

**IN THIS ISSUE**

**Report from the Chair**

**Charlie Zheng**

This year we progressed further to fulfill the NCAD's goals to promote the development and application of noise control and acoustic principles, to encourage the interchange of ideas through technical meetings and publications, and to acknowledge exceptional engineering achievement within the field. The biggest event for NCAD in 2016 was a successful track sponsored by NCAD on Vibration, Acoustics, and Wave Propagation at the annual ASME International Mechanical Engineering Congress and Exposition (IMECE) held in Phoenix, Arizona. Dr. Sue Sung was the NCAD track organizer. The NCAD had a total of 18 technical sessions, with approximately 90 presentations. Good job, Sue!



At the IMECE 2016, Dr. Victor W. Sparrow, Professor and Director of Graduate Program in Acoustics at Penn State University, received the 2016 Rayleigh Lecture Award. He gave a fantastic speech on "Two Approaches to Reduce the Noise Impact of Overland Civilian Supersonic Flight." His speech provided a basis to understand sonic booms and the ongoing work to enable overland supersonic flight for civilian aircraft. We also organized the NCAD tutorial workshop as the track plenary session, and Prof. Miao Yu from University of Maryland was the tutorial speaker on "Acoustic Sensing Technology." Acoustic sensors play an important role in many areas. In her tutorial, Prof. Yu reviewed different acoustic sensor technologies and recent efforts by her group on the development of acoustic sensing technologies. The abstracts of their presentations are included in this newsletter.

The NCAD student paper competition was organized at the IMECE 2016. This time, we recognized three student papers to receive the awards as a new improvement decided by the NCAD leadership group, in order to increase the impact of ASME on the incoming professional generation. The student papers were judged based on the quality of both the written paper and the oral presentation at the IMECE 2016. Mr. Plinio Ferreira Pinto from Memorial University in St. Johns, Canada, Mr. Dante Tufano from Rensselaer Polytechnic Institute in Troy, NY, USA, and Mr. Junjian Zhang from University of Kansas in Lawrence, KS, USA won the 1st, 2nd, and 3rd places, respectively, for this year's ASME NCAD student paper competition. Congratulations to these brilliant students! They are very welcome to be back to the ASME conferences, and particularly to the activities organized by NCAD. We wish that they become future leaders in their careers as well as in NCAD. I would also like to thank the student paper competition committee, headed by Ab Kirwan, for their diligent work in reviewing the papers and attending the students' presentations.

Our primary membership and division finances remain stable after the recent One ASME reorganization and other society-wide changes. 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 2017, we will be participating in IMECE in Tampa, FL, on November 3-9, by organizing a track with a new name Acoustics, Vibration, and Phononics, with nine technical topics soliciting papers in this track right now. The Rayleigh lecture, NCAD tutorial workshop, and student paper competition will all be organized at IMECE 2017. Ab Kirwan will be the track organizer, with Weidong Zhu, Sue Sung, and Mahmoud Hussein being the track co-organizers.

There have been some changes in the NCAD leadership group. I would like to thank Dr. Noah Schiller for his service to the division. Noah completed his rotation through the leadership group in 2016. Noah had been a great leader for NCAD and we hope to have his continued support for NCAD. We then

had an open search for a new leadership member by announcing it to the ASME NCAD list server. Prof. Weidong Zhu from University of Maryland Baltimore was selected to join the leadership group. Prof. Zhu has been participating in NCAD activities for many years, particularly in IMECE conferences. Welcome Weidong! 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 group 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. Wish you all a happy and prosper 2017! 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 2016

Sue Sung

In 2016, the annual International Mechanical Engineering Congress and Exposition (IMECE) was held at Phoenix, Arizona (Nov. 12-18, 2016). At the 2016 IMECE, NCAD sponsored the technical track "Acoustics, Vibration and Wave Propagation". Within the track were seven major topics and paper/abstract publication as follows: (1) General Noise and Vibration (four papers), Structural Acoustic Interaction (four papers), Phononic Crystals and Meta Materials (five papers and 51 abstract presentations), Numerical Methods in Vibration and Acoustics (four papers and one abstract presentation), Structural-Acoustic System Identification (three papers and one abstract presentation), Aero Acoustics (four papers), Flow-Induced Vibration (four papers).

During IMECE NCAD also held several special talks. These were the Rayleigh Lecture, the NCAD Tutorial, and Plenary topic on Photonic Crystals and Meta Material as listed below.

- Plenary "Presentation: Phonon Tunneling Through Vacuum Cavity in Finite Piezoelectric Superlattice", Bahram Djafari-Rouhani, Univ of Lille, France
- NCAD Tutorial: "Acoustic Sensing", Miao Yu, University of Maryland
- Rayleigh Lecture: "Two approaches to reduce the noise impact of overland civilian supersonic flight", Victor W. Sparrow, Penn State University

### Plenary

The plenary presentation provides an up-to-date summary of a selected topic that is relevant to one of the technical sessions that NCAD sponsors. We are privileged to have Dr. Bahram Djafari-Rouhani from the University of Lille, France to present "Phonon Tunneling Through Vacuum Cavity in Finite Piezoelectric Superlattice" at the 2016 Phononic Crystal and Metamaterial technical session. The possibility of phonon tunneling between two piezoelectric media separated by vacuum is analogue to electron tunneling through barrier potential in quantum mechanics. The tunneling mechanism effect occurs essentially for tetragonal and hexagonal crystals. This property enhances thermal conductance and heat flux between two piezoelectric bodies for mixed transverse and longitudinal waves. The possibility of complete tunneling transmission through a vacuum cavity layer inserted in a finite piezoelectric superlattice (SL) is demonstrated by means of the excitation of surface and bulk acoustic modes. The theoretical calculation is performed using the Green's function method to deduce the dispersion relations of bulk and evanescent acoustic waves as well as the transmission and reflection coefficients. The transmission becomes significant only for grazing incidence. Also, the transmission through such a system depends strongly on the symmetry of the system as well as on the nature of the layers at the end of each finite SL. Several cases are discussed in this presentation.

### **NCAD Tutorial: Acoustic Sensing Technologies. Professor Miao Yu.**

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 Vibro-acoustic Control, Structural Acoustics, and Aero/Hydro Acoustics. It was our pleasure to have Dr. Miao Yu from University of Maryland to give the 2016 NCAD Tutorial on “Acoustic Sensing”. Acoustic sensors play an important role in many areas, such as safety (e.g., sonar arrays), public health (e.g., ultrasonic imaging), surveillance (e.g., underwater communication and navigation), and industry (e.g., non-destructive damage detection). In first part of this tutorial, different acoustic sensor technologies were reviewed, including condenser microphones, micro-electro-mechanical-system based acoustic sensors, and fiber optic based acoustic sensors. Applications of these sensors were discussed. As conventional acoustic sensors inevitably suffer from the fundamental detection limits (e.g., minimum detectable pressure), which hinder the performance of current acoustic technologies. In the second part of the tutorial, our recent efforts on the development of acoustic sensing technologies that can potentially overcome these limitations were discussed. Specific focus is on the application of advanced materials and bio-inspired ideas that can greatly enhance the performance of acoustic sensing technologies.

Past tutorials sponsored by NCAD, are also available at:

[https://community.asme.org/noise\\_control\\_acoustics\\_division/m/default.aspx](https://community.asme.org/noise_control_acoustics_division/m/default.aspx).



*Tutorial Speaker Dr. Miao Yu.*



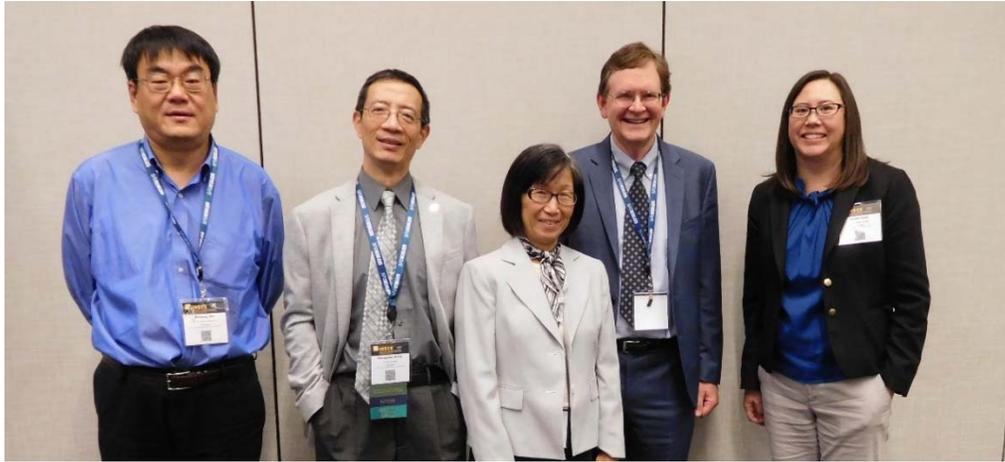
*IMECE 2016 Tutorial Speaker Dr. Miao Yu (2nd from Left)*

### **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 Dr. Victor W. Sparrow from Penn State University to give the 2016 Rayleigh Lecture on “Two approaches to reduce the noise impact of overland civilian supersonic flight”. His talk provides a basis for ASME members to understand sonic booms and the ongoing work to enable overland supersonic flight for civilian aircraft. U.S. and international regulations currently prohibit unrestricted civil supersonic flight. There is a lot of interest by NASA and industry to develop the technology for small supersonic aircraft that will sound much less objectionable to the public (converse to the former Concorde), enabling overland supersonic flight. Most of the recent and ongoing research work is directed toward developing an aircraft body with a special geometrical shape so that the resulting supersonic pressure signature is a sound that has a substantially reduced loudness. Such boom shaping has already been demonstrated and proven in limited ways. NASA is currently developing a Quiet Supersonic Technology (QueSST) demonstration aircraft to validate the adequacy of the approach and the associated technologies. At the same time, some in industry would like to build a supersonic aircraft

without consideration of passive noise mitigation shaping but instead flown overland at prescribed speeds such that the resulting sonic boom never reaches the ground, and this is called Mach cut-off flight. Both the geometrical aircraft shaping and Mach cut-off approaches seem feasible to reduce the loudness, and this presentation will outline the technical basis for each. Professor Sparrow's Rayleigh Lecture is available on the ASME community website for the Noise Control & Acoustics Division. The current and past Rayleigh Lectures are available at:

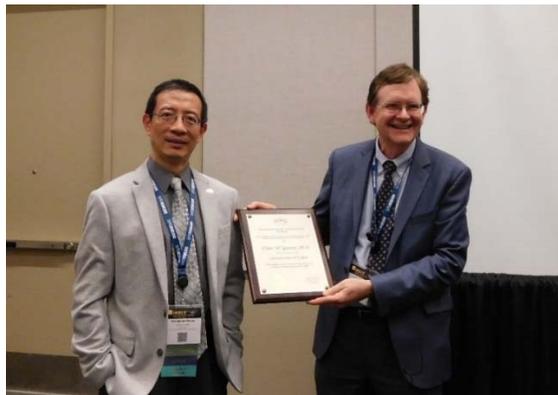
[https://community.asme.org/noise\\_control\\_acoustics\\_division/m/default.aspx](https://community.asme.org/noise_control_acoustics_division/m/default.aspx).



*Rayleigh Lecture- Dr. Victor Sparrow with NCAD Group Leadership Team members (L-R: Weidong Zhu, Carlie Zheng, Shung H. (Sue) Sung, and Kristin Cody)*



*Rayleigh Lecturer Victor Sparrow*



*Rayleigh Lecturer Victor Sparrow with Charlie Zheng (L).*



NCAD Rayleigh Lecture Dinner (Front L-R; Mrs. Scarton, Charlie Zheng, Victor Sparrow (Rayleigh Lecturer), Jeff Vipperman, Sue Sung; Rear L-R: Henry Scarton, Ab Kirwan, Kristin Cody, Michael Jonson, Bob Tomko, Don Nefske)

#### **Per Bruel Gold Medal Recipient, Patricia Davies**

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.



Patricia Davies received the 2016 Per Bruel Gold Medal for Noise Control and Acoustics from ASME, the American Society of Mechanical Engineers. She was recognized "for exceptional leadership and educational mentorship in the field of noise control and acoustics; and for outstanding contributions to noise control engineering in the areas of signal processing, nonlinear dynamic modeling, product sound quality, and human response to noise and vibration." Davies has served as the director of Purdue's Herrick Labs since 2005, overseeing an acoustics laboratory, among several other areas of research. (Reprinted from Purdue University Mechanical Engineering Department)

#### **Student Paper Award**

The 2016 NCAD sponsored best student paper awardees are as follows:

- First Award (\$1000): Mr. Plinio Ferreira Pinto, Memorial University St Johns, Canada, IMECE 67463 "Development and Validation of an in-situ Utility pole Model for Vibration Based Non-Destructive Testing", Advisor-Dr. G. Rideout
- Second Award (\$600): Mr. Dante Tufano, Rensselaer Polytechnic Institute, Troy, NY USA, IMECE 65567 "Entropy for Strongly Coupled Oscillators", Advisor-Dr. Z. Sotoudeh
- Third Award (\$400): Mr. Junijan Zhang, University of Kansas, Lawrence, KS USA, IMECE 65966 "Time-Domain Simulation of Ultrasound Propagation with Fractional Laplacian", Advisor-Dr. Z. Zheng.

NCAD would like to congratulate Plinio, who received a certificate and \$1000 award honorarium. The division plans to sponsor this again at IMECE 2017.

## Future NCAD Meetings

Ab Kirwan

The Noise Control and Acoustics Division (NCAD) of ASME is excited to be sponsoring a technical track on Acoustics, Vibration, and Phononics at IMECE2017 in Tampa, Florida, USA. This year's conference takes place from November 3<sup>rd</sup> to the 9<sup>th</sup>. Note this year's conference is a week earlier than previous IMECE conferences.

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 Vibro-Acoustics Control
- Numerical Methods in Vibro-acoustic Interactions
- Structural-Acoustic System Identification
- Noise, Vibration and Harshness in Automotive Systems
- Sound Propagation in the Atmosphere
- Flow-Induced Noise and Vibration
- Turbomachinery Noise
- Vibration and Acoustic Measurements, Signal Processing, and Facilities

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 IMECE2017 conference are as follows:

- March 6, 2017: Deadline for submission of abstracts
- March 13, 2017: Notification of abstract acceptance
- May 8, 2017: Deadline for submission of full-length draft paper
- June 19, 2017: Notification of full length draft paper acceptance/rejection
- July 3, 2017: Deadline for revised paper submission (if required)
- July 17, 2017: Notification of revised paper acceptance/rejection (if required)
- August 7, 2017: Submission of final paper

Additional information regarding IMECE2017 is available at the conference website:

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

NCAD will continue to sponsor a "Best Student Paper Award" at IMECE2017. The top three 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 and must present the paper at the conference. Advisors must send an email to Dr. Weidong Zhu ([wzhu@wmbc.edu](mailto:wzhu@wmbc.edu)) for their students to be eligible.

NCAD 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 will be held to provide an in-depth examination of a topic of interest to NCAD members.

## News and Notes from NCAD Members

Brent Paul

### **Hussein receive award for paper**

In recognition of outstanding contributions to the applied mechanics archival literature and as a testament to the vision and commitment of service of its founders, the 2016 Lloyd Hamilton Donnell Applied Mechanics Reviews Paper Award is given to M. I. Hussein, M. Leamy and M. Ruzzene for the paper "Dynamics of Phononic Materials and Structures: Historical Origins, Recent Progress, and Future Outlook," published in Applied Mechanics Reviews, vol 6, no 4, 040802, 2014. Congratulations Professor Hussein!

### **Zhao and Prasad receive best paper award**

Mr. Chenhui Zhao and Professor M.G. Prasad (ASME Fellow) received Best Paper Award for their paper "Studies of Sound from Beams with Acoustic Black Holes" at the COMSOL Conference held during October 5-7, 2016 in Boston. Congratulations to Mr. Zhao and Professor Prasad!

### **Paul earns doctorate**

In December 2016 Brent Paul received his doctorate in Acoustics from The Pennsylvania State University. His thesis is entitled "Aeroacoustic computation of tones generated from low Mach number cavity flows, using a preconditioned method". Kudos to Dr. Paul!

### **Peppin Receives Promotion**

Richard J. Peppin, is now Senior Consultant for RION Co., Ltd., Environmental Instruments Division. He is also the President of Engineers for Change, Inc., an all-volunteer-501c3 non-profit. He was past Chair of Safety Division and Technology & Society Division. Congratulations Mr. Peppin!

### **Lesieutre Becomes Associate Dean**

After 12 years of service as department head of aerospace engineering at Penn State, George Lesieutre has accepted the position of associate dean for research. He continues as director of Penn State's Center for Acoustics and Vibration. Congratulations Professor Lesieutre!

### **Professor Cai named Fellow**

In March, Professor Liang-Wu Cai was named a Fellow of the American Society of Mechanical Engineers. Dr. Cai was recognized for contributions to the field of phononic crystals and acoustic metamaterials, teaching, and service to the profession. Congratulations Professor Cai!

### **Manimala Receives DARPA Award**

Dr. James M. Manimala, Assistant Professor in the School of Mechanical and Aerospace Engineering at Oklahoma State University, received the 2016 DARPA Young Faculty Award to investigate metamaterials-inspired MEMS devices for controlled acoustics applications. The DARPA YFA aims to "identify and engage rising research stars in junior faculty positions at U.S. academic institutions and introduce them to Department of Defense needs as well as DARPA's program development process." Great job Dr. Manimala!

### **Hambric, Sung and Nefske published textbook**

“Engineering Vibroacoustic Analysis: Methods and Applications”, Wiley, edited by S. A. Hambric, S. H. Sung and D. J. Nefske, 19 Feb, 2016. <http://onlinelibrary.wiley.com/book/10.1002/9781118693988>. Good job!

### **Naghshineh Named Chair at WMU**

Dr. Koorosh Naghshineh was named chair of the Department of Mechanical and Aerospace Engineering beginning Jan. 1, 2017. Naghshineh has been a professor at Western Michigan University since 1994. His research interests include noise and vibration measurement and control, and structural acoustics and vibrations. He also is the director of WMU’s Noise and Vibration Laboratory. Congratulations Dr. Naghshineh!

### **Zybura Receives Promotion**

"Lewis S. Goodfriend & Associated, a consulting engineering firm with more than 60 years of diversified experience in acoustics, is pleased to announce the promotion of Jack Zybura to Project Manager. Jack is a licensed professional engineer in NJ, PA, and OR, and received his INCE Board Certification this past June. Well done Mr. Zybura!

### **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](mailto: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 544 ASME members list NCAD as their primary division, 571 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](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](mailto:cai@ksu.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>

### **Technical Committees**

To keep current with changes in engineering interests and technology we have merged two of NCAD's technical committees and created a third. We have combined the Active and Passive Noise Control TC with the Structural Acoustics TC. These two committees often had overlapping interests and technical papers. A new TC, Phononic Crystals and Metamaterials, has been created to support the interest in that area. These changes were done based on the decreasing number of papers NCAD sponsored in recent years, while the phononic crystals and metamaterials related papers have seen a significant increase in the number of published papers during that same time. We thank Junyi Yang for chairing the Active and Passive Noise Control TC. NCAD heartily welcomes papers in the Phononic Crystals and Metamaterials field for any of our applicable sessions.

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](mailto: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 2016:*

In November 2016, the NCAD-TCPCM sponsored a topic/symposium within the NCAD-sponsored Vibration, Acoustics & Wave Propagation track at the ASME IMECE 2016 Conference which took place in Phoenix, Arizona from November 13-16, 2016. This topic/symposium, titled Phononic Crystals and Metamaterials, was in its 12th year. It included 56 presentations distributed among 12 sessions. This represented a record number for the topic, and it was among the largest topics in the entire conference. Professor Bahram Djafari-Rouhani from the University of Lille, France, who is one of the pioneers of the field, was the topic's plenary speaker.



Highlights from NCAD's Phononic Crystals and Metamaterials topic/symposium at IMECE 2016

#### Structural Acoustics and Noise Control Committee

*Chair: Albert (Ab) Kirwan (ACTING), [aekirwan@yahoo.com](mailto:aekirwan@yahoo.com)*

The Technical Committee on Structural Acoustics and Noise Control represents the technical areas related to the propagation of mechanical waves in structures and the interaction of these waves with the surrounding media be it air or water to radiate noise. It was merged in 2017 with the Active and Passive Noise Control Committee, which serves 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 for 2016:*

In November 2016, the structural acoustics committee sponsored five technical topics at the IMECE2016 conference in Phoenix Arizona. The topics included: (1) Phononic Crystals and Acoustic Metamaterials (10 sessions), (2) General Noise and Vibration (1 session), (3) Acoustics and Structural Interaction (1 session), (4) Numerical Methods in Vibration and Acoustics (1 session), and (5) structural acoustic system identification (1 session). Each session included between four and six technical talks and presentations. There were a total of 54 technical presentations at the Structural Acoustics Committee sponsored sessions with 18 submitted as full technical papers and included in the conference proceedings. All papers were peer reviewed by the Structural Acoustics Committee members, colleagues and peer authors.

#### *Planned Activities for 2017:*

For the ASME IMECE2017 Conference in Tampa, Fla (November 3-9) the Structural Acoustics Committee will sponsor four technical topics (1) Phononic Crystals and Metamaterials, (2) Numerical Methods in Vibroacoustic Interactions, (3) Structural-Acoustic System Identification, and (4) Noise, Vibration and Harshness in Automotive Systems. The topic on Noise, Vibration and Harshness in

Automotive Systems is new for 2017. The Structural Acoustics Committee invites all ASME members and colleagues to contribute papers and presentations to these topics to make IMECE2017 another successful conference.

Albert (Ab) Kirwan is a graduate of Texas A&M University in College Station, TX with a BS degree in Aerospace Engineering and a graduate of the University of South Florida in Tampa, FL with a M.S degree in Engineering Mechanics. He is employed at the General Dynamics Electric Boat Corporation in New London, Connecticut that is located between Boston and New York City. Ab has been working at Electric Boat as an engineer for over 28 years. He began his career performing vibration and shock analyses supporting the nation's submarine fleet. In the early 1990s he moved over to a newly formed structural acoustics group and has been involved in the structural acoustics field ever since.

#### 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 2016:*

In 2016, our committee participated in IMECE 2016 with other groups from the Noise Control and Acoustics Division. We sponsored a variety of topics at IMECE and we had the opportunity to meet with new people and catch up with old friends. It was great to see all of the new faces at the conference; I hope this is an indication that we will have participation from more people in the coming years. This year we sponsored the NCAD tutorial. We were very fortunate that Professor Miao Yu from the University of Maryland offered to provide a tutorial on acoustic sensors, which was enthusiastically attended by many people. I would personally like to thank Dr. Yu for taking the time to develop such a dynamic lecture where we learned the current state of acoustic sensors and also learned where the technology is headed. At IMECE, we also held our committee meeting to begin planning for IMECE 2017.

#### *Planned Activities for 2017:*

Once again, we will participate in IMECE 2017, where we have several sessions planned. We are soliciting papers and presentations for the following topics: Sound Propagation in the Atmosphere (Charlie Zheng), Flow-Induced Noise and Vibration (Bob Tomko and Kristin Cody); Turbomachinery Noise (Mike Jonson and Brent Paul); and Vibration and Acoustic Measurements, Signal Processing, and Facilities (Kristin Cody and Bob Tomko). If you are working in any of these areas, please consider submitting a paper or presentation for the conference or attending the sessions. I hope we can continue to see growth on the Aero/Hydro Acoustics Committee; please consider attending our meeting during IMECE 2017.

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 25 years, and now leads the noise, vibration, and shock organizations at the laboratory.



### **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 2016 – 2017 are:

#### **Charlie Zheng, University of Kansas, 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. He is an Associate Editor of Journal of Fluids Engineering. His research interests include fluid mechanics and acoustics.

#### **Kristin Cody, Naval Nuclear Laboratory, Vice Chair**

Dr. Kristin Cody is an Advisory Engineer for the Naval Nuclear Laboratory, 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. Dr. Cody recently received INCE board certification. Her research interests include flow-induced noise and vibration and structural-acoustic interactions.

#### **Sue Sung, Retired, Secretary/Treasurer**

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, Program Chair**

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, Member**

**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.