



Noise Control and Acoustics Division Newsletter

Gary H. Koopmann, Editor

Fall 1998

Get Involved in Your Division



Mardi Hastings
Incoming Chair

We are off to another great year for the Noise Control and Acoustics Division. I look forward to hearing from our 650+ members in the months ahead. Please let me know how we can make NCAD more

responsive to your needs. In particular the Executive Committee would like to see more participation by our members from industry. If you would like to volunteer for technical committees, newsletter, or any of the other many activities in our division, or just want to let me know how the Division can better serve your needs, please contact me by phone (614-292-2271) or e-mail (hastings.6@osu.edu). This is your Division – get involved!

Thanks to our many volunteers this past year, we will have 21 technical sessions at the ASME International Mechanical Engineering Congress and Exhibition in November. Session titles and schedule are provided in this newsletter. A detailed program which includes a listing of the presentations and authors is available on the web if you have not already received one in the mail. These sessions cover many aspects of noise control and

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John Ffowcs Williams Receives Per Bruel Gold Award



John Ffowcs Williams

THE PER BRUEL GOLD MEDAL FOR NOISE CONTROL AND ACOUSTICS was established in honor of Dr. Per Bruel, who pioneered the development of highly 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.

PROFESSOR JOHN EIRWYN FFOWCs WILLIAMS, F.Eng., C.Eng., Ph.D., Sc.D., of the University of Cambridge, England, was honored for *his contributions to the understanding of aeroacoustic phenomena and of the interaction between fluid dynamics and acoustics, and for sustained leadership in the application of theoretical acoustics to practical problems of noise control.*

Professor Ffowcs Williams is the first Holder of the Rank Chair of Engineering, which was established in 1972 in the field of acoustics, at the University of Cambridge, England. Prior to that he held the Rolls-Royce Chair in Theoretical Acoustics at the Imperial College, London.

Professor Ffowcs Williams' students study areas related to the aeroacoustics of supersonic flight and quieting of underwater platforms. His work helped make anti-sound useful for noise control and for stabilizing aeromechanical systems. He was prominent in the Concorde program.

Born in Wales, educated in England and awarded an engineering apprenticeship with Rolls-Royce before going to the University of Southampton, England, Professor Ffowcs Williams has had a long-standing commitment to bring academic research to bear on industrial problems. Professor Ffowcs Williams had held various positions such as the chair of the consulting company, Topexpress Ltd., in Cambridge, executive consultant to Rolls-Royce, and a director of VSEL plc, Barrows-in-Surness. He now heads the division of the University of Cambridge whose work focuses on fluid mechanics, aeronautics, thermodynamics and turbomachinery. He is also master of Emmanuel College at Cambridge.

Professor Ffowcs Williams professional memberships include being a Special Life Member of ASME International and is a Fellow of the following: the American Institute of Aeronautics and Astronautics; the Acoustical Society of America; the Institute of Mathematics and its Applications; the Cambridge Philosophical Society; the Royal Academy of Engineering; the Royal Aeronautical Society; the Institute of Acoustics; the Institute of Physics; and the Royal Society of Arts.

Professor Ffowcs Williams had earned a bachelor's degree in 1958, doctorate in 1960 in aeronautical engineering, a master's in 1972 and a doctorate in 1986.

Incoming Chair's Message

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acoustics and will have broad appeal to ASME members from all areas. Sessions in aircraft noise, vehicle noise, and active noise control of aircraft and aerospace vehicles are special highlighted sessions for the Congress. Professor Gary Koopmann will present this year's Rayleigh Lecture on Thursday afternoon. His presentation, "Designing Quiet Structures – Virtually," will include details of a virtual reconstruction of the Liberty Bell so that the audience will be able to hear how it sounds before and after the crack. It should be an exciting event.

The NCAD web page has been moved to the ASME server and updated by our past Chair, Ted Farabee. Please check it out at www.asme.org. Just click on "Technical Programs," then "Technical Divisions" to find the "Noise Control and Acoustics Division" on the web. As always, we would appreciate receiving your comments and suggestions for improvements. Planning and preparation for the 1999 Congress at the Opryland Hotel in Nashville, TN, are already underway. Sean Wu, Department of Mechanical Engineering, Wayne State University, will be the 1999 Program Chair. The 1999 plans that were initiated last year at the Technical Committee meetings will be finalized during the upcoming Committee meetings which are scheduled to begin at 12:45 p.m. on Wednesday at the Congress. Please plan to attend these meetings and give your input for the future plans of the Division. If you cannot attend, feel free to contact the Technical Committee Chairs and give them your ideas for possible future activities. We need your participation.

A special note of thanks goes to the Division's outgoing Chair, Dr. Theodore M. Farabee for his leadership and many contributions to the Division. Ted also served as Program Chair for the 1996 and 1997 Congresses and he recently volunteered to be the webmaster for the NCAD web page. We look forward to his continued service and guidance in Division affairs.

Division In Transition

Outgoing Chair's Remarks

As you read this column it will already have been a few months since I passed on the Division Chair duties to the very capable Dr. Mardi Hastings. Although most Chairs serve this position in their last year on the Executive Committee I have the pleasure of serving another year before my five-year appointment ends. This allows me the opportunity to focus on efforts that are of more direct benefit to the Division rather than trying to keep up with society related administrative issues.

The Division, as is ASME itself, is in a period of transition. I will touch on a few of the changes that I see happening.

Until a few years ago Division membership was growing at a fairly healthy rate. In the last few years, the Division membership has reached a plateau and actually dropped slightly. It is not clear whether this is due to membership saturation, economic pressures, or other causes. I will note that our trend in membership pretty much parallels that of other Divisions. Although ASME frowns on declining membership, it is not necessarily bad. However, all members should do what they can to ensure their colleagues are aware of the benefits of being a member and selecting the Noise Control and Acoustics Division as their primary Division. We want to make the Noise Control and Acoustics Division the professional affiliation of choice.

The Executive Committee is working on means to keep the Division members better informed and provide a broader range of activities that may attract attendance at the International Mechanical Engineering Congress and Expositions (IMECE). The Division uses the IMECE as its primary gathering occasion. We have a fair degree of flexibility in what we offer at the IMECE so if you have an idea of something that should be offered please share it with us.

As a society, ASME is working hard to make this event serve the member's needs. They are exploring ways to increase attendance and decrease registration costs. ASME is exploring a wide range of options that will help reduce the cost of publishing technical papers which is a major expense item. Some of the ideas being considered include providing: conference proceedings on a CD-ROM, "on demand printing" of papers at conferences, and society transactions on the internet. A few of these ideas have already been implemented on a test basis. These are all exciting and it will be interesting to see what is adopted. The future will clearly have a form of information dissemination different from what is used today.

As a means to improve communications the Division initiated a Division WebPage in early 1997. I want to thank Dr. Andy Seybert for taking on the task of getting the WebPage up and running. Like so many things, it is these first steps that are the hardest. The Division hopes that the ready access the internet offers can be used to greatly increase our communication with our diverse membership. Posting information on a WebPage is certainly much cheaper than a mass mailing. The address (URL) for the WebPage is <http://www.asme.org/divisions/noisecontrol>. I strongly encourage all members to visit the WebPage and let us know how this tool can better serve your needs.

I will close by saying it has been a real pleasure serving as your Division Chair and I look forward to serving out my last year on the Executive Committee. The Division is blessed to have very talented people serving on the Executive Committee and as Technical Committee Chairs. You are strongly encouraged to get involved in the Division's activities so your particular interests can be served. Please do not hesitate to contact a member of the Executive Committee or a Technical Committee Chair to discuss items of interest.

Ted Farabee

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TECHNICAL COMMITTEE NEWS

Flow Noise Modeling, Measurement, and Control Symposium

The Flow-Induced Noise and Vibration Committee of the Noise Control and Acoustics Division and the Fluid Mechanics Committee of the Fluids Engineering Division are jointly sponsoring a Symposium on Flow Noise Modeling, Measurement, and Control on November 18 and 19 at the 1998 IMECE. This is the fourth year this symposium has been offered. The intent of the Symposium is to bring together papers that focus on flow noise modeling, fluid-structure coupling in turbulent flow, measurement techniques for quantifying flow noise characteristics, and flow noise control techniques. The subject flow fields that are of interest include external boundary layers, turbulent flow in pipes and through piping systems, two-phase flows, jets, turbomachinery, flows in experimental facilities, and flow-structure interactions that produce flow-induced resonances and tones.

As in the three prior years, this Symposium has drawn an excellent collection of papers, which demonstrates the continued interest in the broad topic of flow noise. It is hoped that the papers presented as part of this Symposium will be informative to others and foster an exchange of ideas on the related subjects.

Martin Pollack, Richard Marboe, Theodore Farabee, and William Keith

Materials Characterization Committee Symposium

At the 1997 ASME IMECE in Dallas, Texas, the committee members organized a highly successful "Inter-national Symposium on Vibroacoustic Methods in Processing and Characterization of Advanced Materials and Structures." Twenty papers covering topics from damping in composites, nondestructive evaluation, dynamic and impact response, vibration/fracture/fatigue analysis of composites were presented in four very well attended sessions. The proceedings of the symposium were also made available from ASME as a bound volume. One of our symposium papers entitled "Parameter Studies in the Optimal Design of Unconstrained Beam Damping Layer Treatment" by Arnold Lumsdaine and Richard Scott, was adjudged the BEST PAPER of the NOISE

CONTROL ACOUSTICS DIVISION for 1997. Another highlight was the award of a special plaque to Professor P.K. Raju (founding member of our committee) for Distinguished Service to the NCAD.

For the 1998 IMECE in Anaheim, CA, the Materials Characterization Committee is sponsoring a three session symposium entitled "Vibroacoustic Characterization of Advanced Materials and Structures" with a total of 13 papers covering topics such as damage characterization and NDE, vibration response and damping, and dynamic response of structures.

A concurrent two session workshop with the theme "Recent Advances in Vibroacoustic Transducers and Equipment for Data Capture and Analysis" will have state-of-the-art invited lectures on topics ranging from instrumentation for acoustic wave propagation and monitoring, amplified piezoelectric actuators for vibration damping and new transducer products based on micromachined silicon technologies.

If you are interested in knowing more or joining the committee, please contact the Committee Chair, Professor Ronald F. Gibson, Wayne State University, (tel: 313-577-3702, email: gibson@eng.wayne.edu) or the Committee Vice-Chair, Professor P. Raju Mantena, University of Mississippi (tel: 601-232-5990, email: meprm@ole-miss.edu).

P. Raju Matena

Joint Committees to Sponsor Symposium

The Structural Acoustics Technical Committee of the NCA Division will jointly sponsor a special symposium with the Applied Mechanics Division on "Innovative Computational Methods Applied to Linear Structural Mechanics and Acoustics" at the 1998 ASME IMECE. This symposium will have four sessions with a total of 15 technical papers. These papers will present the state-of-the-art development in structural acoustics and other areas. Some topics include complex structures with complex internal sources and sub-structures, computational aeroacoustics, elastic wave resonance scattering, acoustic holography, statistical energy analysis, energy finite element method, compliant layers on elastic plates, parallel computation of harmonic waves, complex-time-step methods for transient analysis, turbulent loading function models, time-harmonic turbomachinery flows, acoustic sensors, etc.

Sean F. Wu

Call for Papers

A Symposium on Flow-Induced Vibration and Noise of Thin Materials will be held at the 1999 IMECE in Nashville, TN, November 14-19. The symposium is jointly sponsored by the Flow-Induced Vibration and Noise Committee of the Noise Control and Acoustics Division and the Fluid Mechanics Committee of the Fluids Engineering Division.

The symposium seeks basic and applied research contributions in the area of flow-induced vibration and noise of thin materials. Topics of interest include flow-induced vibration and noise of duct or channel walls; sheet flutter in paper-making machines, printing presses, and air-flotation ovens; flutter and noise at air-turning devices; out-of-plane dynamics of magnetic tapes; and other types of flow-induced vibration and noise problems of membranes and thin plates.

Authors should send three copies of an abstract to one of the organizers. Final acceptance is based on a formal review of the full paper. All papers must conform to ASME Journal standards and will be published in a bound volume.

Abstracts are due January 4, 1999, with preliminary acceptance January 15th. Manuscripts are due March 5, 1999, with final acceptance April 30th and camera-ready papers due June 28, 1999.

Organizers for the symposium are Dr. Young Bae Chang, Oklahoma State University (email: ybae@master.ceat.okstate.edu), Richard Marboe, Penn State University (email: rcm4@psu.edu), Dr. Martin Pollack, Lockheed Martin (email: mlpollack@sprintmail.com), and Dr. Theodore Farabee, Surface Warfare Center (email: farabee@dt.navy.mil)

Visit our
NCA Division
WebPage at
[www.asme.org/
divisions/
noisecontrol](http://www.asme.org/divisions/noisecontrol)

MEMBER INTEREST SURVEY

Dear NCAD Member:

The Executive Committee of the Noise Control and Acoustics Division (NCAD) needs your feedback to assure the Division's programs and activities best meet your needs. We ask that you take five minutes of your precious time to fill out our questionnaire. Please use this as an opportunity to make your feeling known to the Division. If you would like to have a follow-up communication or volunteer to work more directly with the Division, please so indicate and be sure to include your name and appropriate contact information.

Your responses to this questionnaire will be greatly appreciated.

1. EMPLOYMENT PROFILE

Employer:

- Self-employed
 Academia
 Government or, Industry (number of employees)
 <100 100 - 1,000 >1,000

Job Description:

- project engineer
 sales engineer
 management
 teaching
 research engineer
 consulting
 other _____

2. NCA DIVISION PARTICIPATION

A. From the list of Technical Committees please indicate which Committee most closely aligns with your personal/professional interests. You may indicate more than one, but please rank them (1, 2, 3, .etc., with 1 being highest):

- Active Noise Control
 Analysis Techniques
 Flow-Induced Noise & Vibration
 Friction-Induced Sound & Vibration
 Materials Characterization
 Instrumentation & Signal Processing
 Structural Acoustics
 Turbomachinery Noise & Vibration

B. Do you attend the IMECE on a yearly basis? Yes, No

C. Does your company/university/agency support your attendance at IMECE? Yes, No

D. Do you attend NCAD technical sessions during IMECE?
 Yes, No

E. If no, why not?

F. If yes, which NCAD technical sessions do you find most useful?

G. Which NCAD technical sessions do you find least useful?

H. Do you attend the NCAD business meeting at the IMECE?
 Yes, No

I. If you are interested in becoming more involved in NCAD, circle the area of interest: planning for meetings, organizing technical sessions, editing newsletter, other:

3. JOURNAL OF ACOUSTICS AND VIBRATION (JVA)

A. Do you subscribe to the JVA?

Yes, No

B. If yes, do you find its articles interesting and informative? Yes, No

C. How many papers/year do you read in the JVA?

D. How many papers/year do you publish in the JVA?

E. How many papers/year do you review for the JVA?

F. If you are not already doing so, are you willing to review papers for the JVA? Yes, No

4. NCA DIVISION NEWSLETTER

A. Do you read the NCAD Newsletter?
 Yes, No

B. If so, which features do you find most useful?

C. Which features do you find least useful?

D. Any suggestions on improving the newsletter?

E. Are you willing to contribute articles to the newsletter? Yes, No

F. If yes, what type of articles?

5. NCA DIVISION HOME PAGE (<http://www.asme.org/divisions/noisecontrol>)

A. Have you ever visited the ASME Homepage? Yes, No

B. Have you ever visited the NCAD Homepage? Yes, No

C. Which features of the NCAD Homepage were most useful?

D. Which features of the NCAD Homepage were least useful?

6. ADDITIONAL INFORMATION (OPTIONAL INFORMATION)

A. Would you like to be contacted by the Division to discuss activities of possible areas you would like to get involved in? Yes, No
 (If yes, please complete the contact information below)

B. How might the Division better support your needs?

C. ONE FINAL QUESTION: Overall, do you find membership in the NCAD beneficial to your professional career?
 Yes, No

(Optional contact information)

Name _____

Company _____

Street _____

City _____

State _____

Zip Code _____

Country _____

E-mail _____

Tel: _____

Fax: _____

Thank you for your time.

Please complete and return this questionnaire to Ted Farabee by FAX (301) 227-4405 or by mail to the address provided. Alternatively, complete the form on the Division's WebPage <http://www.asme.org/divisions/noisecontrol>

BS/MS Student Paper Competition

Corrie J. Derenburger and Theodore M. Kostek were first and second place winners in the 1997 Student Paper Competition held at last year's Congress in Dallas. Ms. Derenburger from the Ohio State University's Department of Mechanical Engineering, won first place for her paper, "A comparison of Experimentally Determined Swimbladder Resonances in Two Species of Fish." The second place award went to Mr. Kostek from the School of Mechanical Engineering at Purdue University, for his paper, "Combining Adaptive-Passive and Fully Active Noise Control in Ducts."

Four students will be presenting papers for the competition at the 1998 Congress in Anaheim. In addition to cash awards for the first and second place papers, each participant will also receive \$300 to help cover travel expenses.

The BS/MS Student Paper Competition was initiated in 1993 to promote partici-

pation of young engineers in ASME and the Noise Control and Acoustics Division. Any student at the undergraduate or masters level may submit a paper pertaining to any area in the field of acoustics. The final written papers and oral presentations are evaluated by a panel consisting of at least three members of the Division. For more information, contact Prof. Mardi Hastings at the Ohio State University by phone (614) 292-2271 or e-mail: hastings.6@osu.edu.

Koopmann to Give Rayleigh Lecture

The Noise Control and Acoustics Division is pleased to announce that Dr. Gay H. Koopmann will give the Rayleigh Lecture at the 1998 International Mechanical Engineering Congress and Exposition in Anaheim. The lecture "Designing Quiet Structures - Virtually" will be presented on Thursday, November 19, beginning at 3:45 PM.

Future Meetings of the ASME Congress

November 14-19, 1999

Opryland Hotel
Nashville TN

November 5-10, 2000

Walt Disney World Dolphin
Orlando FL

November 11-16, 2001

New York Hilton & Sheraton
New York NY

November 17-22, 2002

New Orleans Hilton &
Ernest Morial Convention
Center
New Orleans LA

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