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ITEM 1. INTRODUCTION.

We are pleased to bring you this issue of the INTERNATIONAL SOUND AND VIBRATION DIGEST (ISVD). The DIGEST is now being published by the INTERNATIONAL INSTITUTE OF ACOUSTICS AND VIBRATION (IIAV). The digest is free of charge to members of the IIAV. Non-members may also receive the digest in future if they log on at the IIAV website. The IIAV is a democratic international scientific society. Membership, as member or associate is open to individuals from all countries. In addition, 36 scientific societies and institutes have become affiliated with the IIAV as cooperating organizations. On behalf of Professor Hans Boden, KTH, Stockholm, Sweden, the President of the IIAV, and the officers and directors, it is our pleasure to invite you to consider becoming a member if you are not already. Members receive, as part of their annual dues of \$80 USD, not only the ISVD but also a refereed journal, the INTERNATIONAL JOURNAL OF ACOUSTICS AND VIBRATION (IJAV) which began publication in December 1996. Members also receive free of charge each year the proceedings of the International Congress on Sound and Vibration (ICSV). Non-IIAV members and libraries can subscribe to the JOURNAL (IJAV) for \$100 per year by airmail, post paid. Complete details about IIAV are available on the worldwide web at <http://www.iiav.org>. A membership application form is enclosed as ITEM 13 of this issue. It can be submitted by e-mail, fax or airmail.

The proceedings of the previous ICSV congresses are available to non-members for a charge. If you are interested in further information, please go to www.iiav.org or write to mam0066@auburn.edu

We are pleased to inform you that back issues of the ISVD digest are available on the IIAV website.

We hope that you are finding the INTERNATIONAL SOUND AND VIBRATION DIGEST useful. We should be interested to hear your comments and to

receive news items and technical information and articles for inclusion in the next issue. We hope to bring out the next issue of the DIGEST in early in 2011, so don't forget to send your items soon! These should be sent to mam0066@auburn.edu.

Malcolm J. Crocker
Editor-in-Chief

Margarita Maksotskaya
Managing Editor

ITEM 2. NEWS FROM IIAV-AFFILIATED SOCIETIES:

1) Description of recent activities of The Brazilian Acoustical Society (SOBRAC)

The Brazilian Acoustical Society - SOBRAC elected a new board of directors in June 2010. The challenges and goals of the new SOBRAC administration are not small and essentially focus on spreading, among society as a whole, a greater level of awareness regarding the problem of noise within the Brazilian urban areas. In this sense, SOBRAC has been providing support to the Brazilian Ministry of Health on the creation of educational campaigns, as well as providing technical support to the Brazilian Justice Bureau on assessing more adequate policies with respect to noise in the surroundings areas of Brazilian airports. Moreover, SOBRAC is supporting the realization of the 18th International Congress on Sound and Vibration to be held in Rio de Janeiro, from the 10th to the 14th of July, 2011. SOBRAC expects the ICSV 18 in Rio to be an excellent chance to discuss and exchange ideas with colleagues from different countries about the implementation of new strategies for noise awareness among the Brazilian population.

2)The Canadian Acoustical Association (CAA) is a non-profit organization traced back to 1962, whose goals are to foster communication among people working in all areas of acoustics in Canada,

to promote the growth and practical application of knowledge in acoustics, and to encourage education, research, protection of the environment and employment in acoustics.

The CAA has nearly 400 members, most of them from Canada, but also some from the USA and other countries. Membership is open to all individuals, including students, who have an interest in acoustics. The CAA publishes *Canadian Acoustics*, a quarterly journal of refereed articles, technical notes, case studies, book reviews and news items on all aspects of acoustics and vibration.

Each year, in October, CAA also organizes an annual conference under the banner name Acoustic Week in Canada, which is an opportunity for professional, scientific and technical exchange in all areas of acoustics and vibration. This event is held at different locations across the country from the east to the west coast. The 2010 conference was convened by Professor Stan Dosso and held in Victoria, British Columbia, in October 2010 in a beautiful setting around the Inner Harbor. With over 110 papers on 13 subject areas, some 160 attendees and exhibitors, a banquet and social events, it was a great success.

The 2011 conference will be the 50th annual meeting of the CAA association and it will be held in Old Quebec city, a UNESCO world heritage treasure with European appeal, from October 12 to 14. About 100-125 contributed papers are expected. Three plenary sessions, an exhibitors show, a best student paper competition, the annual general meeting of the Association, the annual banquet and awards ceremony, and social events are also planned. The Association welcomes participants and exhibitors from Canada and around the world. More information may be found on the CAA website (<http://www.caa-aca.ca>)

3) Russian Acoustical Society:

A new type of acoustical metamaterial for cloaking objects and efficient absorption of sound has been proposed by Professor Yu. I. Bobrovnikskii and his colleagues from the Blagonravov Mechanical Engineering Research Institute in Moscow (*New Journal of Physics* 12 (2010) 043049; and *Acoustical Physics* 2010, 56, N2, see the pp.127-132). This artificial material represents a discrete periodic structure composed of identical cells of small wave dimensions. For certain values of the cell parameters and coupling between the cells, the material is shown to have extreme (the best achievable) nonreflective or absorbing

properties. The authors have implemented one of its modifications as a nonscattering coating and demonstrated its efficiency in laboratory experiment. The work is supported by the Russian Foundation for Basic Research, project 09-02-01217.

ITEM 3. NEW BOOK ANNOUNCEMENTS:

1) Principles of Sonar Performance Modelling by Michael Ainslie

Hardcover: 800 pages

Publisher: Springer; 1st Edition. (November 2, 2010)

ISBN-10: 3540876618

ISBN-13: 978-3540876618

Price: 269 USD

"Human beings are used to using built-in optical sensors - our eyes - to build an accurate picture of our immediate surroundings, and when we wish to look beyond the visible horizon we turn to radio waves to do the same job. In water, neither visible light nor radio waves travel for more than a few meters, whereas low frequency sound can travel tens or even hundreds of kilometers, making sonar the sensor of choice for underwater navigation, oceanography, or the detection of underwater objects. This book opens with a description of the pioneering efforts of Pierre and Jacques Curie, who discovered piezoelectricity (the conversion between mechanical and electrical vibrations), Paul Langevin, who demonstrated underwater echolocation during the First World War, and other giants of the twentieth century such as Ernest Rutherford, Leon Brillouin and Maurice Ewing, in making sonar and its applications a reality. Traditionally considered a branch of engineering, sonar performance modeling is treated here from a physicist's perspective, bringing together the very different disciplines of oceanography, acoustics, signal processing and detection theory in one volume. Separate chapters describe the characteristic physical, chemical and biological signature of the oceans, acoustic reflection from the ocean boundaries and their contents, propagation, noise and reverberation modeling, beam forming and matched filter processing, the hearing

capabilities of marine mammals, and the fundamentals of statistical detection theory for fluctuating and non-fluctuating signals. The cornerstone of this book is a derivation from physical principles of the sonar equations, which are applied to examples including man-made and biological sonar."

2) Architectural Acoustics: Principles and Practice, 2nd Edition by William J. Cavanaugh; Gregory C. Tocci; Joseph A. Wilkes

Hardcover: 352 pages

Publisher: Wiley (November 1, 2009)

ISBN13:9780470190524

ISBN10:0470190523

Price: 119.95 USD

A widely recognized, comprehensive reference to acoustical principles for all concerned with the built environment. The second edition Architectural Acoustics provides design professionals with up-to-date information on basic concepts, acoustical materials, and technologies for controlling wanted or unwanted sound within and around buildings. Updated throughout, this edition features: new information on acoustical standards and guidelines for sustainable building design; additional, richly detailed case studies demonstrating real-world applications, including the acclaimed Walt Disney Concert Hall and many other building types; nearly 200 photos and illustrations that further elucidate specific principles, applications, and techniques; new developments in sound reinforcement and audio visual systems and their integration in room design, and progress in research and future directions in acoustical modeling. With fundamental conceptual understanding of basic acoustical principles provided by Architectural Acoustics building designers can confidently create aesthetically and aurally pleasing spaces, while avoiding problems that could be very costly, if not impossible, to solve later.

3) Vehicle noise and vibration refinement Edited by Xu Wang.

Hardcover: 434 pages

Publisher: CRC Press (June 15, 2010)

ISBN-10: 1439831335

ISBN-13: 978-1439831335

Price: 233.78 USD

This book reviews noise and vibration refinement principles, methods and modelling techniques necessary in vehicle design, development and integration in order to meet noise and vibration standards. It outlines objectives driving development and the significance of vehicle noise and vibration refinement whilst documenting definitions of key terms for use in practice. Case studies are used to demonstrate measurement and modelling in industry and illustrate key testing methods including hand sensing and environmental testing. High standards of noise, vibration and harshness (NVH) performance are expected in vehicle design. Refinement is therefore one of the main engineering/design attributes to be addressed when developing new vehicle models and components.

Vehicle

noise and vibration refinement provides a review of noise and vibration refinement principles, methods, advanced experimental and modelling techniques and palliative treatments necessary in the process of vehicle design, development and integration in order to meet noise and vibration standards. Case studies from the collective experience of specialists working for major automotive companies are included to form an important reference for engineers practicing in the motor industry who seek to overcome the technological challenges faced in developing quieter, more comfortable cars.

4) Fundamental of Medical Ultrasonics By Michiel Postema

Hardcover: 248 pages

Publisher: Spon Press (March 15, 2011)

ISBN: 978-0-415-56353-6

Price: 130.00 USD

Fundamental of Medical Ultrasonic's sets out the physical and engineering principles of acoustics and ultrasound as used for medical applications. It covers the basics of linear acoustics, wave propagation, non-linear acoustics, acoustic properties of tissue,

transducer components, and ultrasonic imaging modes, as well as the most common diagnostic and therapeutic applications. It offers students and professionals in medical physics and engineering a detailed overview of the technical aspects of medical ultrasonic imaging, whilst serving as a reference for clinical and research staff.

5) Seismic Analysis of structures by T.K. Datta

Hardcover: 464 pages

Publisher: Wiley List Price (May 2010)

ISBN: 978-0-470-82461-0

Price: 130.00 USD

While numerous books have been written on earthquakes, earthquake resistance design, and seismic analysis and design of structures, none have been tailored for advanced students and practitioners, and those who would like to have most of the important aspects of seismic analysis in one place. With this book, readers will gain proficiencies in the following: fundamentals of seismology that all structural engineers must know; various forms of seismic inputs; different types of seismic analysis like time and frequency domain analyses, spectral analysis of structures for random ground motion, response spectrum, method of analysis; equivalent lateral load analysis as given in earthquake codes; inelastic response analysis and the concept of ductility; ground response analysis and seismic soil structure interaction; seismic reliability analysis of structures; and control of seismic response of structures. This book provides comprehensive coverage, from seismology to seismic control. It contains useful empirical equations often required in the seismic analysis of structures. The book also outlines explicit steps for seismic analysis of MDOF systems with multi support excitations. Solved problems are used to illustrate different concepts. It also makes use of MATLAB, SAP200 and ABAQUAS in solving example problems of the book, and it provides numerous exercise problems to aid understanding of the subject. As one of the first books to present such a comprehensive treatment of the topic, Seismic Analysis of Structures is suitable for postgraduates and researchers in Earthquake Engineering, Structural Dynamics, and Geotechnical Earthquake Engineering. Developed for classroom use, the book can also be used for advanced undergraduate students planning for a career of further study in the subject area.

Lecture materials for instructors are available at
www.wiley.com/go/dattaseismic

6) The audio programming book Edited by Richard Boulanger and Victor Lazzarini Foreword by Max Mathews

Hardcover: 984 pages

Publisher: The MIT Press (2010)

ISBN: 0262014467

Price: 49.31 USD

This comprehensive handbook of mathematical and programming techniques

for audio signal processing will be an essential reference for all computer musicians, computer scientists, engineers, and anyone interested in audio. Designed to be used by readers with varying levels of programming expertise, it not only provides the foundations for music and audio development but also tackles issues that sometimes remain mysterious even to experienced software designers. Exercises and copious examples (all cross platform and based on free or open source software) make the book ideal for classroom use.

Fifteen chapters and eight appendices cover such topics as programming basics for C and C++ (with music-oriented examples), audio programming basics and more advanced topics, spectral audio programming; programming Csound opcodes, and algorithmic synthesis and music programming. Appendices cover topics in compiling, audio and MIDI, computing, and mathematics. An accompanying DVD provides an additional 40 chapters, covering musical and audio programs with micro-controllers, alternate MIDI controllers, video controllers, developing Apple Audio Unit plug-ins from Cgound opcodes, and audio programming for the iPhone.

7) Auditory and visual sensations by Ando Yoichi

Hardcover: 344 pages.

Publisher: Springer (2009)

ISBN 978-1-4419-0171-2

Price: 115.05 USD

This book is one of the first scientific attempts to relate aesthetics to neural activity patterns in both auditory and visual areas of the brain. A host of correspondences between human subjective preferences and brain activity are presented as observed through electroencephalography and magnetoencephalography. The multimodal set

of investigations presented in this book grew out of the development of a neurally grounded theory of subjective preference for sound fields in concert halls. The theory is based on a model of the human auditory system (Ando, 1985, 1998). In the theory, subjective preference is shaped by ecological utility to embody patterns of primitive responses that enhance survival. The auditory preference model assumes two kinds of internal representations of sound that are based on the correlation structure of sound as it presents itself to the two ears. These representations are based on autocorrelation and cross-correlation. The autocorrelation function describes the monaural signal at each of the two ears, while the interaural cross correlation function describes the correlations between the two monaural signals arriving at the entrances of the two ears.

Part I of this book discusses central autocorrelation and binaural crosscorrelation representations that we believe respectively sub serve perception of tonal quality and of auditory spatial attributes. Many aspects of tonal quality, including pitch, timbre, loudness, and duration can be extracted from features of the central autocorrelation representation. On the other hand, spatial sensations such as localization in the horizontal plane, apparent source width and subjective diffuseness may be described in terms of spatial factors extracted from the central cross-correlation representation. Part II of this book discusses similarities between auditory and visual processing. Although the theory of subjective preference was developed with auditory perception in mind, it can plausibly be extended to predict subjective preferences in analogous dimensions of visual perception.

8)Vibration and Acoustics by Sujatha C.

Hardcover:409 pages

Publisher: McGrawHill Education (December 9, 2009)

ISBN: 9780070148789

Price: Rs 695

This book explains all topics concerning vibration and acoustical measurements, as well as signal analysis techniques, in a simple and concise manner. It comprehensively covers experimental techniques in vibration and acoustical measurements; a wide range of vibrations transducers and exciters as well as other items of equipment that go hand in hand with vibration measurement; signal analysis fundamentals, and processing of random signals; vibration monitoring techniques for machinery diagnostics, and modal analysis; acoustical transducers, and common acoustics measurements; case studies in vibration and acoustics measurements. The book contains sufficient mathematics for a better understanding of the theory behind the topics. Fundamental concepts of the theories of vibration and acoustics have also been presented. Vibrations and Acoustics: Measurement and Signal Analysis is the culmination of more than two decades of the author's teaching and research experience in these areas. It will serve as a source of reference for postgraduate students, researchers, academicians, practicing engineers and professionals in the fields of vibration and acoustics.

ITEM 4. ICSV18 CONGRESS ANNOUNCEMENT: The Eighteenth International Congress on Sound and Vibration, Rio-de-Janeiro, Brazil.

We are pleased to welcome you to the 18th International Congress on Sound and Vibration (ICSV18) to be held in Rio de Janeiro, Brazil, from 10 to 14 July 2011. ICSV is one of the leading world congress series in the fields of acoustics and vibration and therefore is a major opportunity for the presentation of latest results and learning about the most advanced theories, technologies and applications. It is the annual premier world event organized by the International Institute of Acoustics and Vibration (IIAV).

Keynote lecturers:

J. R. F. Arruda, Brazil - Sound Processing in Sound and Vibration

Lex Brown, Australia - Soundscapes

J. E. Ffowcs Williams, UK - Aeroacoustics

Mardi Hastings, USA - Sound in the Ocean: Acoustical Interactions with Marine Animals

M. L. Munjal, India - Recent advances in Muffler Acoustics

Michael Vorlander, Germany - Virtual Acoustics

Abstracts can be submitted on the ICSV18 website:

<http://www.icsv18.org/>. If you are registering to submit an abstract on the website, you should show your name and address the way you would like it to be shown in the abstract. (That is the way the website system works)

ITEM 5. CONFERENCE ANNOUNCEMENTS:

1) The 3rd Symposium on the Acoustics of Poro-Elastic Materials (SAPEM) will be held in Ferrara (Italy) 14-16 December 2011.

The understanding and prediction of sound propagation in highly heterogeneous porous materials and composites is becoming of great interest beyond noise control applications. In fact, porous media are investigated in many disciplines such as polymer extrusion, pharmaceutical and food industries, medicine, soil and underwater sediment characterization. Despite considerable efforts that have been made to understand and model acoustical porous media, a number of unsolved problems still remain. These are problems associated with non-linear effects, multiple pore scales, conflicting demands for inherent material multi-functionality and enhanced sustainability. The objectives of this symposium are: to present the most up-to-date achievements in modelling, characterization and applications of acoustical porous media; to bring together researchers working in adjacent disciplines concerned with porous media; to identify future challenges for this area of research and discuss ways to address these challenges.

For more information, please contact Luc Jaouen:

luc.jaouen@matelys.com

Matelys - Acoustique & Vibrations France

web : <http://www.matelys.com>

2) Alberta Conference Innovates the Discussion on Energy Industry Noise Management

The Alberta Acoustics and Noise Association will host workshops on the practical understanding and application of noise regulations in the Province of Alberta on May 24, 2011. These workshops begin at four day program including workshops, technical sessions and plenary speakers providing a forum for facility representatives to practiced acoustical consultants, to engage in discussions on noise control and regulation. The Spring Noise Conference is unique in its approach to present noise as a practical and applied topic for industry, acoustical specialists and practitioners alike and is the only conference in Canada to do so. Since its inception in 1993 the Spring Noise conference has grown from a local event initiated by the ERCB to a global conference that attracts attendees and speakers from around the world. Conference participants share experiences and innovations in environmental and occupational noise, sound measurement, regulation and control. This year's plenary speaker's specialties include wind turbine noise, low frequency noise, drilling noise, environmental noise regulation, noise control technologies, acoustical ecology and industrial hygiene. The 2011 Spring Noise Conference runs from May 24th-17th, 2011 at the Fairmont Banff Springs Hotel. Please visit www.springnoiseconference.com

For more information please contact:

Robin Himes: medialiaison@springnoiseconference.com

Alberta Acoustics & Noise Association

3) In September, 2012, several meetings will be held in Evora, Portugal. Those will include the VIII Iberomeric Acoustics Congress, the VII Iberian Acoustics Congress, the XLIII Spanish Acoustics National Congress -TECNIACUSTICAR 2012- and the Acoustics European Symposium under the theme of Environmental Acoustics. These events will be a forum for the presentation of the most recent work undertaken in several areas of Acoustics, which are more and more frequently present, in University curricula, of the Research Laboratories, at the concerns of the

Governmental Organizations, Municipalities, Enterprises and in all the working activities, recreation and culture.

4) The next International Conference on Hand-Arm Vibration will be held in Ottawa, Canada on 13-17 June 2011. This Conference (the 12th since 1972) is the premier multi-disciplinary forum for discussing current challenges of hand-arm vibration - such as vibration measurement, exposure estimation, health effects assessment, frequency-weighting schemes, and vibration reduction strategies - as well as for presenting new research, technology, and regulatory developments from around the world. Early-bird registration ends on the 15 April 2011. For more information, see www.hav2011.org

5) The 5th International Symposium on Temporal Design 21-22 July 2011. Interdisciplinary Centre for Social Sciences, University of Sheffield

Description; A joint event organized by the School of Architecture, University of Sheffield with the Institute of Acoustics. Programme. Topics will include; architecture, building and environmental acoustics; music and music space soundscape sound quality; auditory system noise and vibration measurement and evaluation; environmental psychology and physiology; built environmental design including visual, heat and indoor air environments. More information can be found at:

<http://www.ioa.org.uk/events/event.asp?id=104>

6) 10th International Congress on Noise as a Public Health Problem Date: Sunday 24 July 2011 - Thursday 28 July 2011

Description: The congress aims to present the current state of the art research on the biological effects of noise on health and is suitable for research scientists, policy makers and industrialists concerned with the effects of noise. Topics to be featured: noise-induced hearing loss; noise and communications; non-auditory effects of noise; influence of noise on performance and behavior; effects of noise on sleep; community response to noise; noise and animals; interactions with other agents; policy and economics. For more information visit: www.icben2011.org

ITEM 6.PAST EVENTS:

1) General Assembly and Scientific Meeting of the Academia NDT International

Two meetings of the Academia NDT International were organized within the frames of the 10th ECNDT. On June 9, 2010 the 2nd General Assembly of Academia members and invited guests was held while on June 10 the 2nd Academia Scientific meeting "Science, Technology and Diagnostics in NDT" was held. 25 full members from 17 countries and one honorary member of the Academia from Russia took part in the general Assembly. The GA participants were greeted by: Dr. Giuseppe Nardoni - Academia President, Prof. Vjera Krstelj - EFNDT President, Academician of Russian Academy of Sciences Vladimir V. Klyuev - the 10th ECNDT President.

2) The Symposium on the Mechanics of Slender Structures.

The 3rd International Symposium in the Mechanics of Slender Structures (MoSS2010) was hosted by the University of Mondragon and held in San Sebastian (Spain) from 21st to 23rd July 2010 (website: <http://www.mondragon.edu/MoSS2010/>). The conference was organized in collaboration with the Applied Mechanical Group of the Institute of Physics and the Technical Committee on Vibration and Sound of the American Society of Mechanical Engineers. It was co-sponsored by Orona, ThyssenKrupp Research Innovation and Design (TRlaD) Product Planning Group, the Lift and Escalator Industry Association and the Institution of Mechanical Engineers. The meeting was attended by over forty delegates from Belgium, Canada, China, Germany, Italy, Japan, Spain, The Netherlands, U.K., and U.S.A.. The event brought together experts from various fields: vertical transportation, civil engineering, structural mechanics, thermo-mechanics, dynamics, electrodynamics, vibration and control, kinematics and mechanisms, structural health monitoring, artificial intelligence, materials science, and applied mathematics to discuss the current state of research as well as rising trends and direction for future research in the area of mechanics of slender structures. A diverse range of topics featured in the conference presentations covering the theory and applications of slender structures in terrestrial, marine and space systems, with elevator systems being a leading theme. Six keynote lectures were presented by international experts. The technical sessions featured twenty five regular presentations addressing the following subjects: damping strategies and

models; composite materials; dynamic stability; electro-mechanical and magneto-mechanical interactions; flow-induced vibrations and fluid-structure interactions; inspection, monitoring and sensor techniques; intelligent materials and structures; kinematics and mechanisms; MEMS technology, and non-linear dynamic interactions.

ITEM 7. HONORS AND AWARDS:

1) In April 2010 the A B Wood Medal of the Institute of Acoustics/UK was awarded to Mario Zampolli "for his contributions to the understanding of scattering from elastic objects in acoustic waveguides and of long-range sound propagation in the sea", See [<http://www.ioa.org.uk/about-us/news-article.asp?id=203>]

2) Gary W. Siebein, FASA, FAIA was elevated to the College of Fellows of the American Institute of Architects (AIA). He received his Fellowship medal during the Investiture of Fellows Ceremony at the AIA National Convention and Design Expo in San Francisco, California on May 1, 2009.

3) Norman J. Lass, Professor in the Department of Speech Pathology and Audiology, was awarded the Outstanding Researcher Award for the 2009-2010 school year from College of Human Resources and Education at West Virginia University.

4) Malcolm J. Crocker. Distinguished University Professor, Auburn University. Was awarded the Distinguished Graduate Faculty Lectureship and presented his lecture "The World of Sound" on October 27, 2010. See: [<http://www.grad.auburn.edu/misc/DistinguishedFaculty.html>]

ITEM 8. NATIONAL ACOUSTICAL LABORATORIES AND RESEARCH ACTIVITIES:

1) The Acoustics Group, London South Bank University, UK

www.whyverne.co.uk

lsbu-acoustics.blogspot.com

The Acoustics Group was formed more than 30 years ago, and is part of the Department of Urban Engineering of London South Bank University. The Acoustics Group is lead by Prof Bridget Shield, President Elect of the Institute of Acoustics. In recent years, 2007-2010 the Acoustics Group has been active in three separate areas: teaching, research and enterprise activities. Teaching is lead by Dr Stephen Dance primarily through the MSc in Environmental and Architectural Acoustics. The Masters course is used to feed into our PhD programmes. Research is now focused around three on-going themes with funding split equally between the government research council schemes and industry, generating more than \$2 million over the past 3 years. These projects have resulted in the equivalent of a 5* rating based in the UK Research Assessment Exercise 2008. Finally, enterprise activities have increased, addressing the needs of the local community and creating spin-outs from the various research projects. Current research topics include: speech intelligibility in metro station and classrooms - measurements and computer modeling; new low level noise room acoustics measurement techniques; performance noise and musicians noise exposure including audiometry; acoustical devices including: iPhone, Audio3 SoundBadge and the patented sound absorbing mirror; rooftop urban wind turbines - noise and vibration, and hospital noise.

2) Report on the recent research in CAMAL, Tokyo, Japan

CAMAL (Chuo University Advanced Mechanical Computer Aided engineering Laboratory) in Tokyo, Japan has been conducting research on the acoustics and vibration under the supervision of Prof. Nobuyuki Okubo and Prof. Takeshi Toi. The major fields of research are the vibro-acoustics analysis based on the computer aided engineering (CAE) and the comfortable sound design considering the characteristics of human perceptions. The detailed current research topics include: Quantitative sound quality (SQ) evaluation based on listener's physiological reactions. To replace the SQ evaluation based on juries' subjective survey, which has been used traditionally but is involving uncertainty, several methods employing the measurement of listener's

physiological reactions has been investigated, e.g., measuring the salivary amylase, face temperature, and respiration fluctuation (Fig .1). The research on the objective evaluation of SQ has been carried out under the cooperated research among the members of working group in the Japanese Society of Automotive and CAMAL are playing an important role in the society.

3) The Acoustics and Electroacoustics Laboratory and the Noise Group in Rosario, Argentina.

This group is carrying out some interesting projects under the direction of Prof. Federico Miyara, financed by local institutions such as the National Agency for Scientific and Technological Promotion (ANPCyT), the National Council of Scientific Research (CONICET) and the National University of Rosario (UNR). One project concerns digital audio coding, specifically, the development of new lossless and lossy audio codecs based on Empirical Mode Decomposition techniques. This project is conducted by Dr Fernando A. Marengo Rodriguez in the framework of a Postdoctoral scholarship financed by CONICET and the collaboration of some enthusiastic students from the UNR (Eriberto Roveri, Mauro Treffilo y Juan Manuel Rodriguez Guerrero).

Other important branches of the Laboratory research program involve research on urban and community noise and noise effects such as annoyance. This project can be divided into three main subtopics: the development of spectral noise mapping techniques and their application to the city of Rosario (ANPCyT and UNR); the development of computational and hardware tools and procedures for the automatic simulation of realistic environmental noise including analysis and simulation of traffic noise for laboratory experiments, allowing the control of semantic content, temporal and spectral cues (ANPCyT and CONICET); the development of surveys and procedures for laboratory and field studies (ANPCyT and CONICET).

The research groups are composed of staff members Vivian Pasch, Marta Yanitelli, Susana Cabanellas, Elio Di Bernardo and Jorge Vazquez as well as collaborators such as Pablo Miechi, Ezequiel Mignini and students and scholarship holders from several institutions. Some of the members have earned important awards such as the PhD candidate Ernesto Accolti who has been awarded this year a Research Program for PhD Thesis Work Grant from the Second University Naples to do research work at the

Built Environment Control Laboratory under the guide of Dr. Luigi Maffei. He has also earned the I-INCE Young Scientist Grant (YSG) (http://www.i-ince.org/links/I-INCE_YPW_2010.pdf) and the Iberoamerican Federation of Acoustics (FIA) Grant, both during the Internoise Congress in Lisbon and a Grant for young researchers, given by the European Acoustics Association (EAA) during the EAA Euroregio 2010 Congress, Ljubljana.

[http://lab.fs.uni-lj.si/sda/euroregio/program/technical_program.pdf]

4) The Spanish National Research Council (CSIC) as well as the Polytechnic University of Madrid (UPM) have been working together in creating research groups in different areas of knowledge to compete both nationally and internationally with other research groups. For a period of more than two years, both institutions have developed this idea with the intention of creating together different technological scientific centres. One of the first identified knowledge areas of interest in this context is the Applied Acoustics. This has resulted in the creation of a joint Centre by both CSIC and UPM, and the research is carried out in these areas. The name selected for this scientific-technological Centre is: Applied Acoustics and Non-Destructive Evaluation Centre (CAEND). The promoters of this project are researchers of the Departments of Environmental Acoustics; Signal Systems and Ultrasonic Technologies and Systems, now belonging to the Acoustic and Automatic Industrial Institutes respectively of the CSIC and the UPM I2A2 Group. These groups have lines of research covering various areas, such as Noise Assessment and Noise Control, Building Acoustics, development of systems for Non-Destructive Evaluation (NDE), Materials Characterization, Transducers and Ultrasonic Systems development, Electronic Instrumentation and Virtual Instrumentation systems applied to scientific experiments. It is planned to attract other researchers covering other areas, not only from the positions of the CSIC or UPM but also through programmes that can contribute to the recruitment of scientific excellence standards. Mr. Javier Uceda, Rector of UPM and Mr. Rafael Rodrigo, President of CSIC on November 19, 2009 signed an agreement for the creation of the CAEND and for the construction of a building in the UPM campus of Valdelacasa (Alcobendas, Madrid, Spain) where the CAEND will reside. According to initial estimates, the Centre will have 9000 square meters of scientific facilities whose value is

estimated at close to 54 MEuros. These facilities shall be supplemented with dedicated service management infrastructure, and will be equipped with the most advanced scientific and technological equipment. Mr. Manuel Recuero, Professor at the UPM, has been appointed acting as Director of Centre, and Mr. Alberto Ibanez, scientific holder of CSIC, as Deputy Director. The objectives of the CAEND are a faithful reflection of the strategic goals of the National Plan, applied to the specific problems of the applied acoustics and non-destructive evaluation. The CAEND is created with the claim to be a reference to Spanish and European level in these fields, and meet the following specific objectives: Promote a highly competitive business entity: RDI activities meet the demands of the productive sectors. Basically aimed at two types of companies: contractors making use of Acoustics Engineering and the NDE for the improvement of their production processes or infrastructures; and utilities Acoustics Engineering and NDE that sell these services; Make relevant to the transfer of technology, both media and methodologies. Promote companies able to develop, commercialize and support the technology transferred results; Promote the formation of technologists in the theme of applied acoustics and NDE, as part of technology transfer process.

Placing Spain at the forefront of knowledge and increasing levels of knowledge generation in these areas: Developing an effort aimed at generating new knowledge that consolidate future research; To promote the training of scientific personnel. Applying criteria of scientific excellence and opportunity for R&D-oriented and demand. Advancing the international dimension generating links to exchanges of researchers and participation in programs international RDI related institutions. Promoting scientific and technological culture of today's society and make it visible as a contribution to the promotion of scientific culture and as an element in research work to attract researchers and make the Centre a national reference in these themes.

In parallel, the EU aims in its 7th Framework Programme of research two coincident priority objectives with the National Plan but at European level: Strengthening the scientific base and technology of the European industry; Encourage its international competitiveness, promoting research that supports EU policies.

The proposed Technologic-Scientific Joint Centre (CCTC) collects these objectives with full awareness that deepen the knowledge and the

development of new systems and technologies contributes in a clear and direct way to increase the quality and competitiveness of European industry. The current number of PhD (25), will be increased thanks to the formation and incorporation of scientists and researchers, so that in a future scenario, the number of PhD candidates will reach 60, making the CAEND a reference at the European level.

ITEM 9. RECENT DOCTORAL THESES:

1) UNIT-WAVE RESPONSE-BASED MODELING OF ELECTROMECHANICAL NOISE AND

VIBRATION OF ELECTRICAL MACHINES

Doctoral Dissertation

Helsinki University of Technology

Faculty of Electronics, Communications and Automation

Department of Electrical Engineering

Janne Roivainen

Abstract

The primary aim of the thesis is to develop a method for the rapid electromechanical sound power calculation of electrical machines to be used in industry. The core idea is that the numerical simulation of sound radiation is carried out only once. Then, a number of characterizing curves, known as unit-wave responses, are extracted from the results and stored. Finally, the unit-wave responses, together with the magnetic excitation force waves, are used for fast sound power estimation. An experimental method for the determination of unit-wave responses is also developed, which serves especially the process of model verification.

The secondary aim is to study the items crucial for the modeling of the sound radiation of electrical machines, such as the effect of tangential force waves on the vibration response, the correlation of force waves in the case of a DTC converter supply, the effect of impregnation on the material properties of the stator core, and the feasibility of the approximate methods for sound power calculation.

The most important results of the work done in the thesis include the following: 1) the unit-wave-based sound power calculation performs well, provided that force waves with different wave numbers are weakly

correlated, which was verified for the case of a machine supplied by a DTC converter; 2) tangential force waves may have a remarkable effect on the response, which is observed as either an increased or decreased response level, depending on the phase difference of the radial and tangential force waves; 3) the VPI impregnation affects the structural material properties of the stator core considerably, which manifests itself as increased stiffness and decreased damping of the stator core, and 4) the high-frequency boundary element method seems appropriate for the fast and approximate sound power calculation of electrical machinery.

2) NOISE COST EVALUATION ON ROAD PLANNING.

Doctoral Dissertation. Cecilia A. Rocha.

Abstract

The quality of life of the population living in urban areas, not only in Portugal, but in Europe and even the whole world, has been showing an increasing decline. There are multiple dimensions embodied in the definition of "quality of life", which means, "individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns", according to the definition issued by the World Health Organization (WHO), "a broad ranging concept affected in a complex way by the persons' physical health, psychological state, level of independence, social relationships and their relationship to salient features of their environment" (WHOQOL Group 1995). A variety of studies show an increasing proportion of the population living in cities, fact that associated with a continuing expansion of new transport infrastructure with the passage of a larger number of vehicles, mostly relating to road transport, has largely contributed to this deterioration. The theme of this thesis deals with the relationship between the characteristics of environmental noise, in particular of road noise, urban planning options to which different municipalities have committed to and the impact of those decisions (or lack of decision) in the quality of life of the population in general and the potential consequences of restraining the "acquired" construction rights of urban land owners. To accomplish the objectives

of quantifying the negative interference of road traffic noise, were studied several themes correlated with environmental acoustics. Considered of particular importance and in addition to matters concerning environmental acoustics, were issues related to transport economy and territorial planning. The combination of these three thematic made possible the quantification of the road traffic noise cost in Portugal. In this thesis were applied concepts associated with transport economy, which have allowed the quantification of noise externalities, that is to say, economic valuation of noise damaging effects in the population in particular with regard to health problems and exposed person's annoyance. It was possible to conclude that noise externalities represent approximately 0.25 per cent of PIB2007, about 400 million Euros per annum("central values" estimate). Also in the transport economy sphere of influence, there was an attempt to quantify the noise mitigation measures used to minimize noise at the source (pavement solutions with enhanced acoustic performance) and in the wave path (noise barriers) on the roads which are part of the principal road network. The analysis of investments, for which was possible to gather the required information, resulted in the computation of an expense close to 18 million Euros in noise barriers and almost to 12 million Euros of additional cost for enhanced pavements to which will be added, in a twenty years period, approximately 100 million Euros in pavement replacements. Regarding territorial planning, were used related theories for the quantification and valuation of potential real estate tax revenue losses arising from environmental noise levels higher than the limits listed in the third Portuguese Noise Code (RGR), for noise zoning assigned by municipalities. It was concluded that the potential loss of real estate tax revenue (IMI), for the overall Portuguese municipalities, might achieve 120 million Euros per year, approximately 17% of total yearly revenue of IMI.

ITEM 10. RESEARCH POSITION AVAILABLE: Research Position Available

A PhD fellowship is available in the field of acoustical materials, The School of Engineering, Taylor`s University, Subang Jaya, Selangor,

Malaysia. Applicants must hold a masters degree in Mechanical Engineering specialized in one of the fields of acoustics. Interested candidates please send your full CV for further assessment. The successful applicant will receive a monthly salary of RM1500 9in Ringgit Malaysia with the tuition fees partially or fully waived. For more information please contact: Dr. Mohammad Hosseini School of Engineering Taylor`s University-Lakeside Campus Selangor, Malaysia; hosseini@taylors.edu.my

ITEM 11. NEWS ABOUT OUR MEMBERS:

1) New UoB-Professor in Experimental Acoustics

Dr. Postema has accepted a Professorship in experimental acoustics co-funded by the Michelsen Centre (MIMT). Dr Michiel Postema was previously the leader of the Emmy-Noether research group at the Ruhr-Universitat Bochum in Germany. His main interest and experience is in the field of agitating micro-bubbles and drops in different media using sound field, and characterization of the bubbles and/or the medium by utilizing high-speed photography. This has several applications and Postema is especially interested in the use of this method in medicine. In addition, he also has experience in the oil and gas industry and is aware of the possibilities within hydro/fishery acoustics. His first day of work at UoB was November 1st, 2010

2) Wireless Sound Monitoring in California

Mei Wu Acoustics has been awarded a three-year contract to monitor the construction noise at Caldecott Tunnel in Oakland, California. A wireless sound monitoring system was developed for this project by Scantek and PSW-Tech. The system publishes real time sound pressure levels at six community monitoring stations plus four construction site stations on a website at a pre-set time interval and therefore eliminates the expensive need for regular site visits to confirm the operating status of the monitors and to download data. When sound pressure levels exceed the criteria at any station, the system sends out an alarm within seconds via email and text messages (SMS) to the

construction team. The system also publishes the audio recording of the exceedance event on the website so that the construction team can listen to the audio recording to identify the noise sources of the exceedance. Noise control can be applied if the exceedance event is caused by construction. The system has been operating successfully since May 2010. It allows the public to view daily nighttime sound pressure levels at the community monitoring stations on the Caldecott project website. It also operates a password protected website for the construction team to monitor the sound levels throughout the day, review exceedance durations and levels, listen to exceedance event audios to identify the noise source, and search for archived sound pressure levels and exceedance event recordings.

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ITEM 12. SPECIAL DECEMBER 2010 ISSUE OF THE INTERNATIONAL JOURNAL OF ACOUSTICS AND VIBRATION (IJAV) ON "HEARING PROTECTORS".

The IJAV December 2010 Special Issue on Hearing Protectors has just been published with Guest Editor, Samir Gerges. The IJAV is free of charge to IIAV members. Individual articles from the IJAV journal may be purchased by non-members for 10 USD for a single article, and 30 USD for a full issue (number).

Members can find the articles in December 2010 issue on the IIAV website (www.iiav.org) by clicking: Technical Journal, then Published Articles, then Number - 4: December.

Articles in this Special December 2010 Issue are:

- 1) A Comparison Study of Foam versus Custom Silicone Earplugs Used as Part of an Intelligent Electronic Hearing Protector System by Olav Kvaloy, Tone Berg and Viggo Henriksen.

2) Modeling Speech Intelligibility in the Noisy Work- place for Normal-hearing and Hearing-impaired Listeners Using Hearing Protectors by Christian Giguere, Chantal Laroche and Veronique Vaillancourt, Sigfrid D. Soli.

3) Powered Electronic Augmentations in Hearing Protection Technology Circa 2010 including Active Noise Reduction, Electronically-Modulated Sound Transmission, and Tactical Communications Devices: Review of Design, Testing, and Research by John G. Casali.

4) Passive Augmentations in Hearing Protection Technology Circa 2010 including Flat-Attenuation, Passive Level-Dependent, Passive Wave Resonance, Passive Adjustable Attenuation, and Adjustable-Fit Devices: Review of Design, Testing, and Research by John G. Casali.

5) Intra-Subject Fit Variability for Field Microphone- In-Real-Ear Attenuation Measurement for Custom Molded Earplugs by Jeremie Voix and Cecile Le Cocq.

ITEM 13. IIAV: Membership Application Form for the INTERNATIONAL INSTITUTE OF ACOUSTICS AND VIBRATION (IIAV)

President: Hans Boden, [Sweden]

Vice Presidents: Marek Pawelczyk, [Poland] Eleonora Carletti, [Italy]

Secretary: Semyung Wang, [South Korea]

Treasurer: Zhuang Li, [United States of America]

Executive Director: Malcolm Crocker, [United States of America].

The International Institute of Acoustics and Vibration (IIAV)

incorporated

in June 1995, is a non-profit scientific society whose membership is open to

qualified individuals in all countries.

PURPOSE The Institute has been created to advance the science of

acoustics

and vibration by creating an international scientific society that is responsive to the needs of scientists and engineers in all countries whose

primary interests are in the fields of acoustics and vibration. The Institute shall cooperate with scientific societies in all countries and

with other international organizations with the aim of increasing information exchange by sponsoring, cosponsoring or supporting seminars,

workshops, congresses and publishing or providing journals or other publications. The Institute will provide an electronic International Sound

and Vibration Digest (ISVD) and a paper refereed journal (the International Journal of Acoustics and Vibration) for all members as part of their dues.

MEMBERSHIP There are six classifications of membership in the Institute

including: Fellow, Member, Associate, Student Member, Emeritus Member, and

Honorary Fellow. All memberships entitle a member to receive the publications

of the Institute and to attend Institute meetings. Those entitled to vote at

Institute meetings are restricted to Fellows, Members and Emeritus Members.

Fellows, Members, Emeritus Members and Honorary Fellows are eligible to hold

office. Membership as Member is open to all those who have at least a

baccalaureate degree or its equivalent from an accredited institution and who

are employed or have been employed in an activity related to acoustics and/or

vibration. Membership as Associate is open to all persons who wish to

support and promote the activities of the Institute, but who do not meet the criteria for membership as Member.

DUES The membership dues are \$80 per year. Membership dues for those from some countries will be at a lower rate. Members will begin receiving the electronic ISVD and the journal immediately on joining the Institute.

OFFICERS AND DIRECTORS The officers of the Institute are the President, the President-Elect, the Immediate Past President, the Vice President for Professional Relations, the Vice President for Communications, the Secretary and Treasurer. The President, President-Elect and Immediate Past President hold office for two years. The other officers hold office for four years. The directors of the Institute hold office for four years. The officers and directors are elected by the members of the Institute.

COOPERATING SCIENTIFIC SOCIETIES The Institute recognizes that many scientific societies with interests in acoustics and/or vibration exist in different countries. It is the purpose of the Institute to supplement their activities and to cooperate with them for the good of scientists and engineers throughout the world. To that end, existing scientific societies will be encouraged to become affiliated with the Institute as cooperating member societies.

IIAV MEMBERSHIP APPLICATION FORM

If you are interested in joining the IIAV, please fill in the form and return

It by fax or e-mail (see following).

Malcolm J. Crocker

Executive Director

Mechanical Engineering Department
270 Ross Hall
Auburn University
Auburn, AL 36849, USA

Fax 334-844-3306
crockmj@auburn.edu
mam0066@auburn.edu

Application form: () Member ()
Associate

1) Name: _____

2) Address:

Fax: _____ E-mail:

3) Degrees (Institutions and dates):

4) Employment (with dates):

5) Signature & Date:

END