Structural Acoustics Technical committees for this 150th ASA meeting. The three plenary lectures related to noise and its impact on the environment are included. Also included are papers in one or more organized sessions in the areas

of aircraft noise, tire/pavement noise, and hospital noise. Other papers cover noise materials, mufflers and silencers, statistical energy analysis, acoustical facilities, product noise emissions, sound quality and perception, sound insulation of buildings, community noise, and environmental noise criteria. A collection of papers on United States and international noise policy is also included on the CD-ROM.

These papers are a valuable resource of information on noise control engineering that will be of interest to researchers in the academic community, government workers, engineers, acoustical consultants, and students. The addition of the NOISE-CON 05 papers to the CD-ROM will be the last. This CD-ROM will continue to be sold as a record of NOISE-CON conferences since 1996. The next NOISE-CON conference is scheduled for the fall of 2007 on the West Coast, and a new CD-ROM will be issued containing the proceedings of that conference. 



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INCE Update

INCE/USA

Kent Gee and Scott Sommerfeldt are awarded 2004 Martin Hirschorn IAC Prize

In even-numbered years, the 5000 USD Martin Hirschorn IAC Prize is given for "The best paper on new and/or improved cost effective noise control and/or acoustical conditioning products as published in the two years preceding the award." The 2004 prize was given to Kent L. Gee and Scott D. Sommerfeldt to their paper, "A compact active control implementation for axial cooling fan noise." The paper was published in Noise Control Engineering Journal, Volume 51, Number 6. Certificates and checks were awarded at the NOISE-CON 2005 Conference on October 19, 2005.

Jonathan Rathsam wins 2005 Martin Hirschorn IAC Prize

Jonathan Rathsam of the University of Nebraska was awarded the 2005 Martin Hirschorn Prize of 5000 USD for his student project related to acoustical conditioning of architectural spaces. His project, "Validation and modeling of diffraction around three-dimensional surfaces using 3D boundary element method," will be done in two parts. The first is the validation of a numerical model for a set of scale model reflector panel arrays, and the second is to investigate a new reflector design, the "open" or "transparent" reflector. Such a reflector has been installed in the Konserthus in Gothenburg, Sweden.

Five Students are Awarded prizes in the 2005 Student Paper Prize Competition

Five students from three universities were awarded 1000 USD prizes in the 2005 Student Paper Prize Competition. The prizes were awarded at the NOISE-CON 05 conference on October 19. Ferdy Martinus from the University of Kentucky won a prize for his paper "An Advanced Noise Source Identification Technique Using the Inverse Boundary Element Method." The other four students are identified in the photos at right.



Kent Gee and Scott Sommerfeldt (right in each of the above photographs) receive their award from 2005 INCE/USA President Jerry Lauchle.



Jonathan Rathsam, right, receives the 2005 Martin Hirschorn IAC Prize from 2005 INCE/USA president Jerry Lauchle.



Andrew Kankey, right, Penn State, "Proposed Piezoceramic Array for Rotational and Translational Structural Mobility"



David Moenssen, right, Penn State (now graduated), "Determination of Shell-Radiated Noise of an Automobile Engine Air Intake System Using Numerical and Experimental Techniques"



Peter Shapiro, right, Penn State "Subjective Response to Low-Frequency Aircraft Noise"



Todd Thompson, right, Iowa State University, "Evaluating the Bonding Conditions of NASA Spray On Foam Insulation (SOFI) Using Audio Frequency Sound Absorption Measurements"

What is a "Sandpit?"

RUSSIA

Transport Noise and Vibration Symposium to be Held in Russia

The 8th International Symposium "TRANSPORT NOISE AND VIBRATION, 2006" will be held in St. Petersburg, Russia on 2006 June 4–6 June, and will address all fields of transport noise, vibration and related areas. The Symposium is being organized in coordination with the 6th European Conference on Noise Control 'Euronoise 2006' Tampere, Finland on May 30 - June 1 (See the Euronews Department of the 2005 September NNI—Ed.).

More details can be found at the Symposium web-site <http://webcenter.ru/~eeaa/tn06/>

UNITED KINGDOM

Sandpit on "A Noisy Future" to be Held in January

The Ideas Factory in the United Kingdom will hold a "sandpit" in 2006 January titled "A Noisy Future." A sandpit is an interactive workshop funded at around 1 million GBP to explore new ways of thinking about a topic. The sandpit will be held on 2006 January 9-13. The call for participants closed on 2005 October 14.

The statement of goals is: "Are people prepared to accept that the UK is going to become a much noisier place? We need to be able to predict how the soundscape might evolve over the next 10-20 years. As well as the engineers and scientists developing models and planning, we need to know how people respond to sound and how industry will respond to the need for noise reduction. We might look to alter sounds to reduce problems rather than just reduce noise power. If we are to buck the current trend for a noisier society, even though considerable effort is going into noise reduction, we need new innovative thinking and approaches."

The Sandpit is sponsored by the Engineering and Physical Sciences Research Council (EPSRC). The EPSRC is the UK Government's leading funding agency for research and training in engineering and the physical sciences.

For more information, go to: <http://www.epsrc.ac.uk/ResearchFunding/Programmes/Cross-EPSRCActivities/IDEASFactory/default.htm>

Quiet Homes for London Conference

A conference on "Quiet Homes for London" was held at City Hall in London on 2005 November 3. The objectives of the conference were to raise the profile of noise in the home, to explore how the sound insulation in poorly-insulated homes could be improved, and to see how new homes can be designed for better sound insulation. The conference was organized by the GLA in conjunction with the UK Noise Association.

The event was chaired by Chris Holmes, former Director of Shelter. Speakers included:

- Ken Livingstone, Mayor of London
- Clive Betts MP
- Val Weedon, MBE
- Professor Stephen Stansfeld, Queen Mary University of London
- Dr Sean Smith, Napier University
- Alan Whitfield, University of Derby
- Nick Antonio of Arup Acoustics.

For more information, go to: http://www.london.gov.uk/mayor/environment/noise/docs/quiet_homes_conf.rtf

Noise Related Conferences Sponsored by the Institute of Acoustics

Wind Farm Noise

Stratford Victoria Hotel, Stratford-upon Avon
2006 April 25

Developments in Noise Research organized by ENG and Midlands Branch to be held during Noise Action Week. Supported by the Department of Environment, Food, and Rural Affairs.

Birmingham, 2006 May 23

For more information on these events, go to: <http://www.ioa.org.uk/viewupcoming.asp>

Vote for the Most Horrible Sound

It is well known that there are many sounds that cause strong reactions from those who have to listen

continued on page 139

USA

Noral Stewart Wins E33 Wallace Waterfall Award

The ASTM International Committee E33 on Environmental Acoustics has honored Dr. Noral D. Stewart, president of and principal consultant for Stewart Acoustical Consultants in Raleigh, N.C., with the 2005 Wallace Waterfall Award. The committee recognized Stewart “for his distinguished contributions to the development, preparation and acceptance of standards in acoustics.” Dr. Stewart joined ASTM International in 1985 and currently serves as Vice Chair of Committee E33, a group of about 140 professionals responsible for 50 acoustics standards. He is also chair of Subcommittee E33.91 on Long-Term Planning and a member several of other E33 standards writing groups.

Dr. Stewart is a consultant in acoustics and noise control, including architectural acoustics, building systems noise, environmental and community noise evaluation and control, and noise control in workplaces. Before starting his own firm, Dr. Stewart gained extensive industry experience with Western Electric Co. and N.C. State University. He is also a member of INCE/USA, the Acoustical Society of America, the National Council of Acoustical Consultants, and the Transportation Research Board/Aircraft Noise Subcommittee. Noral earned his Bachelor’s degree in Mechanical Engineering from North Carolina State University, and also completed his Master’s and Doctorate degrees in Mechanical Engineering/Acoustics at NC State.

American National Standard on Classroom Acoustics Now Available at No Cost

Thanks to a unique partnership of industry supporters—Armstrong Ceiling Systems, illbruck Architectural Products, and Trane—the Acoustical Society of America (ASA) has announced today that its popular classroom acoustics standard is now available online at no cost to the user. *Because cost is no impediment, every school official in the country can have this useful resource at hand.*

Officially known as *ANSI S12.60-2002 American National Standard Acoustical Performance*

Criteria, Design Requirements, and Guidelines for

Schools, this standard provides helpful guidance to design professionals, educational facilities planners, and the general public, as well. This Standard was developed by Accredited Standards Committee S12, Noise, under American National Standards Institute (ANSI) approved operating procedures. The Standard, which brings the US into agreement with the requirements of the World Health Organization as well as many countries around the world, will assist school districts, architects, and building planners in designing classrooms to optimize the ability of children to learn and prosper.

The Acoustical Society relies upon sales of standards to help fund its standards development activities, so it cannot give them away for free. These partners recognized the opportunity to benefit the public by making this important standard available at no cost to the user.

“These businesses, all innovators in their fields, are demonstrating their great leadership by partnering with us to make this important classroom acoustics Standard freely available to all. Application of this Standard will assure that no child is left behind because they cannot hear or be heard by their fellow students or the teacher,” said Paul Schomer, ASA’s Standards Director. Additional partners are welcome to join the program.

The standard is available through the ASA Standards Store at <http://asastore.aip.org/>. Users will be asked to establish a username and password and accept the End User License before downloading the standard.

FRA Releases Final High-Speed Ground Transportation Noise and Vibration Manual

The Federal Railroad Administration (FRA) has released the final version of its “High-Speed Ground Transportation Noise and Vibration Impact Assessment Manual.” The purpose of the Manual is to provide guidance for analyzing noise and vibration impacts resulting from proposed high-speed ground transportation projects, including high-speed trains using traditional steel-wheel on steel-rail technology and magnetically levitated (maglev) systems.

continued on page 146

*Congratulations
to Noral Stewart!*

Congratulations to Professor Fletcher!

AUSTRALIA

Award for Outstanding Contribution to Acoustics

The Australian Acoustical Society (AAS) has initiated an award to recognize Outstanding Contribution to Acoustics. It is made to a member of the Society to recognize an extensive contribution to the advancement of acoustics and significant service to the Society. The first award was presented to Em. Prof. Neville Fletcher during the 2005 annual conference. The following citation is an attempt to encapsulate in just a few lines the enormous contribution that Neville Fletcher has made to acoustics and to the Society.

Throughout his career Neville has made extensive contributions to the advancement of acoustics particularly in the areas of acoustics of musical instruments, biological acoustics and vibrations. He has achieved international recognition for his work and has published extensively. He has been a strong supporter of all the activities of the Australian Acoustical Society. In particular he has been the chief editor of the journal *Acoustics Australia* since 1993.

The award was presented at the 2005 AAS Annual Conference where Neville gave a keynote address on biological acoustics.

Australia/New Zealand Conference

The Australian and New Zealand Acoustical Societies have always encouraged participation at the conferences held by each organization. The inaugural joint New Zealand and Australian Acoustical Society Conference further extends this collaboration. This will be held at the spectacular Clearwater Resort in Christchurch, New Zealand November 20 to 22, 2006 with the theme "Community response to noise" Information from www.conference.co.nz/acoustics2006

Singing Bridges Blog Award

Jodi Rose beat 500 entries to win the 2005 SmartyBlog award for her "Singing Bridges Travel Diary" www.singingbridges.net. Jodie is a "sound artist," and travels the world recording the sounds of bridges. This blog is the travel diary that records the sounds of bridges from around the world. She

started the blog in 2002 when she set out to record the vibrations of the cables of famous bridges around the world and plans to eventually link them together in a "bridge symphony."

For those who have not caught up with the term - blogging, or web logging, takes the form of an online diary or newsletter, spanning everything from pop culture to politics. It is estimated that a new blog is created every second somewhere around the globe.

Acoustics Laboratory Fire

On the evening of 21 October 2005, fire took hold of the anechoic room in the acoustics laboratory at the University of Sydney. Even though one would think that there is not much to burn in an anechoic room, the fire was sustained for some time, fanned by the air conditioning and a compressed air supply to the room. The cause of the fire remains unknown, but was probably due to an electrical fault in the lights. While the flames were mainly restricted to the anechoic room, hot smoke spilled into the rest of the laboratory, deforming plastics and leaving greasy corrosive soot throughout.

Nobody was injured by the fire, but a considerable amount of damage was caused and the lab will be unusable for quite some time. The degree to which the event is insured for remains to be seen. Clearly it is not possible to insure for the loss of access to the laboratory for at least one year.

The lab has been built up over 35 years and currently has full-time academic staff member, Densil Cabrera, part-time staff member, Michael Bates, technical officers, several casual teaching staff and honorary staff (including Neville Thiele, John Goldberg, Joseph Nannariello, Andrew Madry, Nigel Helyer, Glenn Leembruggen, Jin Yong Jeon, and Fergus Fricke). The laboratory has supported teaching of acoustics to architecture students, research and links to other faculties, other universities, industry, and the community.

Anyone with comments or advice on recovery from such event please contact Fergus Fricke ferg@arch.usyd.edu.au or Densil Cabrera densil@usyd.edu.au.

JAPAN

Two Japanese Societies celebrate anniversaries

In 2006, Japanese two organizations for acoustic science and technology will become 70 years old and 30 years old, respectively. One is the Acoustical Society of Japan (ASJ), which was founded in 1936. The other is the Institute of Noise Control Engineering of Japan (INCE/Japan), which was established in 1976. These organizations will celebrate 70th and 30th anniversary of the founding, respectively. The present numbers of personal member are 4,700 for ASJ and 1,250 for INCE/Japan.

In connection with these milestones, each organization will cooperate with American organizations and hold conferences in Hawaii. The ASJ will work together with the Acoustical Society of America (ASA) and hold the Fourth Joint Meeting of ASA and ASJ on Nov. 28 to Dec. 02 in 2006 at Honolulu, Hawaii/USA. Just after the meeting, INCE/Japan and INCE/USA will jointly organize and hold INTER-NOISE 2006, the 35th International Congress and Exposition on Noise Control Engineering on Dec. 03 to 06 at the same venue in Honolulu.

In order to manage these conferences smoothly, ASJ and INCE/Japan have organized working committees, respectively and cooperated with each other. For the subject of noise, some topics may be overlapped between ASA/ASJ Joint Meeting and INTER-NOISE 2006. Japanese and American organizers of the two conferences in the field of noise are working hard to communicate with each other to avoid conflicts and looking for reasonable solutions. These Societies of 70 years old and 30 years old also jointly work as brothers in Japan.

—News from Japan contributed by Kohei Yamamoto

KOREA

WESPAC IX 2006

The 9th Western Pacific Acoustics Conference will be held June 26-28, 2006 in Seoul, Korea, the Land of Morning Calm. The program will include papers on a wide range of acoustics topics along with a technical exhibition and a full social program. This conference is a wonderful opportunity to find out about the latest advances in all areas of acoustics as

well as meeting with colleagues from our region of the globe. Those who attended the excellent Wespac conference in Melbourne will know the benefits that can be gained from attending Wespac conferences.

Wespac has a reputation for excellent invited speakers and the line up for 2006 includes Plenary speakers: Ronald A. Roy, Better Life through Bubbles in Biomedical Ultrasound, Sang-chul Lee, IT as a New Social Infrastructure, Hideki Kawahara, A Precursor to Ecologically Relevant Speech Science and keynote speakers: Xifen Gong, Physical and Nonlinear Acoustics, Jeff Simmen, Underwater Acoustics, Kirk Shung, Biomedical Acoustics, Victor Akulichev, Underwater Acoustics, Angelo Farina, Architectural Acoustics, Christopher Tam, Aeroacoustics, Jung-Kwon Ih, Computational Acoustics

Abstracts are due so now is the time to plan for your participation. The key subject areas include: product oriented topics, human related topics, speech: production, recognition, processing and communication, physics: fundamentals and applications, underwater acoustics, aeroacoustics, architectural acoustics, environmental acoustics and vibration, analysis: through software and hardware, other hot topics in acoustics.

Information from <http://www.wespac9.org> 

European News *continued from page 136*

to them. Professor Trevor Cox has established a web site devoted to horrible sounds—sounds that readers of this magazine and others would prefer not to hear more than once, if at all. Not only can one listen to these sounds (and turn them off when they become too obnoxious), but one can vote for the degree of horror and see how other people have voted. This is known as the “Badvibes project,” and was launched at the Museum of Science and Industry in Manchester on November 14. The project was funded by the Engineering and Physical Sciences Research Council, and run by Professor Cox of the University of Salford’s Acoustics Research Centre. To test your judgement against others, go to www.sound101.org.

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Scantek Appointed North American Distributor for ROGA Instruments

Scantek is pleased to announce that it has been appointed North American Distributor for ROGA-Instruments. ROGA, located in Germany, provides several high-quality sound and vibration instrumentation and software. ROGA's line includes computer controlled instruments:

- 2-, 3-, and 16-channel USB 2.0 Front End with software, and RPM input
- 1/4" constant current microphone with BNC connector as Type 1 or Type 2
- DASLab Sound Level Measurement software.

This relationship with ROGA increases Scantek's ability to supply customers with a wide choice of precision measuring instruments and software.

One group of products now available is a set of high quality ¼-inch measuring microphones, powered by a constant current source. The ROGA MI-17 is a type 1 compatible microphone. The ROGA RG-50 is Type 2. Both are easily attached to existing data acquisition systems, sound cards, etc, with BNC connectors, the affordable microphones have excellent sensitivity and frequency response characteristics. Costs are \$395 and \$275, respectively.

These microphones complement the ROGA-Instruments sound and vibration instrumentation and software line.

Scantek, Inc., an ISO 17025 NIST accredited Calibration Laboratory is a distributor for multiple sound and vibration lines, including Norsonic, RION, CESVA Acoustical Instrumentation, Castle Group, KCF Technologies, Metra Vibration Transducers, DataKustik, RTA Technologies, BSWA Transducers, and ROGA Instruments. Scantek is committed to providing quality sales, customer repair, service, and calibration of sound and vibration instrumentation.

For more information contact Richard Peppin, President, Scantek, Inc., 7060 #L Oakland Mills Road, Columbia, MD 21046. Telephone: +1 800 224 3813. Internet: www.scantekinc.com.

LMS

LMS Virtual.Lab Helps China's First Aircraft Institute of AVIC-1 Develop New Regional Jet

LMS International has announced that the First Aircraft Institute (FAI) of AVIC-1, a leading aerospace research institute in China, has deployed multiple licenses of LMS Virtual.Lab to support the development of the Advanced Regional Jet Program, ARJ21. Developed by FAI to meet China's growing need for air transportation, the ARJ21 will accommodate up to 100 passengers and will be available in freight, business jet, stretch and extended-range versions.

FAI recently deployed the LMS Virtual.Lab simulation suite to support the design and engineering of the aircraft body and the landing gear system. The software solutions being implemented by FAI include LMS Virtual.Lab Structures for finite-element pre- and post-processing driving external solvers such as Nastran, LMS Virtual.Lab Motion for the dynamic performance simulation of components and subsystems, LMS Virtual.Lab Acoustics for the analysis of interior and exterior noise, and LMS Virtual.Lab Optimization for the automated evaluation of design alternatives.

LMS Announces the 2006 Edition of the LMS Conference in Europe, the US, Japan and China

LMS International has announced the 2006 edition of the LMS Conference in Europe, the US, Japan and China. Over 1000 engineers from leading manufacturing companies around the world attended this year's LMS conferences. Top-level keynote speakers from BMW, Renault, Elasis, Ford, Toyota, Honda, Mazda, Capgemini and Dassault Systèmes, and over 120 expert speakers shared their innovative views on product development and functional performance engineering. LMS expects to further grow the attendance for the 2006 edition and continues to offer its user community a unique platform to share the latest trends and experiences in product development and engineering.

In addition to the continued series of LMS conferences in Europe, the US and Japan, LMS will

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LMS

Noesis Solutions

The Modal Shop, Inc.

also initiate the first edition of the LMS Conference in China:

- The fifth edition of the LMS Conference Europe will be held on March 22nd and 23rd in Munich, Germany.
- The US edition of the LMS Conference will be organized on April 4th and 5th in Detroit, MI.
- LMS scheduled the Japanese edition of its Conference for September 13th and 14th in Nagoya
- The first edition of the LMS Conference in China will take place on May 31st and June 1st in Beijing

During the 2-day conferences, engineering executives, senior managers and their technical staff will share their strategies and present application cases that illustrate how new approaches and technologies have helped them optimize their product development processes. The conference is the ideal venue to discover the latest technology evolutions in virtual simulation and physical testing and to exchange best practices in performance engineering domains such as durability, ride and handling, acoustics, noise and vibration, structural integrity, and more.

For more information regarding proposals for presentations, agendas and online registration, visit the LMS Conference web site at www.lmsintl.com/lmsconferences

Noesis Solutions

Noesis Solutions Provides OPTIMUS Power at AUDI AG

Noesis Solutions has announced the availability of the Parallel Modules of OPTIMUS 5.1 tightly integrated with Platform Computing's LSF grid management solution. The combination of OPTIMUS and Platform LSF is said to allow organizations to utilize existing software and hardware resources much more effectively in developing better-performing and more reliable products.

Several major automotive OEMs located both in Europe and in the US, have successfully implemented OPTIMUS Parallel on top of their existing Platform LSF networks. Mr. Michael Kaufmann of Audi AG comments, "We were able to demonstrate that it becomes feasible and practical to perform large-scale multi-disciplinary

optimization problems – including Crash, NVH, Passenger and Pedestrian Safety applications – with OPTIMUS on Platform LSF enabled networks. OPTIMUS is a powerful environment to perform MDO analyses on multiple clusters. Even with individual simulation times ranging from several minutes to days idle times on the cluster nodes can be reduced significantly. It thus became possible to drastically compress our turn-around times for Multi-Disciplinary Optimization."

The OPTIMUS Parallel Modules integrated with Platform LSF 6.1 are available on Windows XP, Linux and UNIX platforms.

For further information, contact Peter van Vooren, Tel: +32 16 38 43 78. E-mail: peter.vanvooren@noesisolutions.com

THE MODAL SHOP, INC.

New Air-Bearing Shaker

THE MODAL SHOP, INC. has announced a new calibration grade air-bearing shaker, Model K394A31 that extends the upper frequency range to 20 kHz. The secret is an ultra-light, ultra-stiff solid beryllium armature and core that allows for a frequency range of 2 Hz to 20 kHz.

The Model K394A31's suspension system is said to virtually eliminate transverse lateral motion – providing an air cushion – and adjusts easily to calibrate a range of accelerometer sizes. This allows for more accurate and efficient results, particularly in rugged, frequent day-to-day use, and faster calibration cycle times versus other air bearing shakers. Utilizing a mechanical spring armature design, traditional electromechanical shakers have the physical limitation of introducing transverse movement into the measurement.

An integral reference accelerometer mounted within a beryllium core has a mounted resonance greater than 70 kHz permitting the shaker to be used for resonance searches to over 50 kHz while effectively eliminating the need for complicated mass loading corrections. In addition, this innovative two-part

armature design provides electrical isolation of the sensors, improving accuracy by eliminating electrical noise in the calibration measurement.

The K394A31 and companion K394A30 (2 Hz to 15 kHz) shakers were specifically designed for use in the demanding environment of high volume, production comparison accelerometer calibration systems such as The Modal Shop's Model 9155C Accelerometer Calibration Workstation.

For more information about how the K394A31 air bearing shaker or the 9155C Accelerometer Calibration Workstation can benefit your operations, contact THE MODAL SHOP, INC., 3149 E. Kemper Road Cincinnati, OH 45241-1516. Telephone: +1 800 860 4867; Fax +1 513 458 2172. Eail: info@modalshop.com. Internet: www.modalshop.com, The Modal Shop is a PCB Group Company.

Acoustical Design Collaborative, Ltd

Outline "Globe Source Radiator" (GSR)

Acoustical Design Collaborative, Ltd has been appointed North American representative for the Outline "Globe Source Radiator" (GSR), an innovative omnidirectional loudspeaker for acoustical measurements. An optional matching 4-channel 500-watt/channel power amplifier with built-in noise source and wireless remote control is available. The GSR and Outline power amplifier can be configured to power selected drivers to obtain different radiation patterns, useful for approximating musical instrument sources. The nominal sound power level is 125 dB with the matching Outline power amplifier and has less than 0.5 dB power compression. An optional powered subwoofer extends the response to 40 Hz. The GSR conforms to ISO 3382, ISO 140-3, ISO 140-4, ISO 354, and ASTM E336. The warranty is two (2) years parts and labor. Pricing is available for 3 standard configurations: Basic System (user provides power amplifier), Upgrade System (includes Outline power amplifier, noise source, and radio remote control), and Full-Range System (full Outline system with subwoofer).

For further information, contact Neil Thompson Shade, Acoustical Design Collaborative, Ltd.,

*Telephone: +1 410 821 5930 Fax: +1 410 821 5931.
Email: neil@akustx.com; Internet:
www.outline.it/Globe-Source.htm*

PCB Piezotronics

PCB Piezotronics Opens Shanghai Representative Office

PCB Piezotronics (PCB®) has announced the establishment of a new representative office in Shanghai, serving customers in the southeast industrial areas of the People's Republic of China.

Serving as Greater China Manager, overseeing both the Beijing and Shanghai representative offices, is Mr. Peter Zuccaro. Ms. Rita Xiao will serve as Chief Representative of the PCB Shanghai Representative Office, under the direction of Mr. Zuccaro, and will be working closely with counterparts in Beijing to develop and grow PCB®'s presence in the southeast.

Kevin J. Cornacchio, PCB® Vice President of Sales, said "The PCB Shanghai Representative Office is the second for PCB® in China, the first of which was established in Beijing in 2002. The success of our Beijing office has created a customer-driven demand for additional support in the Shanghai region. This new office will allow us to better service customers throughout the People's Republic of China, as well as to achieve long-term business development objectives in the Greater China region."

For further information on PCB products, contact Andrea Mohn, Marketing Coordinator, PCB Piezotronics, Inc., 3425 Walden Avenue, Depew, NY 14043-2495 USA. Telephone: +1 800 828 8840 ext. 2216; Fax: +1 716 684 0987; E-Mail: mktg@pcb.com. 

Acoustical Design Collaborative, Ltd

PCB Piezotronics

Pan-American News *continued from page 137*

Harris Miller Miller and Hanson, Inc. (HMMH), as primary author of the Manual, conducted a ten-year program of research and analysis of noise and vibration characteristics of high-speed trains throughout the world. The manual reflects the results of the research and provides calculation models and procedures for use by planners, designers, public agency reviewers and the public.

Of the recent release, Carl E. Hanson, Senior Vice President and co-founder of HMMH, said, "This Guidance Manual and its associated computerized spreadsheet is a valuable tool for use in determining key impacts associated with high-speed ground transportation in the United States."

FRA's experience during environmental impact assessments of high-speed train projects revealed that noise and vibration are frequently among the potential impacts of most concern to residents in the vicinity of the proposed project. This manual serves a need to provide a standardized set of procedures to be used Nationwide for the evaluation of noise and vibration impacts.

The Manual can be downloaded from the FRA website: <http://www.fra.dot.gov/us/content/253> 

Clifford M. Sroka 1941-2005

Clifford Michael Sroka, 63, died on Wednesday, May 18, 2005 at his home in Portland, Oregon. Originally from Chicago, Cliff graduated from Utah State University before beginning his 32 year career as an acoustical consultant. For the last 25 years, he worked in his company, CS Acoustical Engineering, based in Portland. He worked with the Oregon Department of Environmental Quality in his early days, helping to establish rules for acceptable noise exposure for residential property. He taught engineering classes at Portland State University and Portland Community College, mentoring many students. Cliff specialized in architectural acoustics and environmental noise control working on projects from Alaska to California and Oregon to Idaho. Cliff was a member of the Institute of Noise Control Engineering, the Acoustical Society of America, and the National Council of Acoustical Consultants. Cliff was certified in noise control engineering by the Board of Directors of INCE in 1984. Survivors include his brother, Robert Henry Sroka, Chicago, Illinois; sister, Dolores Sroka Lapinski, Midway, Georgia; one nephew, and three nieces.

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AW, LIN or HP (20 Hz)

*CCP stands for Constant Current Power and is ICP compatible.



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New Zealand	Centre for Sound Studies
Portugal	Laboratorio Nacional de Engenharia Civil, Lisboa
Sweden	Department of Applied Acoustics, Chalmers University of Technology, Gothenburg
USA	Graduate Program in Acoustics, The Pennsylvania State University, State College, Pennsylvania

Below is a list of congresses and conferences sponsored by International INCE and INCE/USA. A list of all known conferences related to noise can be found by going to the International INCE page on the Internet, www.i-ince.org.

2006 September 18-21

ACTIVE 2006

The 2006 International Symposium on Active Control of Sound and Vibration

Adelaide, Australia

Contact: ACTIVE 2006 Conference, School of Mechanical Engineering, The University of Adelaide, SA 5005 Australia

Internet: www.active2006.com

2006 December 03-06

INTER-NOISE 2006

The 2006 International Congress and Exposition on Noise Control Engineering

Honolulu, Hawaii, USA. Contact: Institute of Noise Control Engineering, INCE/USA Business Office, 210 Marston, Iowa State University, Ames, IA 50011-2153. Tel. +1 515 294 6142; Fax: +1 515 294 3528; e-mail: IBO@inceusa.org. Internet: <http://www.inceusa.org>.

2007 August 26-29

INTER-NOISE 2007

The 2007 International Congress and Exposition on Noise Control Engineering

Istanbul, Turkey.

Contact: Turkish Acoustical Society

Yeni Krizantem Sok. No 78

İc Levent, 34330 Istanbul, Turkey

Tel: +90 212 279 95 22 • Fax: +90 212 264 65 07

E-mail: contact@internoise2007.org.tr

Internet: www.internoise2007.org.tr

2007

NOISE-CON 07, The 2007 National Conference on Noise Control Engineering

This conference will be held in the Western United States, probably in the fall. Contact: Institute of Noise Control Engineering, INCE/USA Business Office, 210 Marston, Iowa State University, Ames, IA 50011-2153. Tel. +1 515 294 6142; Fax: +1 515 294 3528; e-mail: IBO@inceusa.org. Internet: <http://www.inceusa.org>.

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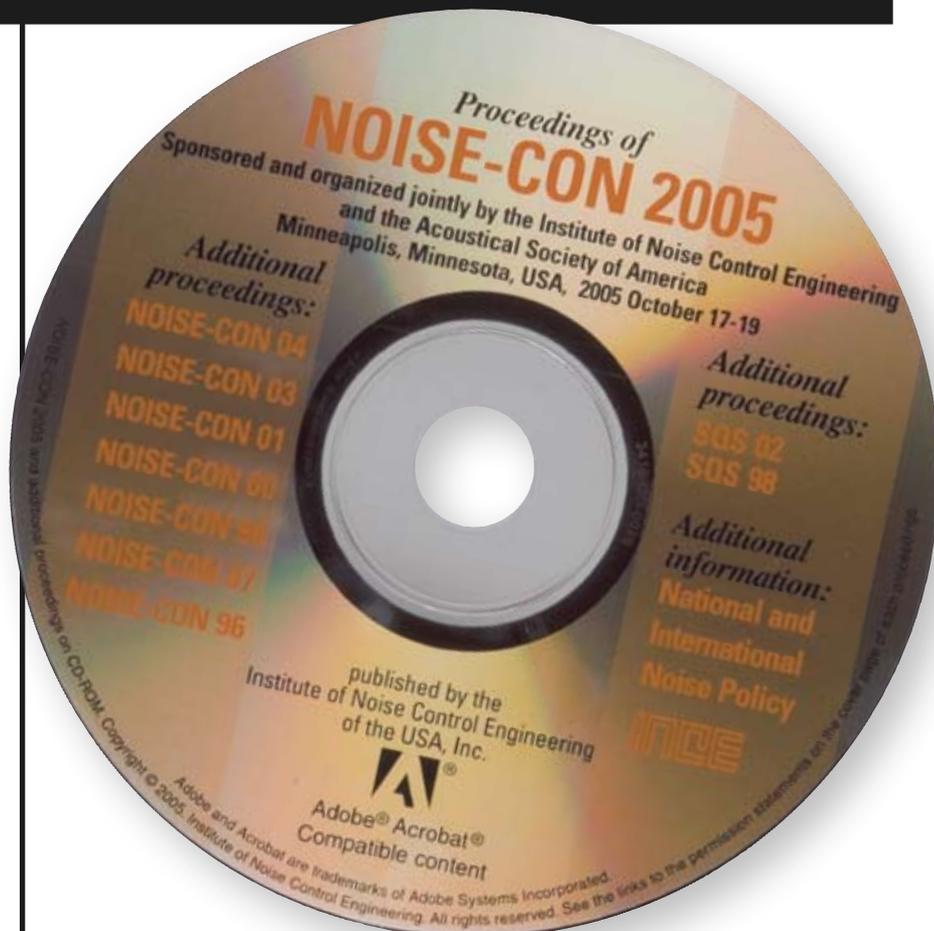
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