

IN THIS ISSUE

Report from the Chair

Kristin Cody

This year was a busy one for the Noise Control and Acoustics Division (NCAD). The division's goals are to promote the development and application of noise control and acoustics principles, encourage the exchange of ideas through technical meetings and publications, and to acknowledge exceptional engineering achievement within the field. This year was very productive towards these goals. In 2015, we participated in two conferences and formally joined into a partnership with another organization. These activities promote NCAD's goals to new audiences and as many people as possible. In August, NCAD participated in the 44th International Congress and Exposition on Noise Control Engineering also known as InterNoise 2015 in San Francisco, CA. The Congress was sponsored by the International Institute of Noise Control Engineering (I-INCE), and was organized by the Institute of Noise Control Engineering of the United States of America (INCE/USA) and in cooperation with the Korean Society of Noise and Vibration Engineering (KSNVE). NCAD participated in the Congress by sponsoring and organizing technical sessions. Charlie Zheng did a great job of chairing this event for NCAD. NCAD also became a member organization of I-INCE which will provide our members with a connection to the I-INCE community, other member societies around the world. I-INCE provides access to Noise News International, an online publication with international news on all things noise related. We also elected to provide NCAD members free access to all INCE and I-INCE conference publications. Stay tuned for more information on how to access this new valuable information!



NCAD also sponsored the Vibration, Acoustics, and Wave Propagation Track at the ASME International Mechanical Engineering Congress and Exposition (IMECE) held in Houston, TX. Sue Sung and Liang-Wu Cai did a great job of chairing this event for NCAD. The division acknowledged exceptional achievements of several individuals this past year. We were honored to have Dr. Daniel J. Inman of the University of Michigan give the 2015 Rayleigh Lecture at InterNoise. His talk was entitled "Good Vibrations: Low Power Energy Harvesting." Dr. David T. Blackstock of The University of Texas at Austin received the Per Bruel Gold Medal for Noise Control and Acoustics given at IMECE. The division also recognized Philip A. Feurtado of Penn State University with the NCAD best student paper award. The contribution of Dr. Teik C. Lim of the University of Cincinnati for his tutorial on "Modeling, Analysis, and Control of High-Speed Precision Gear Dynamics" is especially appreciated. This year is the first year we have recognized an individual for achievement specifically for contributions to the area of Phononic Crystals and Metamaterials. Dr. Ping Sheng of the Hong Kong University of Science and Technology is our inaugural recipient of this achievement which was presented at IMECE. The area of Phononic Crystals and Metamaterials has been a sustaining presence for NCAD at IMECE for over five years. Our primary membership and division finances remain stable and NCAD is able to continue to provide for recognitions and allow for the increased participation with I-INCE to the benefit of our members.

We have a lot planned for 2016. We will be participating in IMECE in Phoenix, AZ. We are planning to implement new changes for the student paper award to increase the impact of ASME on the incoming professional generation. Since student registration costs for IMECE continue to be higher than what NCAD would like, we are evaluating increasing the numbers of students who will receive recognitions to help offset these costs. More details will be announced soon. The division is also

actively participating in this transitional period for ASME as a result of the One ASME reorganization and other society-wide changes. Dr. Henry Scarton of Rensselaer Polytechnic Institute, a long time participating member of NCAD and past chair, will be representing NCAD at the ASME Training event being held in February. This will update us on the new ASME strategy and upcoming changes for ASME sponsored conferences and products.

Finally I would like to thank Brent Paul for his service to the division. Brent completed his rotation through the executive committee last year. He was the leading Track Chair at InterNoise 2010 which forged the beginning of our new relationship with I-INCE. He will still be active in NCAD as the Group Page Administrator, which carries the responsibility of the newsletter, and keeping members informed via our Facebook and ASME pages. Ab Kirwan has joined the leadership team. Ab has been active in the division for many years and we are excited to benefit from his experience as an acoustics expert at Electric Boat. I would like to thank all of the other volunteers that help make this division successful. If you have any questions or would like to be more involved in division activities, please feel free to email us at NCAD@asme.org.

Report from ASME IMECE 2015

Sue Sung

In November 2015 the ASME Conference was held in Houston, TX with four symposia organized by Liang-Wu Cai, Kansas State University, Shung H. (Sue) Sung, SHS Consulting LLC and Mahmoud Hussein, University of Colorado. There were a total of 45 papers presented by authors from countries around the world.

The topics covered by the 2015 symposia were:

- (a) **General Structural Vibration and Acoustics** with one session chaired by Robert Tomko, Electric Boats and Shung H. (Sue) Sung with five technical papers covering combustion, disc brake vibration, wavelet analysis, active vibration control.
- (b) **Phononic Crystals and Meta-materials** (6 sessions) chaired by Mahmoud Hussein, Liang Wu Cai, Bradreddine Assouar, CNRS-Univ. of Lorraine, Nicholas Fang, MIT, Victor Sanchez-Morcillo, Universitat Politecnica de Valencia and Jinkyu Yang, University of Washington with one plenary presentation by Dr. Ping Sheng, Hong Kong University of Science & Technology on Hybrid Resonance and the Realization of Point Acoustic Sink, 26 technical presentations and three technical papers. The topics covered are: Recent Advances in Phononic Crystals and Metamaterials (I & II); Locally Resonant Beams, Plates and Surfaces; Large Deformations, Instabilities and Actuation; Micro-and Nano-scale Phononics; Phononic Plates and Granular Materials.
- (c) **Numerical Methods in Vibrations and Acoustics** (two sessions) chaired by Congrui Jin, State University of New York at Binghamton and Liang Wu Cai with ten technical papers covering numerical methods, Finite Element method, Statistical Energy Analysis, Neural Network, etc.
- (d) **General Acoustics and Structural-Interaction** (two sessions) chaired by Shung H. (Sue) Sung and Robert Tomko with six technical papers and two technical presentations in areas of ultrasound, acoustic levitation, acoustic leak detection, aero acoustics, sound interaction with soft materials, fluid filled subject in unbounded fluid medium, sound transmission, etc.

This year NCAD joined with INCE (Institute of Noise Control and Engineering) for InterNoise 2015. The conference was held in San Francisco on August 9–12, 2015. The conference was very well attended.

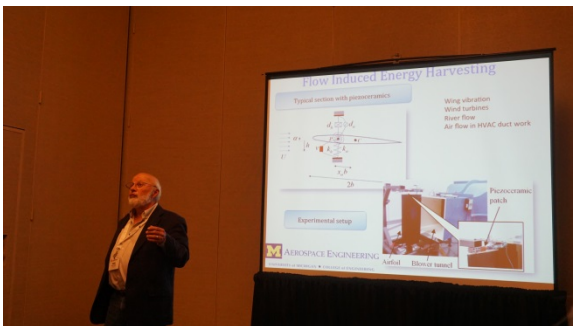
The focus of the conference was on “Implementing Noise Control Technology,” but a large variety of topics in all areas related to acoustics and vibration were presented. All papers associated with NCAD underwent a peer review process of at least two independent reviewers, resulting in a total of 19 papers for NCAD. NCAD will continue to offer peer reviewed papers at all conferences it attends. Beyond the breadth of papers that were presented at the conference, NCAD also sponsored a tutorial and the Rayleigh Lecture.

As with all NCAD conferences, the success of the conference is directly related to the efforts put forth by the volunteers. This conference was no different with a significant effort put forth by the Executive and Technical Committees as well as all of the peer reviewers. This followed through with helping to chair the sessions at the conference. I would like to thank those volunteers and look forward to working with them in future conferences. We also are always looking for volunteers to become more active in NCAD, including peer reviews and chairing sessions.

NCAD Tutorial: Modeling, Analysis and Control of High-Speed Precision Gear Dynamics

The purpose of the NCAD Tutorial is to expose conference attendees to the latest developments in an active research area within the division. Each year the topic for the tutorial rotates among the technical committees within the division, which include Active and Passive Noise Control, Structural Acoustics, and Aero/Hydro Acoustics. It was our pleasure to have Dr. Teik C. Lim from University of Cincinnati to give the NCAD Tutorial this year on modeling, analysis and control of high-speed precision gear dynamics. Gear dynamics is one of the most critical factors affecting the noise (whine), vibration and durability performances of gearbox, drivetrain and power transmission systems employed in automotive, aerospace, naval and industrial applications. Dr. Lim presented a class of harmful out-of-phase gear pair torsion modes that have been theorized as the primary cause of excessive gear response. The effects of the design parameters and geared systems with dominant time-varying and nonlinear mesh characteristics and their effects on dynamic response are discussed. His presentation also briefly touched on some advanced topics in gear dynamics including the development of coupled multi-body dynamics-vibration model and active vibration control of gear pair systems. Dr. Lim’s presentation is available on the ASME community website for the Noise Control & Acoustics Division. Past tutorials sponsored by NCAD, are also available at:

https://community.asme.org/noise_control_acoustics_division/m/default.aspx.



Rayleigh Lecturer Dan Inman



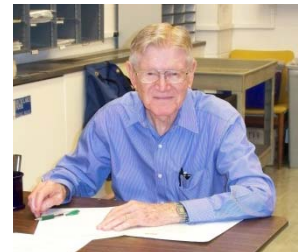
Rayleigh Lecturer Dan Inman (C) with Charlie Zheng (L) and Kristin Cody (R).

Rayleigh Lecture

The Rayleigh Lecture is an ASME division level award given by the Noise Control and Acoustics Division in recognition of the lecturer's pioneering contributions to the fields of noise control and acoustics. This year we were privileged to have Daniel J. Inman from University of Michigan give the Rayleigh Lecture on "Good Vibrations: Low Power Energy Harvesting." His talk traced the history, successes and failures of vibration based energy harvesting for powering low power electronics using piezoelectric and electromagnetic transduction. It presented the fundamentals of vibration based energy harvesting followed by examples of applications ranging from powering pacemakers to gust alleviation control systems for small, unmanned aircraft. Many of the applications were focused on powering structural health monitoring systems. The lecture was very interesting and was well received by the audience. Dr. Inman's Rayleigh Lecture is available on the ASME community website for the Noise Control & Acoustics Division. Past Rayleigh Lectures are also available at: https://community.asme.org/noise_control_acoustics_division/m/default.aspx.

Per Bruel Gold Medal Recipient, David T. Blackstock

The Per Bruel Gold Medal for Noise Control and Acoustics was established in 1987 in honor of Dr. Per Bruel, who pioneered the development of sophisticated noise and vibration measuring and processing equipment. The medal recognizes eminent achievement and extraordinary merit in the field of noise control and acoustics, including useful applications of the principles of noise control and acoustics to the art and science of mechanical engineering.



David T. Blackstock, Ph.D., the Eugene P. Schoch professor emeritus in the department of mechanical engineering and professor at the Applied Research Laboratories at the University of Texas at Austin; and visiting professor in the department of electrical and computer engineering at the University of Rochester in New York, is recognized for educational mentorship, and for pioneering theoretical, experimental, and computational work in nonlinear acoustics including biomedical ultrasound, high-intensity sound beams, lithotripsy, parametric arrays, shock waves and sonic booms, and propagation and absorption of high-intensity sound. Dr. Blackstock has been with UT Austin since 1970. He has been visiting professor at the University of Rochester since 1987.

Student Paper Award

NCAD sponsored the 2015 Student Paper Competition at InterNoise. There were three entries this year. The winner was selected based on the overall quality of both the paper and presentation. This year's winner is Philip A. Feurtado from Penn State University under the advisement of Dr. Steve C. Conlon. The title of his paper is "Experimental analysis of vibration and radiated sound power reduction using an array of acoustic black holes." NCAD would like to congratulate Philip, who received a certificate and \$1000 award honorarium. The division plans to sponsor this again at IMECE 2016. The competition may be organized a bit different though, so please stay tuned for additional details.

IMECE 2016, Nov.11-17 2016, Phoenix, AZ, USA

The ASME annual conference IMECE 2016 will be held on November 11-16, 2016 in Phoenix, AZ. The ASME Noise Control Acoustics Division (NCAD) will sponsor the Technical Track on “Acoustics, Vibration, and Wave Propagation” (<https://www.asme.org/events/imece/program#/track/detail/1>). The 2016 NCAD technical track organizers are: Shung H. (Sue) Sung (ssung@asme.org), Liang-Wu Cai (cai@ksu.edu) and Noah Schiller (noah.h.schiller@nasa.gov). Ten technical sessions will be organized by three NCAD Technical Committees as followings:

Active and Passive Vibration and Acoustic Control Committee

- (1) Active Vibration and Noise Control
- (2) General Noise and Vibration Control,

Structural-Acoustics Committee

- (3) Acoustics and Structural Interaction
- (4) Numerical Methods in Vibration and Acoustics
- (5) Phononic Crystals and Metamaterials
- (6) Structural-Acoustic System Identification,

Aero/Hydro Acoustics Committee

- (7) Aero-acoustics and Sound Propagation
- (8) Flow-Induced Noise and Vibration,
- (9) Turbomachinery Noise
- (10) Advanced Testing Methodology for Noise and Vibration Control.

Key dates for this conference to submit extended abstracts and manuscripts are as follows (<http://www.asmeconferences.org/IMECE2016/PublicationSchedule.cfm>):

- 7 March 2016: Extended abstract submission deadline (no extension!)
- 14 March 2016: Notification of abstract acceptance
- 16 March 2016: Accepted abstracts online availability
- 25 April 2016: Full-length draft paper submission deadline (no extension!)
- 6 June 2016: Author paper review complete
- 20 June 2016: Author paper review acceptance or revision notification to author
- 8 August 2016: Final paper submission

The NCAD will continue to sponsor a “Best Student Paper Award”. The winner will receive an acknowledgement certificate and a monetary award. To be eligible for participation in this competition, the primary author must be a student and must present at the conference. Advisors must send an email to Shung H. Sung (ssung@asme.org) for their students to be eligible. Also, the division will also continue its tradition of honoring a distinguished researcher in the area of noise control and acoustics with the prestigious Rayleigh Lecture. In addition, a special tutorial session on structural-acoustic health monitoring by Dr. Miao Yu and Dr. Weidong Zu from University of Maryland will be held to provide an in-depth examination of sensor technology in structural-acoustic applications to NCAD members.

The division continues to look for other opportunities to participate in joint conferences such as this year’s InterNoise 2015. If you have any suggestions please contact a member of the Group Leadership Team at ncad@asme.org.

Dr. Blevins writes book on acoustics and vibration

Formulas for Dynamics, Acoustics and Vibration (Wiley, 2015), is the new book by ASME member Robert D. Blevins. It contains over 1000 useful formulas for natural frequency, forced vibration, dynamics and acoustics in easy to use graphical tabular format. The book can be ordered from Wiley.com, or Amazon.com. Supporting software evaluates the formulas on PC's is available from www.Aviansoft.com.

Professor Sparrow Named Director of PSU Acoustics

Victor W. Sparrow, professor of acoustics at Penn State, has been named director of the graduate program in acoustics in the College of Engineering. He assumed his new role July 1. Sparrow had been serving as the interim director of the program since 2010. Please see the following for more information: <http://news.psu.edu/story/364776/2015/08/04/academics/sparrow-appointed-director-graduate-program-acoustics>. Congratulations Dr. Sparrow!

Hamburg University to host SMC Conference

The Hamburg University of Music and Theatre will host the Sound and Music Computing (SMC) conference from August 31 to September 3 with a preceding summer school from August 26 to 30 2016, in the beautiful City of Hamburg, Germany: <http://quintetnet.hfmt-hamburg.de/SMC2016/>. Full papers and sonic works as well as application for the summer school must be submitted before April 15, 2016.

Professor Kundu Receives Awards

The ASNT (The American Society for Nondestructive Testing) awarded Tribikram Kundu of the University of Arizona the 2015 Research Award for Sustained Excellence in recognition of his outstanding and sustained research contributions in the field of acoustic and ultrasonic nondestructive evaluation. This award was given on March 18, 2015 at the ASNT's annual research symposium in Anaheim, California. Professor Kundu also received the Structural Health Monitoring Lifetime Achievement Award for his research contributions in the field of Structural Health Monitoring. This award was given at the International Workshop on Structural Health Monitoring at Stanford University in September 2015. For details please see <http://structure.stanford.edu/workshop/awards.html>. Congratulations Dr. Kundu!

Botelho Completes PhD degree from University of Connecticut

Rui M. Botelho, Principal Engineer at General Dynamics Electric Boat, recently completed his PhD in Civil Engineering at the University of Connecticut. He performed ONR funded research on real-time hybrid substructuring (RTHS), which is a coupled numerical-experimental method similar to hardware-in-the-loop testing. His research focused on the development of improved techniques for closed-loop stability and performance analysis as well as actuator dynamics compensation for RTHS. He then used RTHS to experimentally characterize the connected control method (CCM) for adjacent base isolation systems using physical damper hardware and couple a physical mass-spring system to different analytical fluid-loaded substructures of increasing model complexity. Congratulations Dr. Botelho!

Dr. Prasad Elected as Fellow

Dr. Marehalli G. Prasad, Fellow of ASME and Professor of Mechanical Engineering at Stevens Institute of Technology, Hoboken, New Jersey was elected a Fellow of Institute of Noise Control Engineering (INCE, USA) for his contributions to research and applications in advancing technical understandings of mufflers and duct acoustics. Also, Professor Prasad received the 2015 Outstanding Educator Award from INCE, USA for excellence in the teaching of noise control engineering and for his contributions to

the education of future noise control engineers. Professor Prasad is also a Fellow of both Acoustical Societies of America and India. Congratulations Dr. Prasad!

INCE Publishes TQA on Environmental Noise

The Institute of Noise Control Engineering, of which NCAD is an institutional member, published the report, "Technology for a Quieter America", (TQA) in October 2010 that was the result of a five-year study by the National Academy of Engineering (NAE) of the environmental noise situation in the United States. The report includes findings and recommendations for government, industry, and public actions that may mitigate or eliminate those noise sources that pose a threat to public health and welfare. Copies are available for download without charge at the following link: search.nap.edu/napsearch.php?term=technology+for+a+quieter+america&x=11&y=11. Recently, several follow-up workshops hosted by INCE have continued this work. All are available for download from INCE-USA at the following link: <http://www.inceusa.org/node/346>

- "Cost-Benefit Analysis - Noise Barriers and Quieter Pavements"
- "Noisy Motorcycles - An Environmental Quality-of-Life Issue"
- The booklet "Noise and Sound Control at your Home"

Towers Joins Cross-Spectrum Acoustics

David A. Towers, P.E., INCE Bd. Cert. recently joined Cross-Spectrum Acoustics, a full-service noise and vibration consulting firm based in MA and UT. He is an internationally recognized expert in the railway noise and vibration field, a co-author of guidance documents on noise and vibration impact assessment for both the U.S. Federal Transit Administration and U.S. Federal Railroad Administration and is a Member of the International Committee for the International Workshop on Railway Noise.

KCF Technologies Celebrates Anniversaries

KCF Technologies, a State College, PA company co-founded by Gary Koopmann and Jeremy Frank is celebrating its 15 year anniversary. Started as a spin-off company from Penn State's Center for Acoustics and Vibration, KCF's team of 30+ engineers and technicians develops and commercializes products and solutions for industry and the military. KCF specializes in wireless sensors, energy harvesting, underwater navigation and smart material devices.

Submissions

NCAD would like to include news and information that would be of general interest to its members. This can include awards, promotions, workshops, etc. Please send that information to Brent Paul (ncad@asme.org) so it may be included in the next newsletter.

NCAD Information

Noise Control and Acoustic Division

Founded in 1979, and established as a Division in 1981, The Noise Control and Acoustics Division meets yearly, usually at the ASME IMECE. In recent years there has been an effort to meet at conferences outside of IMECE. Starting in 2008 when NCAD had a joint session with INCE (Institute of Noise Control Engineering) and more recently NCAD attended InterNoise 2015. Our division works in noise and vibration control, using computational techniques, analytical methods, and measurements to study complex aero-acoustic, hydro-acoustic, and structural-acoustic systems. The application of active

and passive control systems is of consideration as well. Our symposia usually include sessions on flow-induced vibration and sound, structural acoustics, phonic structures, and active control.

As of this January 511 ASME members list NCAD as their primary division, 533 members list NCAD as their secondary division. Both are increases from last year. ASME Community website is: https://community.asme.org/noise_control_acoustics_division/default.aspx. The website includes past newsletters, along with selected Rayleigh lecture and tutorial presentations from past conferences.

NCAD also has a Facebook page: <https://www.facebook.com/pages/NCAD-Noise-Control-and-Acoustics-Division/211722612197712>. We will update this page with news and notes throughout the year. Please “Like” the page to follow our updates.

ASME Journal of Vibration and Acoustics

NCAD currently has three members whom are Associate Editors for ASME’s Journal of Vibration and Acoustics. Please see <http://journaltool.asme.org/Content/JournalDescriptions.cfm?journalId=18&Journal=VIB> for more information. They all encourage authors of well-reviewed ASME NCAD conference papers to submit their work to the journal. We will work with you to minimize review times by using, as much as possible, the reviewers of the conference papers. Final papers are usually published in the journal about six months after acceptance.

Please contact Liang-Wu (cai@ksu.edu) or other editors if you’d like to pursue submitting your work to the journal.

NCAD Per Bruel Award

The *PER BRUEL GOLD MEDAL FOR NOISE CONTROL AND ACOUSTICS* was established in honor of Dr. Per Bruel, who pioneered the development of sophisticated noise and vibration measuring and processing equipment. The medal recognizes eminent achievement and extraordinary merit in the field of noise control and acoustics, including useful applications of the principles of noise control and acoustics to the art and science of mechanical engineering.

Anyone wishing to nominate deserving engineers for the Per Bruel award is welcome to do so by submitting the form at:

<https://www.asme.org/about-asme/get-involved/honors-awards/achievement-awards/per-bruel-gold-medal-for-noise-control-and>

Technical Committees

Active and Passive Noise Control Committee

Chair: Junyi Yang, junyi_yang@apple.com

The Active and Passive Noise Control Committee aims to increase the understanding of the noise generation mechanism and broaden the noise control applications for various industries, including but not limited to the automotive, off-highway vehicle, aircraft, mining and consumer electronics industries.

Accomplishments from 2015:

The Active and Passive Noise Control Technical Committee sponsored a technical session and a tutorial lecture session on InterNoise 2015 held in San Francisco on Aug. 9-12, 2015.

Papers submitted to the Vibration and Acoustic/Elastic Wave session discussed various interesting topics, including vibration monitoring for thermal power plant, transient vibration analysis of bolted joint structure, flexural wave scattering by arbitrary holes in an infinite thin plate, deterministic and statistical analysis of coupled panel cavity system, and study of parameters influencing pneumatic nail-gun noise.

The tutorial lecture, Modeling, Analysis and Control of High-Speed Precision Gear Dynamics, gave the audience a very good introduction of the analytical framework for studying the dynamics of high-speed geared rotor systems. The analytical framework was illustrated with examples of numerical analyses and experimental validation of practically used geared rotor systems, and the full presentation is available online:

https://community.asme.org/noise_control_acoustics_division/m/default.aspx

Planned Activities for 2016:

The Active and Passive Noise Control Technical Committee is planning to support ASME IMECE 2016. Potential topics include: (1) Active vibration and noise control, (2) Analytical/Numerical methods for studying coupled structural-acoustic system, and (3) Noise Induced Vibration Control. The committee welcomes members and colleagues to contribute papers to these topics, and your contribution is the key to make the Active and Passive Noise Control Committee success.

Dr. Yang is currently a Hardware Development Engineer at Apple Inc. He received his BS and MS degree from Southeast University, Nanjing, China, and his PhD degree in mechanical engineering from University of Cincinnati. After graduation, he worked as an associate research fellow in the Hearing Loss Prevention Branch of National Institute for Occupational Safety and Health for about two years.



Structural Acoustics Committee

Chair: Rui Botelho, rbotelho@gdeb.com

The Technical Committee on Structural Acoustics (TCSA) represents the technical areas related to the study of acoustic sound radiation, scattering, and wave propagation of vibrating dynamic systems, including the effects of fluid-structure interaction, using analytical, numerical, and experimental techniques.

Accomplishments in 2015:

In November 2015, the NCAD-TCSA sponsored two Topics/Symposia within the NCAD-sponsored Vibration, Acoustics & Wave Propagation track at the ASME IMECE 2015 Conference which took place in Houston, Texas, November 13-19, 2015. The symposia topics were: (1) Phononic Crystals and Metamaterials (6 sessions) and (2) Numerical Methods in Vibrations and Acoustics (2 sessions). Each session had 4 to 6 papers.

Phononic Crystals and Metamaterials symposia were chaired by Mahmoud Hussein, Liang Wu Cai, Bradreddine Assouar, CNRS-Univ. of Lorraine, Nicholas Fang, MIT, Victor Sanchez-Morcillo, Universitat Politecnica de Valencia and Jinkyu Yang, University of Washington with one plenary presentation by Dr. Ping Sheng, Hong Kong University of Science & technology on Hybrid Resonance and the Realization of Point Acoustic Sink, 26 technical presentations, and 3 technical papers. The topics covered consisted of: Recent Advances in Phononic Crystals and Metamaterials (I & II); Locally Resonant Beams, Plates and Surfaces; Large Deformations, Instabilities and Actuation; Micro-and Nano-scale Phononics; Phononic Plates and Granular Materials.

Numerical Methods in Vibrations and Acoustics symposia were chaired by Congrui Jin, State University of New York at Binghamton and Liang Wu Cai with 10 technical papers covering numerical methods, Finite Element Method, Statistical Energy Analysis, Neural Network, etc.

Planned Activities for 2016:

For the ASME IMECE 2016 Conference in Pheonix, Arizona, November 11-17, NCAD-TCSA plans to sponsor four symposia on the technical topics: (1) Acoustics and Structural Interaction, (2) Phononic Crystals and Metamaterials, (3) Numerical Methods in Vibration and Acoustics, and (4) Structural-Acoustic System Identification. The TCSA welcomes ASME members and colleagues from other communities concerned with vibrations and acoustics to contribute papers/presentations to these symposia.

Dr. Botelho is currently a Principal Engineer in the Ship Signatures Dept. at General Dynamics Electric Boat in Groton, CT. He has been at the company for over 19 years working on a variety of submarine signatures research, technology development, and design efforts. He received a BS degree in Civil Engineering from the University of Massachusetts Dartmouth (1996), an MS degree in Mechanical Engineering from Rensselaer Polytechnic Institute (2007), and a PhD degree in Civil Engineering with a concentration in Applied Mechanics from University of Connecticut (2015). He has expertise in analytical, numerical, and experimental structural acoustics, including vibration and noise control, real-time hybrid testing, and computational mechanics. He has been a member of NCAD-TCSA since 2007 and has served as chair of the committee since 2015.



Aero/Hydro Acoustics Committee

Chair: Bob Tomko (tomkorp@yahoo.com)

Let me tell you a bit about the Aero/Hydro Acoustics Committee. We are a group who enjoys learning about and sharing information on sound generated and propagated in all fluid media. That encompasses a wide range of technologies. We are interested in how flow generates noise through turbulent excitation, fluid-solid interaction, fluid-acoustic interaction, machinery, and any other mechanism that produces sound. Every year we sponsor papers in these areas and we are always interested in new ideas for sessions that interest our NCAD members. We don't necessarily limit ourselves to acoustics, we consider that vibration is well coupled to acoustics, so we also welcome papers in areas, such as flow-induced vibration, even if there is no sound generation associated with it.

Accomplishments from 2015:

In 2015, the Aero/Hydro Acoustic Technical Committee participated in InterNoise with other committees from the Noise Control and Acoustics Division. We sponsored a variety of topics at InterNoise, and the interfacing with others interested in our specialties was quite rewarding. We held our committee meeting at InterNoise to begin planning for IMECE 2016. Additionally, we met at IMECE 2015 and welcomed some new folks who are interested in participating in our focus area.

Planned Activities for 2016:

This year we are looking forward to promoting sessions at IMECE 2016. We expect to see continued interest in flow tones and instabilities, test facilities, and test methods. We hope to generate interest in other areas such as sound propagation, turbomachinery, and signal processing methods. We are in the process of working through the details for sponsoring a tutorial on sensors. So, keep an eye on the IMECE 2016 web site to see how the papers and the tutorial materialize. I hope that we can see

some new faces at our committee meeting at IMECE 2106; there is no obligation if you show up at the meeting, you can listen and decide whether this is an area in which you would like to participate.

Bob Tomko is a graduate of the University of Pittsburgh with a degree in Mechanical Engineering. He is employed at the Bechtel Marine Propulsion Corporation (BMPC) Bettis Laboratory in West Mifflin, PA, which is a suburb of Pittsburgh. Bettis Laboratory has been developing advanced naval nuclear propulsion technology and providing technical support to ensure the safe and reliable operation of our nation's submarine and aircraft carrier fleets. Bob has been employed by Bettis for over 35 years. He began his career at Bettis designing and performing various component tests. He then moved to the noise technology organization as an engineer and became a manager in noise and vibration control in 1989. He continued to manage noise and vibration control for more than 25 years, and now leads the noise, shock, and vibration organizations at the laboratory.



If you'd like to become involved with any of these committees, including helping to plan future meetings, please contact the Technical chair that best suits your interest.

Group Leadership Team Members

The activities of the division are directed by the Group Leadership Team (formerly the Executive Committee), which establishes the Division's policy and goals. The Executive Committee is supported by other committees as needed. The committee members for 2015 – 2016 are:

Kristin Cody, Bechtel Bettis, Inc., Chair

Dr. Kristin Cody is an Advisory Engineer for the Bechtel Marine Propulsion Corporation, which operates the Bettis and Knolls Atomic Power Laboratories for the Department of Energy. She received her B.S. in Mechanical Engineering from Purdue University, M.S. in M.E. from Rensselaer Polytechnic Institute, and Ph.D. in Acoustics from Penn State University. Her research interests include flow-induced noise and vibration and structural-acoustic interactions.

Noah Schiller, NASA Langley Research Center, Vice Chair

Dr. Schiller is a research engineer in the Structural Acoustics Branch at NASA Langley Research Center where he works on noise control technologies for aerospace vehicles. He received his B.S., M.S., and Ph.D. degrees in Mechanical Engineering from Virginia Tech. His research interests include noise and vibration control, and vibroacoustic modeling.

Charlie Zheng, University of Kansas, Secretary/Treasurer

Dr. Zheng is currently Professor and Graduate Program Director in Aerospace Engineering Department at University of Kansas, Fellow of ASME, and Associate Fellow of AIAA. He received his B.S. and M.S. degrees from Department of Engineering Mechanics at Shanghai Jiao Tong University, and his Ph.D. degree from Department of Mechanical Engineering and Mechanics at Old Dominion University. He has been a member of numerous TCs in ASME and AIAA. He is an Associate Editor of Journal of Fluids Engineering. His research interests include fluid mechanics and acoustics.

Sue Sung, Retired, Program Chair

Dr. Sung received her BS degree in Civil Engineering from National Taiwan University. She received MS and PhD degrees in Aeronautical and Astronautical Engineering from Purdue University. After graduation from Purdue, Sue worked at General Motors Research & Development Center in Warren, Michigan until her retirement in 2008. At GM R&D Center, she conducted research to develop structural-acoustic finite element methods for vehicle noise and vibration design for which received the GM Campell and McCuen Awards for research innovation and product applications. Dr. Sung is an ASME Fellow and has authored numerous technical publications and has written several patents. She is one of the founding members of ASME NCAD Technical Sub-Committee (Numerical Methods) and is also a member of ASME Design Technical Committee.

Ab Kirwan, Electric Boat Corporation, Member

Albert (Ab) Kirwan is a Principal Engineer at Electric Boat in New London, CT. He received his B.S in Aerospace Engineering from Texas A&M University in 1986 and an M.S in Engineering Mechanics from the University of South Florida in 1989. His research interests include noise and vibration control, machinery noise, structural-acoustic modeling methods and prediction of flow induced noise.