

IN THIS ISSUE

Report from the Chair

Shung H. (Sue) Sung

This year we progressed further to fulfill the NCAD's goals to promote the development and application of acoustics principles, to encourage the interchange of ideas through technical meetings and publications, and to acknowledge exceptional engineering achievement within the field. The major event for NCAD in 2017 was a successful track sponsored by NCAD on Acoustics, Vibration, and Phononics at the annual ASME International Mechanical Engineering Congress and Exposition (IMECE) held in Tampa, Florida. Thanks to great job of NCAD program chair Albert Kirwan with a total of 17 technical sessions and 73 presentations.



At the IMECE 2017, Dr. Christopher Fuller, Professor and Director of Vibration and Acoustics Lab at Virginia Tech University, received the 2017 Rayleigh Lecture Award. He gave a fantastic seminar on "Acoustic metamaterials". His seminar provided a basis to understand acoustic metamaterials fundamental and applications. This year we combined the NCAD tutorial with the Phononic Crystals and Metamaterials Plenary into a single-track plenary session. Prof. Massimo Ruzzene from Georgia Institute of Technology gave this talk on "Symmetry and Reciprocity Breaking in Electromechanical Metamaterials and Structural Lattices". In the talk, Dr. Ruzzene discussed the recent breakthrough in condensed matter physics in topological insulators and wave symmetry breaking through new design of mechanical and acoustic metamaterials in practical applications. The abstracts of both the Rayleigh Lecture and the combined tutorial/plenary presentations are included in this newsletter.

Our primary membership and division finances remain stable. NCAD continues to provide for recognitions and awards and to participate in I-INCE as a member society to the benefit of NCAD members. In 2018, we will be participating in the Internoise Conference in Chicago, IL on August 26-29 as well as in IMECE conference in Pittsburgh, PA on November 9-15, by organizing the technical track of Acoustics, Vibration, and Phononics, with a total of 13 technical topics. At the 2018 INCE-NCAD conference in Chicago, we will have Professor Roger Ohayon as the 2018 NCAD Rayleigh Lecturer and Professor Charlie Zheng as the tutorial speaker. At the 2018 IMECE conference, NCAD is also sponsoring congress-wide symposium on NDE (nondestructive) and SHM (structural health monitoring) topics. The plenary speaker and the student paper competition will be organized at IMECE 2018. Prof. Amr Baz of the University of Maryland will be the NCAD Phononic Crystals and Metamaterials speaker. Weidong Zhu will be the track organizer with Mostafa Nouh and Sue Sung being the track co-organizers.

There have been some changes in the NCAD leadership group. I would like to thank Dr. Kristin Cody for her dedicated service to the division. Kristin has completed her rotation through the leadership group in 2017. She is recently appointed to the Per Bruel Award committee and is also elected as a INCE-USA director. We thus had an open search for a new leadership member by announcing it to the ASME NCAD list server. Prof. Mostafa Nouh from the University at Buffalo was selected to join the leadership group. Prof. Nouh has been participating in NCAD activities for several years, particularly in contributing to the organization of the successful NCAD technical topic of Phononic Crystals and Metamaterials at the IMECE conferences. Welcome Mostafa! I would like to thank the applicants who applied and hope they will continue to support and participate in NCAD activities. In addition, Brent Paul has agreed to continue as the NCAD web page administrator and newsletter editor. You are reading his work at the moment. Thank you, Brent!

Finally, as the division chair, I would like to thank all of the other volunteers that help make NCAD successful. My wishes for a happy and prosperous 2018 for all of us! If you have any questions and suggestions, or would like to be more involved in division activities, please feel free to email us at NCAD@asme.org.

Report from ASME IMECE 2017

Albert (Ab)Kirwan

For 2017, the annual ASME International Mechanical Engineering Congress and Exposition (IMECE) was held in Tampa, Florida from November 6 to 9. At this conference NCAD was proud to once again sponsor a technical track. This year it was Track 1: "Acoustics, Vibration, and Phononics". This track included five major topics with sixteen technical sessions, each session with four to five talks distributed throughout Wednesday and Thursday of the conference week. The major topics and a breakdown of the number of talks in each topic is provided below:

- Phononic Crystals and Metamaterials. 10 sessions with 3 conference papers and 43 technical presentations
- Vibration and Acoustic Measurements, Signal Processing and Facilities. 2 sessions with 6 conference papers and 4 technical presentations
- Numerical Methods in Vibroacoustic Interactions. 1 session with 2 conference papers and 2 technical presentations
- Turbomachinery Noise. 1 session with 3 conference papers and 1 technical presentation
- Noise, Vibration and Harshness in Automotive Systems. 1 session with 3 conference papers and 1 technical presentation

In addition to the technical sessions, NCAD sponsored several special events such as a track-wide Plenary Lecture on Wednesday morning to kick-off the technical sessions, the Rayleigh Lecture on Wednesday evening, and various committee meetings and social events as listed below.

- Rayleigh Lecture: "Acoustic Metamaterials", Christopher R. Fuller, Samuel Langley Distinguished Professor of Engineering, Virginia Tech
- Track 1 Combined Phononic Crystals and Metamaterials Plenary and NCAD Tutorial: "Symmetry and Reciprocity Breaking in Electromechanical Metamaterials and Structural Lattices", Massimo Ruzzene, Georgia Tech
- NCAD Sponsored Wine and Cheese Reception at the Marriott
- NCAD Executive and General Committee Meetings at the Marriott
- Rayleigh Dinner at the Columbia Restaurant, Tampa

Rayleigh Lecture: Acoustic Metamaterials

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 NCAD was privileged to have Dr. Christopher R. Fuller, the Samuel Langley Distinguished Professor of Engineering, from Virginia Tech University to give the 2017 Rayleigh Lecture on "Acoustic Metamaterials".

Acoustic Metamaterials (AMM) are commonly defined as "materials that have properties not readily available in nature". As such, AMM show high potential for developing new classes of passive acoustic materials with improved, designable properties such as absorption, transmission loss and diffraction. The designable nature of AMM makes them attractive to industry for their noise control potential. However, to date work in AMM has focused on research and there has been very little development of products, due to scalability and difficulties in bulk manufacturing. In his talk, Dr. Fuller

reviewed the basic concepts and early work in AMM. He also provided a concise description of the analytical developments of Transformational Acoustics and its application to designing AMM materials. He shared some interesting examples of AMM noise control materials that he helped to develop at Virginia Tech, such as HG materials with random and periodic embedded masses and creating AMM materials from micro porous sheets. He concluded his talk outlining some new promising directions in the AMM field.

For your information, the current and past Rayleigh Lectures are available at: https://community.asme.org/noise_control_acoustics_division/m/default.aspx



Rayleigh Lecturer Dr. Christopher Fuller



Rayleigh Lecturer Christopher Fuller (L) with Ab Kirwan (R).

Combined Phononic Crystals & Metamaterials Plenary and NCAD Tutorial: Symmetry and Reciprocity Breaking in Electromechanical Metamaterials and Structural Lattices

This year the Track 1 Phononic Crystals and Metamaterials Plenary and the NCAD Tutorial were combined into the Wednesday morning plenary sessions to give them higher visibility, as there were no competing technical sessions during the plenaries and since one invited speaker covered both the Plenary Lecture and NCAD Tutorial. For 2017, NCAD was privileged to have Prof. Massimo Ruzzene from Georgia Tech present a talk titled, "Symmetry and Reciprocity Breaking in Electromechanical Metamaterials and Structural Lattices".

Recent breakthroughs in condensed matter physics are opening new directions in band engineering and wave manipulation. Specifically, challenging the notions of reciprocity, time-reversal symmetry and sensitivity to defects in wave propagation, may disrupt ways in which mechanical and acoustic metamaterials are designed and employed, and may enable totally new functionalities. Non-reciprocity and topologically protected wave propagation will have profound implications on how stimuli and information are transmitted within materials or how energy can be guided and steered so that its effects may be controlled or mitigated.

Dr. Ruzzene's seminar introduced the state-of-the-art in this emerging field and presented concepts exploiting electro-mechanical coupling and chiral and non-local interaction in mechanical lattices. He also discussed how to exploit shunted piezo-electric patches to achieve time modulated mechanical properties and presented a framework to realize helical edge states in two identical lattices with interlayer coupling. Dr. Ruzzene concluded his talk discussing how these concepts could find potential applications in vibration reduction, noise control, and stress wave mitigation systems.

For your information, the current and past NCAD Tutorial lectures are available at:
https://community.asme.org/noise_control_acoustics_division/m/default.aspx



IMECE 2017 NCAD Plenary and Tutorial Speaker Professor Massimo Ruzzene (Georgia Tech)



IMECE 2017 NCAD Plenary Lecture and Tutorial Speaker Professor Massimo Ruzzene (2nd from left) with M.I. Hussein (far left), A Kirwan (2nd from right), and S. Sung

NCAD Executive and General Committee Meetings:

The executive and general committee meeting focused on the annual rotation of executive committee member roles and preliminary planning for the 2018 conferences. For 2018 NCAD will sponsor technical sessions at both the 2018 Internoise (sponsored by the Institute of Noise Control Engineering, INCE) and IMECE conferences. The internoise conference will be held in Chicago, Ill (Aug 26-29) while the IMECE conference will be held in Pittsburgh, PA (Nov 11-15). Attention was also focused on increasing participation in the Student Paper Contest. Prof. Mostafa Nouh will be running the contest this year and presented some ideas for improving the contest.

NCAD Sponsored Wine and Cheese Reception

NCAD sponsored a wine and cheese reception in a Marriott ballroom Wednesday evening after the Rayleigh lecture. It was well attended and a great opportunity to meet new colleagues or reacquaint yourself with old friends.

Rayleigh Dinner

The NCAD executive committee hosted the Rayleigh Lecturer (Dr. Fuller) and combined Phononic Crystals and Metamaterials Plenary and NCAD Tutorial speaker (Dr. Ruzzene) at the Rayleigh Dinner after the NCAD Wine and Cheese Reception. The Rayleigh Dinner has become an annual NCAD tradition and allows us to honor and thank the year's Rayleigh lecturer and tutorial speaker for their contribution to the conference. This year we went to the Columbia Restaurant in Tampa, Florida and enjoyed a wonderful Cuban/Spanish dinner. Unfortunately Dr. Fuller was unable to attend.



Rayleigh Dinner at the Columbia Restaurant

Student Paper Award:

For the 2017 IMECE there were no best student paper awards. For 2018 NCAD will again sponsor a “Best Student Paper Award”. The winner(s) will be announced at NCAD’s Wine & Cheese reception at the IMECE Conference (Time and location to be announced in the final program). The winner(s) will receive an acknowledgement certificate and monetary award. To be eligible for participation in the competition, the primary author of the paper must be a student and must present at the conference. To participate, the student must send an email to Mostafa Nouh (mnouh@buffalo.edu) with the following information no later than August 31st, 2018: (1) Student Name and Affiliation, (2) IMECE2018 Paper #, and (3) Advisor Name.

Per Bruel Gold Medal

Brent Paul

Per Bruel Gold Medal Recipient, Malcolm Crocker

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.

Malcolm Crocker, professor emeritus of mechanical engineering, has been awarded the 2017 Per Bruel Gold Medal for Noise Control and Acoustics from the American Society of Mechanical Engineers. Crocker was selected to receive the medal “for promoting international collaboration, education and the dissemination of knowledge in noise control and acoustics through the



formation of professional organizations, the establishment of journals and congress series and the creation of reference volumes for practitioners”.

A native of England, Crocker earned his bachelor’s and master’s degrees from the University of Southampton and his doctorate from the University of Liverpool. He joined Auburn University in 1983 as professor and head of the Department of Mechanical Engineering following a 14-year career on the faculty of Purdue University. Crocker served as department head until 1990, when he was named distinguished university professor. He retired from Auburn in 2011. During his career, Crocker served as editor of leading journals and was editor-in-chief of three books. In addition to his many awards, Crocker has also received three honorary doctorates

Future NCAD Meetings

Ab Kirwan

During 2018 NCAD will be sponsoring 2 engineering conferences; INTERNOISE 2018 and IMECE 2018.

INTERNOISE 2018

NCAD is delighted to once again be involved with the INTERNOISE conference (47th International Congress and Exposition on Noise control Engineering). This year it will be held in Chicago, IL from 26-29 August 2018. Internoise technical sessions that maybe of special interest to NCAD members are highlighted below, however this list is by no mean comprehensive and there likely many other sessions of interest to NCAD members.

- 1.2 Acoustic MetaMaterials
- 3.1 Advances in Aircraft Noise
- 7.4 Wind Turbine Noise
- 9.1 Advances in Flow Induced Noise and Vibration
- 12.1 Advances in Measurement Methods
- 14.1 Advances in Numerical Methods and Simulation
- 14.2 Analytical Modeling
- 18.1 Advances in Tire Noise
- 19.1 Advances in Transportation Noise
- 21.1 Advances in Vehicle NVH
- 21.4 Aerodynamic and Flow Induced Vehicle Noise
- 22.6 Low Frequency Numerical Methods in Vibro-Acoustics
- 22.9 Inverse Approaches in Vibro-Acoustics

Key dates for the INTERNOISE 2018 conference are as follows. Please make sure to check “NCAD” when submitting your papers so they are routed through the NCAD paper review process. This will also ensure proper crediting of all NCAD submitted papers.

- 12 March 2018 Abstracts due
- 16 April 2018 Draft paper due
- 7 May 2018 Papers due

At INTERNOISE 2018, NCAD will continue its tradition of honoring a distinguished researcher in the area of noise control and acoustics with the prestigious **Rayleigh Lecture** given by Prof. Roger Ohayon, CNAM Structural Mechanics and Coupled Systems Laboratory, France on *Computational Vibroacoustics in Low- and Medium Frequency Bands*. In addition, the NCAD tutorial will be held to provide an in-depth examination of a topic of interest to NCAD members. This year’s tutorial will be given by NCAD Group

Leadership Team member Dr. Zheng of Kansas University on *Time-domain simulation of multi-physics sound propagation in complex media and environment*.

IMECE 2018

NCAD is excited to be sponsoring a technical track on Acoustics, Vibration, and Phononics at IMECE 2018 in Pittsburgh PA, USA. This year's conference takes place from November 12th to the 15th which is a week later than last year's conference.

The Acoustics, Vibration, and Phononics technical track is intended to bring together engineers and researchers from industry, universities, and government laboratories to discuss recent contributions of both basic and applied research. Specific topics of interest include, but are not limited to:

- Phononic Crystals and Metamaterials
- General Noise and Vibration Control
- Computational Acoustics
- Structural-Acoustic System Identification
- Aero-Acoustics and Sound Propagation
- Flow-Induced Noise and Vibration
- Turbomachinery Noise
- Vibration and Acoustic Measurements, Signal Processing, and Facilities
- Noise, Vibration and Harshness in Automotive Systems
- Human Perception of Acoustics
- Congress-Wide Symposium on NDE & SHM (NDE-Computational Nondestructive Evaluation, SHM-Structural Health Monitoring)
 - Acoustic and vibration methods in structural health monitoring and nondestructive testing
 - Ultrasonic waves for material characterization and damage assessment
 - Computational nondestructive evaluation and structural health monitoring

Studies may be experimental, theoretical, or numerical in nature. Industrial experiences related to these areas are of particular interest. Authors are invited to contribute manuscripts, extended abstracts, abstracts, presentations or posters. Key dates for the IMECE 2018 conference are as follows:

- February 26, 2018: Deadline for submission of abstracts
- March 19, 2018: Notification of abstract acceptance
- April 30, 2018: Deadline for submission of full-length draft paper
- June 25 2018: Notification of full length draft paper acceptance/rejection
- July 9, 2018: Deadline for revised paper submission
- July 23, 2018: Notification of revised paper acceptance/rejection
- July 23, 2018: Presentation Only Abstract Submission
- August 13, 2018: Submission of final paper

Additional information regarding IMECE 2017 is available at the conference website:

<https://www.asme.org/events/imece>

NCAD will continue to sponsor a "Best Student Paper Award" at IMECE 2018. The top 3 winners will receive an acknowledgement certificate and a monetary award. To be eligible for participation in this competition, the primary author must be a student, the entry must be a reviewed full conference paper, and the student must present the technical paper at the conference. Advisors must send an email to Dr. Noh Mostafa (mnouh@buffalo.edu) for their students to enter the contest.

Mahmoud Hussein appointed Vice President of the International Phononics Society

Prof. Mahmoud Hussein, chair of NCAD's Phononic Crystals and Metamaterials Technical Committee has co-founded the International Phononics Society (in March 24, 2017) and has been appointed its first vice president.

Lesieutre named Associate Dean

Prof. George Lesieutre, Director of the Center for Acoustics and Vibration at Penn State, is now Associate Dean for Research and Graduate Programs in the College of Engineering. Congratulations!

FLINOVIA Symposium

The 2nd International Symposium on Flow Induced Noise and Vibration Issues and Aspects (FLINOVIA) was held at Penn State in April 2017. 30 talks, half from international authors, were given at the symposium. A proceedings book will be published by Springer in 2018. To view extended abstracts and the conference presentations please visit www.flinovia.org. On the website you can also find a YouTube video by Dr. Steve Hambric (an ASME NCAD member) summarizing the state-of-the-art material presented at the symposium.

Cody to Per Bruel Committee and INCE-USA Director

Dr. Kristin Cody has been nominated to serve a three year term on the Per Bruel Committee. Dr. Kristin Cody was elected as INCE-USA Board of Directors (2018-2020). Congratulations!

Ghaith Named Dean

Dr. Fadi A. Ghaith, the Associate Director of Studies and the Associate Professor in Mechanical Engineering at Heriot-Watt University, has been appointed recently as the University Dean of Science and Engineering. Dr. Ghaith held several positions in the Oil and Gas industry such as design and development engineer, purchasing manager, and consultant. Congratulations!

Prasad Professor Emeritus

Dr. Marehalli G. Prasad, retired as Professor of Mechanical Engineering and Director of Noise and Vibration Control Laboratory at the Stevens Institute of Technology, Hoboken, New Jersey. Professor Prasad has been at Stevens for thirty seven years. Professor Prasad is a Fellow of ASME, ASA, INCE and Acoustical Society of India. Dr. Prasad has been awarded Professor Emeritus in Department of Mechanical Engineering at Stevens Institute of Technology. His contact email is mprasad@stevens.edu. Enjoy your retirement!

Paul receives ASME Fellow

Dr. Brent Paul has been elected as a Fellow of ASME. Congratulations!

New Position for Professor Lim

Dr. Teik Lim has started a new position at the University of Texas at Arlington (UTA) as the Provost and Vice President for Academic Affairs on July 1, 2017. He also holds the appointment of Professor of Mechanical Engineering. At UTA, he will continue his research in active noise control and gear dynamics. Good job!

Eversman Retires

Walt Eversman, Curators' Distinguished Professor of Aerospace Engineering Emeritus, Missouri University of Science and Technology has recently retired from teaching. He is maintaining a funded research project on characterization of the impedance and performance of acoustic linings for turbo-fan inlet noise suppression.

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 436 (previously, 544) ASME members list NCAD as their primary division, 472 (previously, 571) members list NCAD as their secondary division. 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 the *ASME 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 Prof. Mahmoud Hussein (mih@colorado.edu) or other editors if you would 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>

NCAD Leadership

Technical Committees

NCAD has three technical committees to help shape the Track we sponsor for conferences. We rely on the technical committees for planning individual sessions at a conference as well as the peer review process for conference papers. If you would 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.

Phononic Crystals and Metamaterials Committee

Chair: Mahmoud I. Hussein, mih@colorado.edu

The newly formed Technical Committee on Phononic Crystals and Metamaterials (TCPCM) represents the technical areas related to the growing field of phononics. Phononic crystals and acoustic/elastic/phononic metamaterials are composite/non-uniform materials within which periodic, or generally spatially dependent, elastic or acoustic or thermal properties are engineered to achieve exceptional control primarily via wave-based mechanisms.

Accomplishments in 2017:

In November 2017, the NCAD-TCPCM sponsored a topic/symposium within the NCAD-sponsored Vibration, Acoustics & Wave Propagation track at the ASME IMECE 2017 Conference which took place in Tampa, Florida from November 6-9, 2017. This topic/symposium, titled Phononic Crystals and Metamaterials, was in its 13th year. It included 43 technical presentations and 3 conference papers distributed among 10 sessions. This represented a near record number for the topic, and it was among the largest topics in the entire conference. Prof. Massimo Ruzzene from Georgia Tech gave a combined Phononic Crystals and Metamaterials Plenary Lecture and NCAD Tutorial titled, "Symmetry and Reciprocity Breaking in Electromechanical Metamaterials and Structural Lattices."



NCAD's combined Phononic Crystals and Metamaterials Plenary/Tutorial at IMECE 2017

Structural Acoustics and Noise Control Committee

Chair: Yongfeng Xu, xu2yf@uc.edu

The Technical Committee on Structural Acoustics and Noise Control represents technical areas related to mechanical wave propagations in structures and interactions between mechanical waves and surrounding media, such as air and water, to radiate noise. It also serves to increase the understanding on noise generation mechanisms and to broaden noise control applications for various industries, including but not limited to automotive, off-highway vehicle, aircraft, mining and consumer electronics industries.

Accomplishments for 2017:

In November 2017, the Structural Acoustics Committee sponsored two technical topics at the IMECE2017 conference in Tampa Florida. The topics included: Numerical Methods in Vibroacoustic Interactions (1 session), and Noise, Vibration and Harshness in Automotive Systems (1 session). Each session included four technical talks and presentations. There were a total of 8 technical presentations at the Structural Acoustics Committee sponsored sessions with 5 submitted full technical papers that were included in the conference proceedings. All papers were peer-reviewed by the Structural Acoustics Committee members, colleagues and peer authors.

Planned Activities for 2018:

For the ASME IMECE2018 Conference in Pittsburgh, Pennsylvania (November 9-15), the Structural Acoustics Committee will sponsor four technical topics (1) General Noise and Vibration Control, (2) Computational Acoustics, (3) Structural-Acoustic System Identification, and (4) Noise, Vibration and Harshness in Automotive Systems. The topics of General Noise and Vibration Control, and Computational Acoustics are new for 2018. The Structural Acoustics Committee invites all ASME members and colleagues to contribute papers and presentations to these topics to make IMECE2018 another successful conference.

Yongfeng Xu is currently an assistant professor in the Department of Mechanical and Materials Engineering at the University of Cincinnati. He received his B.S. degree in Theoretical and Applied Mechanics from Sun Yat-sen University in China. He received his M.S. degree and Ph.D. in Mechanical Engineering from the University of Maryland, Baltimore County. His research interests include structural dynamics and vibrations, modal analysis, finite element modeling, structural health monitoring and digital signal processing.



Aero/Hydro Acoustics Committee

Chair: Bob Tomko (tomkorp@yahoo.com)

The Aero/Hydro Acoustics Committee is composed of a group of people who enjoy learning about and sharing information on sound generation and propagation 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. We are also interested in propagation mechanisms through all types of fluids. We sponsor symposia on these subjects, but we welcome suggestions for other topics of interest in this area. Please contact us with new ideas for conference subjects.

Accomplishments from 2017:

In 2017, our committee participated in IMECE 2017 with other groups from the Noise Control and Acoustics Division. We sponsored a variety of topics at IMECE, but the most popular topic was "Vibration and Acoustic Measurements, Signal Processing, and Facilities." I was pleased to see that our colleagues from the mining industry made their return after being absent for a few years; the work that they are doing to reduce noise from mining machinery. Flow induced vibration continues to be a topic of interest in the conferences. It was exciting to see the reinvigorated interest in turbomachinery noise, as we were able to devote an entire session to this topic. It was great to reconnect with people to meet new people interested in noise and vibration.

Planned Activities for 2018:

We are planning to participate with the Institute of Noise Control Engineering of the USA (INCE-USA) in their upcoming conference on noise control in August, 2108. We will also participate in IMECE 2018, where we have several sessions planned. The sessions that are being sponsored by our committee are: Aero-Acoustics and Sound Propagation; Flow-Induced Noise and Vibration; Turbomachinery Noise; and Vibration and Acoustic Measurements, Signal Processing, and Test Facilities. We are soliciting papers and presentations for the all aspects of aero/hydro acoustics. If you are interested in publishing a paper or presenting at the conference, but your paper doesn't fit into one of these topics, please submit the abstract as part of one of the sessions; we will find the appropriate session for your paper. I hope we can continue to see growth on the Aero/Hydro Acoustics Committee; please consider attending our meeting during Internoise 2018 or IMECE 2018. IMECE 2108 will be held in Pittsburgh, PA, which is my home town. If you are interested in activities that you can pursue while you are in Pittsburgh, please feel free to contact me. We will post links of things to consider doing while you are in Pittsburgh on our Facebook page.

Bob Tomko is a graduate of the University of Pittsburgh with a degree in Mechanical Engineering. He is employed with the Naval Nuclear Laboratory (NNL), which is operated by Bechtel Marine Propulsion Corporation (BMPC). NNL includes the Bettis and Knolls Atomic Power Laboratories; Bob works at the Bettis Laboratory (near Pittsburgh). NNL 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 BMPC for over 35 years. He began his career at BMPC designing and performing 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 27 years, and now leads the noise, vibration, and shock organizations at the laboratory. Prior to his employment with NNL, Bob worked as a design engineer for Koppers Company.



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 Group Leadership Team is supported by other committees as needed. The committee members for 2017 – 2018 are:

Sue Sung, Retired, 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.

Charlie Zheng, University of Kansas, Vice-Chair

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. His research interests include fluid mechanics and acoustics.

AB Kirwan, Electric Boat Corporation, Secretary/Treasurer

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 and an M.S. in Engineering Mechanics from the University of South Florida. His research interests include noise and vibration control, machinery noise, structural-acoustic modeling methods and prediction of flow induced noise.

Weidong Zhu, University of Maryland, Program Chair

Weidong Zhu is a Professor in the Department of Mechanical Engineering at the University of Maryland, Baltimore County, and the founder and director of its Dynamic Systems and Vibrations

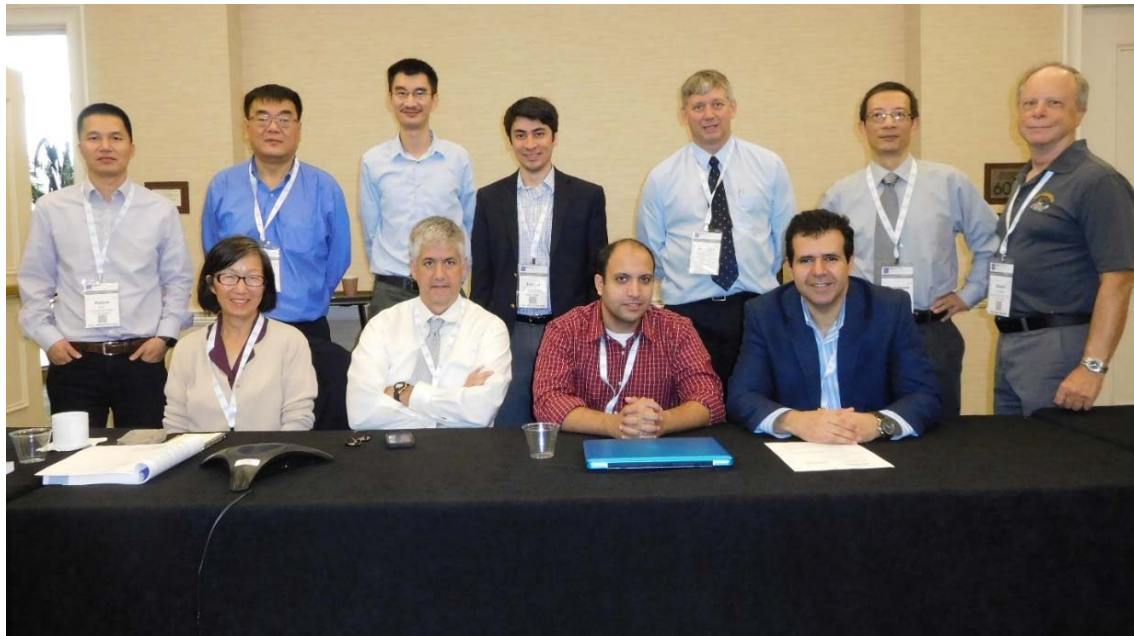
Laboratory and Laser Vibrometry Laboratory. He received his double major BS degree in Mechanical Engineering and Computational Science from Shanghai Jiao Tong University in 1986, and his MS and PhD degrees in Mechanical Engineering from Arizona State University and the University of California at Berkeley in 1988 and 1994, respectively. He is a recipient of the 2004 National Science Foundation CAREER Award. He has been an ASME Fellow since 2010, was an Associate Editor of the ASME Journal of Vibration and Acoustics from 2007-2014, and is a Subject Editor of the Journal of Sound and Vibration. His research spans the fields of dynamics, vibration, control, applied mechanics, structural health monitoring, and wind energy, and involves analytical development, numerical simulation, experimental validation, and industrial application. He has published over 110 archival journal papers in these areas.

Mostafa Nouh, University at Buffalo (SUNY), Member

Dr. Nouh received his MS and PhD degrees in Mechanical Engineering from the University of Maryland, College Park (UMD). After graduation, he served as a research associate and an adjunct faculty at UMD for two years. He then joined the Mechanical and Aerospace Engineering department at SUNY Buffalo as an assistant professor in 2015. His research interests span the areas of periodic structures and acoustic metamaterials, as well as thermoacoustic energy generation and control.

Brent Paul, Alion Science and Technology, Group Page Administrator

Brent Paul is a Principal Engineer in the Hydrodynamics and Acoustic Section at Alion Science and Technology. Dr. Paul has almost twenty years of experience in the analysis of hydroacoustic and hydrodynamic phenomenon. He has performed analysis work for all current U.S. Navy submarine classes and commercial surface ship designs. His areas of expertise include the prediction of flow induced noise, acoustic analysis of advanced turbomachinery, vortex shedding, and computational fluid dynamics.



IMECE 2017 General Committee Meeting Attendees:
(Back L-R): Haijun Liu, Weidong Zhu, Yongfeng Xu, Joe Blochberger, Michael Jonson, Charlie Zheng, Bob Tomko.

(Front L-R): Shung H.(Sue) Sung, Albert (Ab) Kirwan, Mostafa Nouh, Mahmoud Hussein.