



## Noise Control and Acoustics Division Newsletter

Gary H. Koopmann, Editor

May 1994

### Incoming Chair's Remarks —

The Noise Control and Acoustics Division has enjoyed another very productive and successful year.



Richard F. Keltie

Through the efforts of the Executive Committee and the dedicated Technical Committees, the 1993 Winter

Annual Meeting program consisted of twenty well-attended sessions continuing over 70 technical presentations. There were numerous multi-divisional symposia that served to expand the traditional scope of NCAD, our first student paper competition, and of course the always-popular Rayleigh Lecture followed by the wine and cheese social. Outstanding contributions to the advancement of acoustics were recognized in the award of the Per Bruel Gold Medal during the ASME Honors Banquet. This dynamic level activity within the division serves as both an inspiration and a challenge for the coming year.

In 1994, the name of the annual ASME technical meeting will be changed from the familiar Winter Annual Meeting to the International Mechanical Engineering Congress and Exposition (IMECE). This change reflects the ever-expanding scope and scale of activities in mechanical engineering, and the growing international flavor of the Society. The typical three-day

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### WAM '93 Rayleigh Lecturer, David Crighton Receives Per Bruel Gold Medal

David G. Crighton, Head of the Department of Applied Mathematics and Theoretical Physics at the University of Cambridge in England received the Per Bruel Gold Medal for his pioneering contributions in acoustics, particularly for his seminal work in structural acoustics and his exact solutions for nonlinear focusing of sound. Dr. Crighton has headed the University of Cambridge's department of applied mathematics and theoretical physics since 1991. The department, comprised of 42 faculty members, more than 100 research assistants and associates, and more than 100 Ph.D. students, is involved in a wide range of applied mathematics and theoretical physics research. This work ranges from underwater acoustics through large-scale atmospheric and oceanic dynamics to high-energy particle physics, cosmology, and general relativity. He earned a B.A. in 1964 and M.A. in 1980 from the University of Cambridge, a Ph.D. in aerodynamic sound generation from the University of London's Imperial College in 1969, and Sc.D. from the University of Cambridge in 1993. After completing his Ph.D. work, Dr. Crighton served as a research assistant at Imperial College where he worked on underwater acoustics and aeroacoustics. In 1974 he was appointed professor of applied mathematics and head of the department of applied mathematical studies at the University of Leeds, England. After twelve years at Leeds, Dr. Crighton assumed the professorship of applied mathematics at the University of Cambridge, where he is also a Fellow of the university's St. John's College. Dr. Crighton's own research is



NCAD Chairman, Bill Hanson, presents David Crighton with Per Bruel Medal

broadly based in wave theory, with particular emphasis on sound generation and propagation in gases and liquids, generation of aircraft noise by turbulence, unsteady flow and turbomachinery, and generation of underwater noise by turbulence and structural vibration. He has also worked extensively in the development of mathematical methods, unsteady aerodynamics, and unsteady fluid dynamics, including instability theory for jets, shear layers, and vortex flows. His research work has also focuses on nonlinear acoustics, particularly shock wave propagation over large distances subject to a variety of geometrical and dissipative effects, and the propagation of high-intensity sound in multi-phase media, including bubbly liquids, dusty gases, and fluidized beds. His work has been published in one book and more than 100 papers, and he has had extensive support through grants, including sustained support from the Office of Naval Research since 1977.

*(Cont'd on pg. 3)*

# TECHNICAL COMMITTEE NEWS

## Flow-Induced Noise and Vibration Technical Committee

— Thanks to active participation by the technical community, the Flow-Induced Noise and Vibration Technical Committee has been very active. At WAM '93 the Committee co-sponsored two symposia with the Fluids Engineering Division (FED). Both Symposia were very well received. Dr. R. Arndt was the Division organizer for the 4th International Symposium on Cavitation Noise and Erosion in Fluid Systems. This was truly an International Symposium with more than half of the 15 contributed papers being from outside the U.S. Dr. T. Farabee was the Division organizer for the Symposium on Flow Noise Modeling, Measurement, and Control. This Symposium consisted of 20 papers and also attracted international interest with three papers from France. As a result of the excellent participation and interest in these Symposia it is planned that they will be offered again at a future WAM. The organizers wish to express their thanks and gratitude to the session chairs and to the many paper reviewers who are in part responsible for the excellent quality of the papers. The proceedings of each Symposium is available from ASME as a bound volume. For WAM '94, the committee is participating in the multi-divisional Symposium on Active Control of Vibration and Noise by sponsoring a topic on Active/Passive Control of Flow-Induced Noise and Vibration which will consist of approximately 15 papers. From the abstracts received to date the Symposium should offer an excellent collection of papers. The plans developed during the WAM '93 Committee meeting are to sponsor two Symposia at WAM '95 and one at WAM '96. For WAM '95 the Committee will again sponsor the Symposium on Flow Noise Modeling, Measurement, and Control, which will be sponsored jointly with FED, and to participate in sponsoring a Symposium on Turbomachinery Noise. Dr. T. Farabee will be the Division organizer for the former Symposium and Dr. R. Marboe will be organizer for the latter Symposium. In WAM '96 it is planned that the Committee will participate in the (multi-society) International Symposium on Flow-Induced Vibration

and Noise by sponsoring a topic in Bubble/Two-Phase Flow Acoustics. As always, we fully encourage and solicit the participation in Committee activities by the technical community. If you have any questions or suggestions please be sure to contact the Committee Chairman: Dr. Theodore M. Farabee, Naval Surface Warfare Center, Carderock Division, Code 725, Bethesda, MD 20084-5000. Tel: (301) 227-1731, Fax: (301) 227-4405, or email: Farabee@OASYS.dt.navy.mil.

*Ted Farabee*

## Instrumentation and Signal Processing Technical Committee

— The Instrumentation and Signal Processing Technical Committee sponsored a session on New Developments in Instrumentation and Measurement Techniques at the 1993 Winter Annual Meeting held in New Orleans. Four excellent presentations were made that covered topics ranging from miniature acoustic and vibration sensors three-dimensional laser vibrometry. The organizers thank the authors, paper reviewers, and attendees for making this session a success. Plans were made at the technical committee meeting held during WAM '93 for two sessions in the 1994 WAM in Chicago. One session, Novel Uses of Instrumentation, is being organized by Mardi Hastings and the other, Recent Developments in Signal Processing, by Dale Groutage. Two sessions are also planned for WAM '95. The technical committee will meet again during the 1994 WAM, November 6-11 in

Chicago. Anyone interested in submitting a paper for either of these sessions or becoming involved in the Instrumentation and Signal Processing Technical Committee should contact Mardi Hastings, The Ohio State University, Department of Mechanical Engineering, 206 West 18th Avenue, Columbus, OH 43210, Tel. (614) 292-2271, email: mhasting@magnus.acs.ohio-state.edu or Dale Groutage, Naval Surface Warfare Center, Detachment Puget Sound, Code 7101, Bremerton, WA 98314, Tel. (206) 476-5927, email: groutage@oasys.dt.navy.mil.

*Mardi Hastings*

## Materials Characterization

— The Materials Characterization Technical Committee was established to provide a forum for interaction between acousticians, material scientists and engineers who work in the area of dynamic characterization of materials and structures using acoustic and vibration techniques. The Committee members organized a highly successful international symposium on Dynamic Characterization of Advanced Materials at WAM '93. At its meeting during WAM '93, the Committee decided to organize an International Symposium on "Materials for Noise and Vibration Control". The technical committee will meet at WAM '94. If you are interested in joining the committee, please contact P.K. Raju, Auburn University, Department of Mechanical Engineering, 201 Ross Hall, Auburn University, Alabama 36849-5341, Tel. (205) 844-3301.

*P.K. Raju*



*Allan Pierce, Raymond Nagem, and Yan Achenbach enjoy NCAD social hour*

## Incoming Chair's Remarks

(Cont'd from pg. 1)

format for NCAD activities promises to produce a lively pace.

NCAD's planned activities for the '94 IMECE reflect our own efforts to expand our programs to include greater participation from industrial and international practitioners in acoustics. Included will be a tutorial on active control in acoustics. This will be conducted by Dr. Phil Nelson, from the Institute of Sound and Vibration Research in Southampton, England. This tutorial will be followed by a forum dealing with industrial applications of active control, and by a symposium on active control. Other planned symposia include one on Characterization of Materials for Noise and Vibration Control, and one on Acoustic Radiation and Propagation. Additional sessions are planned on high intensity acoustics, active control of flow noise, turbomachinery noise, instrumentation and signal processing, and friction noise. The division is pleased to announce that the 1994 Rayleigh Lecture will be delivered by Dr. C. Dan Mote, Jr. of the University of Berkeley. Dr. Mote is a member of the National Academy of Engineers, a past chairman of NCAD, and presently Vice Chancellor at the University of Berkeley. Be sure not to miss this highlight of the program.

In addition to the technical sessions and the exhibits, one of the most important activities of the IMECE takes place during the meetings of NCAD's Technical Committees and the General Committee. These meetings provide the opportunity for each of you to offer suggestions, volunteer for participation, and 'leave your mark' on NCAD. The meetings are scheduled between technical sessions so that as many people as possible may attend. The diverse topic areas that have been addressed during past WAM's are a direct result of the varied backgrounds and interests of the participants planning the technical program. You can contribute to this vitality and to the continued growth of the division by getting involved.

The division owes a debt of gratitude to the outgoing chairman, Dr. Bill Hanson. Bill provided outstanding leadership and service to NCAD during his five years on the Executive Committee, having served two separate terms as chairman. Under his guidance, several of the Technical Committees were revitalized with new chairmen

and more focused activities. Bill will continue to contribute to NCAD as chairman of the Industrial Acoustics Technical Committee. Replacing Bill on the Executive Committee is Dr. Ted Farabee, of the Naval Surface Warfare Center, Carderock Division. Ted has served for several years as the chairman of the Flow Induced Vibration and Noise Technical Committee. This has been one of the more active committees in recent years, and we welcome Ted's experience and new ideas. Continuing members of the Executive Committee include: Adnan Akay, who will be vice chairman this year, Bill Swim, who will continue his dedicated service as secretary/treasurer, P.K. Raju, whose energy and organizational skills will be essential as the 1995 IMECE program chairman; Gary Koopmann, who continues in the very important role of associate editor and newsletter editor; and Andy Seybert, who is selflessly serving as the 1994 IMECE program Chairman. In addition to this dedicated group, the Technical Committee chairs are also contributing their energies and creativity in providing the technical leadership that keeps the division so active and forward-looking.

Our record of activity and success, together with this group of dedicated individuals, serves as a springboard to propel our division into the future. Issues that we will focus on this year include our continuing goal to increase our primary membership in ASME. This is being pursued by recruiting student members and by reaching out to the industrial sector. Efforts are underway to develop linkages between student activity in NCAD and eventual professional placement and practice. Technology transfer and relevant information exchange are seen as important components in fostering industrial interaction. Bill Hanson initiated meetings with companion societies such as ASA and INCE to enhance communication and lead to mutually beneficial activities. These will also be continued.

It is with a real sense of excitement and anticipation that we begin another year. There are numerous opportunities to capitalize on our existing strengths, and also to develop new initiatives, that will allow us to more effectively interact with the technical communities regarding issues in noise control and acoustics.

## Crighton Receives Per Bruel

(Cont'd from pg. 1)

Currently the president of EUROMECH, the European Mechanics Society, he has served as chairman of numerous European and British committees and panels. He has also served on the committees of several United States-based societies including the American Institute of Aeronautics and Astronautics (AIAA), the Acoustical Society of America (ASA), and ASME.

A member of the ASME's technical committee on flow-induced sound and structural vibration in the early 1980s, Dr. Crighton has participated in several Society meetings, earning a best paper award at the 1985 Winter Annual Meeting.

His editorial work includes associate editorship of the Journal of Fluid Mechanics since 1979 and membership of the editorial boards of the Journal of Sound and Vibration, Wave Motion, European Journal of Applied Mathematics, Journal of Computational Acoustics, and Applied Mathematics Letters. In 1990 he was one of the founding editor of the new American Institute of Physics publication, *Chaos: An Interdisciplinary Journal of Nonlinear Science*. In January 1994 he will take over the duties of editor of the *Proceedings of the Royal Society of London* (Mathematical and Physical Sciences).

Dr. Crighton received the Institute of Acoustics Rayleigh Medal in 1988 and the AIAA's Aeroacoustics Award and Medal in 1986. He is a Fellow of the Institute of Mathematics and its Applications, the Royal Aeronautical Society, Institute of Acoustics, and ASA, and a member of the AIAA. In March 1993 he was elected to Fellowship of the Royal Society, Britain's highest recognition in science.

### Mote to Give Rayleigh Lecture at 94 IMECE

NCAD is pleased to announce that C. Dan Mote, Jr. will give the Rayleigh Lecture at the 1994 International Mechanical Engineering Congress and Exposition in Chicago, IL. The lecture titled, "Surprises in Axially Moving Material Dynamics", will be given on Thursday, November 10, from 3:45 to 5:15 p.m.

## Outgoing Chair's Remarks —

*B. Hanson*

As I complete my fifth year on the NCAD Executive Committee and second term as Chairman, I reflect back on our division's accomplishments. Our division has grown substantially. Presently, our primary membership exceeds 600. This is encouraging for a young division such as ours and indicates that we are servicing our members well by providing a forum for information exchange and professional development. We are not only retaining existing members but recruiting new members as well. Our technical committees have changed considerably over the past five years to address the needs of our members and the emerging areas of technology in our field. We have had numerous noteworthy presentations and forums as well as distinguished Rayleigh Lecturers such as David Crighton, David Feit, and Allan Pierce. Last year the Calvin Rice lecture was presented by J.E. Ffowcs Williams.

We continue to attract knowledgeable and dedicated technical committee chairmen who recruit outstanding participants for our technical sessions at the Winter Annual Meetings. This year is no exception. Our plans for the 1994 International Mechanical Engineering Congress & Exposition has an interesting combination of symposia, technical sessions, and forums with two special sessions: one on Characterization of Materials, and the other a Workshop on Active Control. This workshop will include a tutorial on the subject to educate and inform mechanical engineers from the industrial sector, allowing them to apply this emerging technology. Following the

*(Cont'd. on pg. 6)*



*Outgoing Chairman, Bill Hanson, chats with Mardi Hastings*

# WAM '93 in Review

## International Symposium on Dynamic Characterization of Advanced Materials

This symposium was held as part of the 114th ASME Winter Annual Meeting held in New Orleans, LA, during the period November 28 through December 3, 1993. The symposium was sponsored by the Noise Control and Acoustics Division, and the Applied Mechanics Division. The symposium was organized by Ronald F. Gibson of Wayne State University and P.K. Raju of Auburn University. The scope of the international symposium consisted of twenty four papers from different authors from five countries presented in seven sessions organized over three days. The papers presented at the symposium were edited into a volume (ASME-NCA Vol. 16 and AMD Vol. 172) by P.K. Raju and Ronald F. Gibson. The symposium was well attended and generated a lot of interest in the research community. The symposium was inaugurated by William Hanson, Chairman of the Noise Control and Acoustics Division of ASME. The highlights of the symposium are the results presented on the application of vibroacoustic techniques for dynamic characterization and process monitoring of advanced materials. Ronald Gibson, Raju Mantena, D.A. Saravanos, Donald Blacketter, Roger Crane, Mohan Roa, E.O. Ayorinde, and their colleagues provided very interesting papers on vibration damping studies of advanced composites. Vikram Kinra, Krishnan Balasubramaniam, J.Qu, Vinay Dayal and their colleagues presented interesting papers on ultrasonic characterization of advanced materials. P.K. Raju, H.L. Chen, U.K. Vaidya and their colleagues discussed acoustic emission studies relating to processing and characterization of advanced materials and structures like concrete bridges. Robert Green contributed a paper which reviews various acoustical technologies for dynamic characterization of advanced materials. Overall this symposium was very well organized with quality papers and interesting sessions. A copy of the proceedings can be obtained from ASME, 345 East 47th Street, United Engineering Center, New York, NY 10017

*P.K. Raju*

## Best Paper Recognition

The Noise Control and Acoustics Division wishes to recognize papers of particular significance and value which were presented at the 1993 Winter Annual Meeting in New Orleans. The Division's "Best Paper Award" will be given to the authors at the Wine and Cheese Party during WAM '94. For this purpose, the WAM '93 session chairpersons are requested to send a copy of a paper which they consider to be of exceptional quality to: Maurice Sevik, 7817 Horseshoe Lane, Potomac, MD 20854. A copy of the reviewers' comments should also be included. Your cooperation is greatly appreciated.

*M. Sevik*

## 1993 Noise Control and Acoustics Division Student Paper Competition

Four papers were selected for final competition in the first student paper contest sponsored by the Noise Control and Acoustics Division (NCAD). One session was held during the 1993 WAM in New Orleans for these undergraduate and masters' level papers. All papers and presentations were excellent. The students did a very professional job presenting their work and answering questions. The competition was judged by a panel composed of NCAD Executive Committee and Technical Committee members. Cash awards and certificates were given for the first and second place papers. The participants — Woo Sung Kim, Matthew Ryan, Matthew van Ruiten, and Zhaoxi Wang — were recognized at the NCAD Wine and Cheese Reception at which the awards were announced. The first place award went to Matthew W. Ryan from Purdue University, for his paper entitled "Control of an Adaptive Passive Vibration Absorber", advisors Dr. Matthew Francheck and Dr. Robert Bernhard. Second place was awarded to Zhaoxi Wang from Wayne State University for his paper entitled "Acoustic Radiation from a Moving, Nonuniformly Vibrating Cylinder with Two Spherical Endcaps", advisor Dr. Sean Wu. Congratulations to all who participated.

*Mardi Hastings*

# A Glimpse at the 1994 International Mechanical Engineering Congress and Exposition

## Highlights of Upcoming Events

The Noise Control and Acoustics Division will sponsor 23 sessions on acoustics and related topics at the upcoming ASME International Mechanical Engineering Congress in Chicago. Over 100 papers will be presented on such topics as acoustic irradiation and propagation, high intensity acoustics, active control of flow noise, industrial acoustics, instrumentation and signal processing, turbomachinery noise, and structural acoustics. There will also be a symposium on active control and several sessions on characterization of materials for noise and vibration control.

Also planned is a forum *Industrial Applications of Active Noise Control*. The keynote speaker for the forum will be Dr. Phil Nelson of the University of Southampton, England. Dr. Nelson is known worldwide for his work in active noise and vibration control. The forum will also include presentations by engineers from industry who have applied active noise control.

In addition to the technical papers program, there will be a student paper competition, the *Rayleigh Lecture* by a noted contributor to the field of acoustics and noise control, and a wine and cheese reception.

For more information on the IMECE, please contact the IMECE Program Chair, Andy Seybert, at (606) 257-2809, fax (606) 257-3304, email: [seybert@engr.uky.edu](mailto:seybert@engr.uky.edu).

### International Symposium on Materials for Noise and Vibration Control

An International Symposium on Materials for Noise and Vibration Control will be held at the 1994 International Mechanical Engineering Congress and Exposition (IMECE). The symposium is sponsored by the Noise Control and Acoustics Division, the Design Engineering Division, the Applied Mechanics Division and the Materials Division. Topics include, but not restricted to, fundamental research and

dynamic characterization of materials used in different noise and vibration control applications. Some of the topics of interest are dynamic properties, including damping, constitutive modeling, analysis and testing, dynamic characterization, applications, newer materials such as composites. For more information about this symposium contact P.K. Raju, Auburn University, Department of Mechanical Engineering, 202 Ross Hall, Auburn, AL 36849-5341, Tel. (205) 844-3301, fax (205)844-3307, email:

[PKRAJU@eng.auburn.edu](mailto:PKRAJU@eng.auburn.edu) or Ronald Gibson, Wayne State University, Department of Mechanical Engineering, Detroit, MI 48202, Tel. (313) 577-3702, fax (313) 577-3881, email: [ronaldgibson@eng.wayne.edu](mailto:ronaldgibson@eng.wayne.edu).

### Student Paper Competition Planned for 1994

The Noise Control and Acoustics Division has established a student paper competition to promote participation of undergraduate and graduate students in ASME and the Winter Annual Meeting, to encourage student interest in noise control and acoustics, and to recognize outstanding student research. The competition is held annually with presentations being made in a special session at the meeting. Undergraduate or masters' level graduate

students are eligible to submit an original paper pertaining to any area of noise control and acoustics. The student must be the first author and make the presentation. Accepted papers are peer reviewed and published in pamphlet form for the Winter Annual Meeting. Papers are judged on technical content and significance, organization and clarity in both written and oral presentation, and the ability of the author to respond to questions from the audience. All participants will be recognized at the NCAD's Wine and Cheese Reception and presented with an ASME certificate. First and second place winners will receive special recognition with a cash prize from the Noise Control and Acoustics Division. For further information, contact Professor Mardi Hastings, The Ohio State University, Department of Mechanical Engineering, 206 West 18th Avenue, Columbus, OH 43210 (614) 292-2271, email: [mhasting@magnus.acs.ohio-state.edu](mailto:mhasting@magnus.acs.ohio-state.edu).

### Workshop on Applications of Active Noise Control Technologies Being Offered

The aim of this unique workshop is to provide a forum for manufacturers of active noise control equipment and users of active noise control technologies to discuss the current status, issues and future directions that are needed in this area. The workshop will enable the users (both industrial and academic professionals) to meet with the manufacturers and also assess new products. The manufacturers will have an opportunity to showcase their products and interact with users. The workshop will be initiated with a presentation on the principles and applications of active noise control by Professor P.A. Nelson of the Institute of Sound and Vibration Research from the University of Southampton, England. Professor Nelson is an internationally recognized leader in the field and will be moderated by the

### WAM Name Change

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workshop directors.

All manufacturers of active noise control equipment are invited to attend and participate. Selected participants will be provided a slot in the program to make a technical presentation and demonstrate their equipment. Users of active noise control technologies are invited to participate in the workshop. All selected participants will be provided a slot in the program to make a presentation.

For more information, please contact Professor P.K. Raju, Auburn University, Department of Mechanical Engineering, 202 Ross Hall, Auburn, AL 36849-5341, Tel. (205) 844-3301, fax (205)844-3307, email: PKRAJU@eng.auburn.edu or Professor Andrew Seybert, University of Kentucky, 521 CRMS Building, Department of Mechanical Engineering, Lexington, KY 40506-0108, Tel. (606) 257-2662, fax (606) 257-3304, email: seybert@engr.uky.edu.

### Items to Note

ASHRAE: NC curves will be dropped from the Systems Handbook in favor of RC Technical Committee 2.6 voted to maintain one metric for room noise from HVAC systems.

ASME: PTC 36 Measurement of Industrial Noise is undergoing a review and revision.

## Outgoing Chair's Remarks

(Cont'd from pg. 4)

tutorial will be a sequence of technical sessions which will focus on industrial and commercial applications of Active Noise Control. The forum format will allow participants to share their experiences and present this information without submitting a formal ASME peer-review paper. Our goal is to bring the research of academic, industrial, military and commercial sectors together to share their knowledge and experience with active control technology. Participation in the Noise Control and Acoustics Division has been a rewarding experience. The members of the Executive Committee and Technical Committee chairs have been a pleasure to work with and their commitment to this Division has resulted in successful and dynamic meetings. These meetings require a great deal of coordination and cooperation between the Executive Committee, the Technical Committee chairs, and ASME Headquarters. We have had many dedicated chairpersons who deserve recognition for this work and presently, we have an outstanding blend of seasoned and new chairmen who will continue to develop interesting and informative sessions for our Division.

It has been my pleasure to work with this group of professionals, and I look forward to serving the Division in other roles in the future. I would encourage you to participate also to get the full benefit of ASME membership.

## Future Meetings

November 6-11, 1994  
Hyatt Regency Chicago  
Chicago, IL

November 12 - 17, 1995  
San Francisco Hilton  
San Francisco, CA

November 17 - 22, 1996  
Atlanta Hilton & Towers  
Atlanta, GA

November 16 - 21, 1997  
Loews Anatole  
Dallas, TX

November 15 - 20, 1998  
Anaheim Hilton & Towers  
Anaheim, CA

### NCAD Editor:

Gary H. Koopmann  
Penn State University  
157 Hammond Building  
University Park, PA 16802  
Tel: (814) 865-2761  
Fax: (814) 863-7222  
email: ghk@kirkof.psu.edu

### 1994 IMECE PROGRAM

#### Tuesday, November 8

NCA-1A	Workshop on Active Noise Control Technologies - Tutorial	3:45 - 5:15 pm
NCA-2	Workshop on Active Noise Control Technologies - Manufacturers	5:30 - 7:00 pm
NCA	Workshop on Active Noise Control Technologies - Users	7:15 - 8:45 pm

#### Wednesday, November 9

NCA-3	Active Control of Vibration and Noise: Acoustic Control I	9:30 - 11:00 am
NCA-4	Active Control of Vibration and Noise: Acoustic Control II	11:15-12:45 pm
NCA-5	Active Control of Vibration and Noise: Flow Induced Problems I	2:00 - 3:30 pm
NCA-6A	Active Control of Vibration and Noise: Flow Induced Problems II	3:45 - 5:15 pm
NCA-6B	Novel Uses of Instrumentation	3:45 - 5:15 pm

#### Thursday, November 10

NCA-7A	Active Control of Noise and Vibration: Flow Induced Problems III	7:45 - 9:15 am
NCA-8B	Acoustic Radiation and Wave Propagation I	9:30 - 11:00 am
NCA-10A	Acoustic Radiation and Wave Propagation II	2:00 - 3:30 pm
NCA-10B	Recent Developments in Signal Processing	2:00 - 3:30 pm
NCA-11	Rayleigh Lecture - "Surprises in Axially Moving Material Dynamics", C. D. Mote, Jr.	3:45 - 5:15 pm

#### Friday, November 11

NCA-12A	General Acoustics I	7:45 - 9:15 am
NCA-13	Acoustic Radiation and Wave Propagation III	9:30 - 11:00 am
NCA-16A	General Acoustics II	11:15 - 12:45 pm
NCA-16B	Acoustic Radiation and Wave Propagation IV	11:15 - 12:45 pm

### NOISE CONTROL AND ACOUSTICS DIVISION

Executive Committee Membership (5-year terms)

Year	Chairman	Vice Chairman	Secretary Treasurer	Program Chair	Associate Editor	Member	Member
88-89	Akay	Koopmann	Eversman			Hansen	Dear
89-90	Koopmann	Eversman	Hanson			Hansen	Dear
90-91	Eversman	Hanson	Keltie			Hansen	Pate
91-92*	Hanson	Eversman	Swim	Hsu	Keltie	Hanson	Akay
92-93	Eversman	Hanson	Swim	Hsu/Keltie	Koopmann	Keltie	Akay
93-94	Hanson	Keltie	Swim	Seybert	Koopmann	Akay	Raju
94-95	Keltie	Akay	Swim	Raju	Koopmann	Seybert	Farabee

\*Executive Committee expanded to seven members, including program chair and associate editor

## NCAD IMECE TECHNICAL PAPER ORGANIZATION

	NOVEMBER WAM	JAN	MAR	MAY	JULY	AUGUST	NOVEMBER IMECE
NCAD PROG CHAIRMAN	Sets next year's technical session agenda	Sends out Call for Papers identifying sessions and session chmn	Coordinates Technical Chairs	—————→		Sends complete program schedule to publications	Coordinates NCAD IMECE Sessions
SESSION CHAIRMAN	Solicits papers for session		Accepts abstract and requests paper	Sends papers along with suggested reviewers to IMECE Assoc. Editor	Advises prog chair of accepted papers	Sends session papers to ASME Technical Publications	Chairs Tech. Session
AUTHOR	↓		Submits abstract to session chair by March 1	Submits paper (4 copies) to session chair by May 1		Sends camera ready copy of paper by Aug 1 to session chair	Presents paper
REVIEWER				Reviews paper (WAM format)			
HONORS CHAIRMAN					Distributes honors papers to committee		Presents best paper award
ASME PUBLICATIONS		↓				Prints pamphlet paper	IMECE papers available
IMECE PAPER ASSOC. EDITOR				Sends paper for review	Advises author of reviews; sends forms 1287 & 1903	Advises session chmn of disposition of paper	Forwards honors papers to Hnrs Chmn

## JVA PUBLICATION PROCEDURE

MONTH	1	2	3	4	5	6	7	8	9
AUTHOR	Submits 5 copies of paper to editor				Sends final copy to Assoc. Editor		Proofreads and returns typeset paper to Journal		Receives copies of printed paper (if ordered) or billed for extra pages
EDITOR	Assign paper no. and forwards to Associate Editor				Sends final paper to ASME pubs	Sends author copyright form			
ASSOCIATE EDITOR	Sends paper for review			Advises author of review status	Sends final copy to Editor	Sends honors papers to Hnrs Chmn			
REVIEWER	↓		Accepts, rejects, or conditionally accepts paper						
HONORS CHAIRMAN					Distributes copies of paper to committee				
ASME PUBL						Typesets paper; sends proofs to author			Prints paper in next volume of JVA

# NCAD ORGANIZATION 1994-95

