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Noise Control and Acoustics Division Newsletter

Gary H. Koopmann, Editor

Fall 1995



Adan Akay

NCAD Continues to Flourish

The Noise Control & Acoustics Division continues to flourish in its accomplishments. Members are as enthusiastic and energetic as ever. As seen in the past several years, new areas of acoustics are being explored for exposition through the sessions in the IMECE - former WAM. New student sessions are now organized to encourage participation of tomorrow's engineers and scientists who will specialize in acoustics and noise control. Of course, the two established institutions within NCAD and ASME are the Per Brüel Gold Medal and the Annual Rayleigh Lecture.

It is with great pleasure that we announce Professor Allan Pierce to be the 1995 recipient of the Per Brüel Gold Medal. His contributions span over many of the fundamental issues of acoustics in such diverse areas as

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Eric E. Ungar Receives Per Brüel Gold Medal for Noise and Acoustics

The Per Brüel Gold Medal For Noise Control and Acoustics was established in honor of Dr. Per Brüel 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.

ERIC E. UNGAR, Eng. Sc.D., chief consulting engineer, BBN Systems and Technologies, Cambridge, Massachusetts, for *fundamental contributions to noise and vibration control engineering involving structural damping, vibration isolation, and vibrations of complex structures, as applied to aerospace vehicles, ships, machinery, and buildings.*

Dr. Ungar received his B.S. in mechanical engineering from Washington University, St. Louis, Missouri, in 1951. Upon completion of his undergraduate studies, which had been interrupted by three years of service in the U.S. Army, Dr. Ungar joined the staff of Sandia Corporation in Albuquerque, New Mexico, as an aero-ordnance engineer. There he



participated in the development of second-generation atomic weapons while also attending evening courses at the Univer-

sity of New Mexico, from which he received his M.S. in mechanical engineering.

In 1953 he accepted a full-time position on the mechanical engineering faculty of New York University. While pursuing a doctorate in mechanical engineering and applied mechanics, he taught courses on machine design, kinematics, dynamics of machinery, mechanical vibrations, thermodynamics, and internal combustion engines.

After receiving his Eng. Sc.D. in 1957, Dr. Ungar remained on the faculty at New York University and continued teaching and research until he joined the staff of Bolt, Beranek and Newman, Inc. (BBN) in 1958. There he carried out and supervised numerous research and consulting projects relating to the control of

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TECHNICAL COMMITTEE NEWS

Instrumentation and Signal Processing Technical Committee

The Instrumentation and Signal Processing Technical Committee sponsored two sessions at the 1994 Congress held in Chicago. The first session, Novel Uses of Instrumentation, included a very interesting paper by M. A. Staiano that described a method to correct sound level measurements with background noise. In the second session, Recent Developments in Signal Processing, a paper entitled "Analysis of Resonant

Structures Using Advanced Time-Frequency signal processing to acoustic scattering from two resonant structures in close proximity to each other. This technique allows identification of the modes associated with each structure from time series data and has applications in many areas of acoustics and vibrations.

Sessions for the upcoming 1995 Congress in San Francisco include High Intensity/High Frequency Calibration, Optical Sensors for Acoustics and Vibration Measurements, and Control of Noise and

Vibration in Automotive Structures. A technical committee meeting will be held from 12:45 to 2:00 p.m. on Monday, November 13, 1995, at the San Francisco Hilton to plan activities for future ASME meetings. Anyone interested in becoming involved with the Instrumentation and Signal Processing Technical Committee should contact Mardi C. Hastings, The Ohio State University, Department of Mechanical Engineering, 206 West 18th Avenue, Columbus, OH 43210 (phone 614-292-2271 or e-mail Hastings.6@osu.edu).

A Preview of the 1996 International Mechanical Engineering Congress and Exposition

Student Paper Competition Planned for 1996 Congress

The Noise Control and Acoustics Division will sponsor its third annual student paper competition for undergraduate and masters level students at the 1996 International Mechanical Engineering Congress and Exposition to be held in Atlanta. Currently enrolled students or those that have completed their degrees within the 12 months preceding the Congress 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 at the Congress. Papers will be reviewed and publicized in pamphlet form.

Papers will be 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 cash prizes of \$200 and \$100, respectively from the Noise Control and Acoustics Division.

This year student authors should submit a one page abstract no later than January 15, 1996, to Professor Mardi C. Hastings, The Ohio State University, Department of Mechanical Engineering, 206 West 18th Avenue, Columbus, OH 43210. Three copies of the paper are due by March 15, 1996. Authors will be given final acceptance by June 15, 1996, and final manuscripts in proper ASME format are due to Professor Hastings by July 15, 1996.

Instrumentation and Signal Processing Committee Plans Sessions for 1996 Congress

Three sessions are being organized for the 1996 Congress in Atlanta. Two sessions on MEMS

Acoustics and Vibration Sensors will highlight recent developments in this area. Another session will be devoted to High Intensity/High Frequency Transducer Design. Authors should submit a one page abstract no later than January 15, 1996 to Professor Mardi C. Hastings, The Ohio State University, Department of Mechanical Engineering, 206 West 18th Avenue, Columbus, OH 43210, or to Sameer Madanshetty, Boston University, College of Engineering, 110 Cummington Street, Boston, MA 02215. Draft manuscripts are due by March 15, 1996, and final papers in proper ASME format by July 15, 1996.

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Incoming Remarks

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atmospheric acoustics, aeroacoustics, nonlinear acoustics, underwater acoustics, noise, and physical acoustics. Professor Pierce has just been elected to become the newest member of the executive committee of the Division.

This year's Rayleigh Lecture will be given by Dr. Maurice Sevik who will speak on "Information extraction from the scattered acoustic field of waterborne structures." We look forward to the lecture which will be followed by the traditional Wine & Cheese Reception. Please plan to attend both of these events to meet with your colleagues.

The program of the division at IMECE '95 is rich with many topics ranging from material characterization to numerical techniques in acoustics. Division is planning on emphasizing "Systems Approaches to Noise and Vibration Control" as the central theme for the IMECE '96 sessions. Program Chairs for that meeting, Ted Farabee and Mardi Hastings, have undertaken the planning. One reason for the choice of the topic is to further emphasize the importance of considering noise and vibration problems in the context of the system of which they are apart.

This is the fifteenth year since the Noise Control and Acoustics Division was first officially recognized by ASME as a 'national group,' a term used then to designate new divisions to be. Since then the primary membership of the division has increased significantly, new events cited above have been established, and a home for its publications has been found in the new ASME J. Vibrations and Acoustics. The fields of acoustics and noise control have also gone through transitions, from one of which was driven to some extent by legislature and funding by federal agencies to one that is mostly market-driven. During the transition process, a deemphasis on acoustics and noise control was observed across the industries, associated with it was a reduction in participation and support of conferences by industries. The market-driven need for improvements has changed that; there are more participants and there is more research and development activity in acoustics and noise control now than in recent years. The role of acoustics has further spread to its uses other than controlling noise, although in many cases to more novel and sophisticated control techniques.

Our division is also responding to the changes by organizing sessions that are more relevant to the needs of industry and trying to recruit members from industry to participate and lead the technical committees and to influence the direction of the division. Another important contribution we can all make is to bring in our students and new engineers in our companies to the IMECE to participate in the activities of the division. They are the future members of industry or academe who will provide the requisite leadership in the future.

The new executive committee of the division for 1995-96 is fortunate to have P.K. Raju as the Vice Chair, Andy Seybert as the Secretary-Treasurer, Gary Koopmann is the Associate Editor, Bill Swim and Allan Pierce are General Members. Ted Farabee will act as the Program Chair with the assistance of Mardi Hastings.

Whether you are a member of ASME or not, you are invited to participate and communicate with any of the officers of the division to express your thoughts and suggestions. We hope to see you among us at the upcoming IMECE events.

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 Assoc Editor				Sends final paper to ASME pubs	Sends author copyright form			
ASSOC EDITOR	Sends paper for review			Advises author of review status	Sends final copy to Editor	Send honors papers to Chair			
REVIEWER			Accepts, rejects, or conditionally accepts paper						
HONORS CHAIR						Distributes copies of paper to committee			
ASME PUBL							Typesets paper; sends proofs to author		Prints paper in next volume of JVA

IMECE a Highlight Outgoing Chair's Remarks

Richard F. Keltie

It is customary for the outgoing chairman to reflect back upon the past year, and to give an assessment of the division. As I begin to think about this, I am struck by how quickly my five years on the Executive Committee have passed. At the same time, however, I recall the many events and accomplishments for which all participants should feel justifiably proud. The Noise Control and Acoustics Division continues to enjoy growth in its membership, and recent efforts to attract more members from industry are paying off. I am especially pleased to see the outstanding individuals who have stepped forward this past year to undertake roles of increasing leadership and responsibility within the division. The success and continued growth of NCAD depend on this cadre of dedicated professionals. The focus of the technical committees has continued to evolve this year in order that they may remain current and responsive to the needs of the mechanical engineering community.

The highlight event for the Noise Control and Acoustics Division during the past year was the 1994 International

Mechanical Engineering Congress and Exposition (IMECE) held in Chicago. The technical activities were begun with workshops on active noise and vibration control technologies. These included a tutorial presentation by Dr. Phil Nelson from the Institute of Sound and Vibration Research in Southampton, and additional sessions focused on active noise control from the perspective of manufacturers and also from users. These sessions were designed to maximize information flow to the audience, and were successful in attracting a large number of representatives from industry. A unique aspect of this event was that these workshops were jointly sponsored by ASME, the Acoustical Society of America, and the Institute of Noise Control Engineers.

The technical program included several other symposia addressing active control technologies applied to acoustic systems and to flow-induced phenomena. Symposia dedicated to materials for noise and vibration control and to acoustic radiation and wave propagation were also held. Our honors activities at the IMECE included the presentation of the Per Brüel Gold Medal for Noise Control and Acoustics to Dr. Eric E. Ungar. In addition, Dr. C. Dan Mote delivered the Rayleigh Lecture

on "Surprises in Axially Moving Material Dynamics".

The meeting planned for 1995 promises to be equally exciting and technically relevant, with emphasis in the areas of turbomachinery noise, materials characterization, instrumentation, internal combustion engine noise, inverse problems in acoustics, and active control. We also plan to continue the student paper competition so successfully initiated last year. Efforts are underway this year to streamline the paper submission and review processes, so that we may interact more efficiently with other technical divisions within ASME, and provide timely technical information to the meeting attendees.

I would like to thank the other members of the Executive Committee, the technical committee chairpersons, the session organizers, and the ASME staff members in New York for their cooperation, initiative, and dedicated support during the past year. It is certainly true that only through their combined efforts does the division enjoy its reputation for quality and technical excellence. It has been a distinct pleasure to work with each of you, and I look forward to continued participation in NCAD in the future.

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
95-96	Akay	Raju	Seybert	Farabee	Koopmann	Swim	Pierce

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

Future NCAD Meetings

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

1995 IMECE PROGRAM

Sunday, November 12

NCA-1A	Optical Sensors for Acoustics and Vibration Measurements	2:00 - 3:30 p.m.
NCA1B	General Topics	2:00 - 3:30 p.m.
NCA-2	High Intensity/High Frequency Calibration	3:45 - 5:15 p.m.

Monday, November 13

NCA-4	Dynamic Characterization	7:45 - 9:15 a.m.
NCA-5A	Processing Characterization of High Temperature Composites	9:30 - 11:00 a.m.
NCA-6A	New Characterization Techniques	11:15 - 12:45 p.m.
NCA-6B	Symposium on turbomachiner Noise - I	11:15 - 12:45 p.m.
NCA-7A	New Processing Techniques	2:00 - 3:30 p.m.
NCA-7B	Symposium on Turbomachiner Noise - II	2:00 - 3:30 p.m.
NCA-8A	Noise Control in Engines	3:45 - 5:15 p.m.
NCA-8B	Forum on Current Topics in Turbomachinery Noise	3:45 - 5:15 p.m.

Tuesday, November 14

NCA-9	Symposium on Target Identification and Inverse Problems in Acoustics - I	7:45 - 9:15 a.m.
NCA-10	Symposium on Target Identification and Inverse Problems in Acoustics - II	9:30 - 11:00 a.m.
NCA-11	BS/MS Student Paper Competition	11:15 - 12:45 p.m.
NCA-12	Control of Noise and Vibration in Automotive Structures	2:00 - 3:00 p.m.
NCA-13	Rayleigh Lecture - "Information Extraction from the Scattered Acoustic Field of Waterborne Structures", M. Sevik	3:45 - 5:15 p.m.
NCA-13B	Wine & Cheese Reception	5:30 - 7:00 p.m.

Wednesday, November 15

NCA-14	Fluid Structure Interaction	7:45 - 9:15 a.m.
NCA-15	Noise Modeling and Control	9:30 - 11:00 a.m.
NCA-16	Active Control - I: Synthesis & Processing of Intelligent Cost Effective Structures	11:15 - 12:45 p.m.
NCA-17	Active Control - II: Synthesis & Processing of Intelligent Cost Effective Structures	2:00 - 3:30 p.m.
NCA-18	Active Control - III	3:45 - 5:15 p.m.
NCA-19	Active Control - IV	6:45 - 8:15 p.m.

Ungar Receives Per Brüel

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vibration and noise in aerospace vehicles, ships, machinery, and buildings, gaining particular recognition for his contributions in the areas of structural damping, high-frequency vibration isolation, and analysis of high-frequency vibrations in complex structures.

After having served in a variety of positions at BBN, including head of the Applied Physics Department and assistant division director for special projects, Dr. Ungar became chief consulting engineer in BBN's Systems and Technologies Division.

In addition to his activities at BBN, he serves part-time as chief engineering scientist at Acentech

Incorporated, a Cambridge consulting firm specializing in architectural and environmental acoustics and vibrations. He presents seminars at various industrial organizations, and also teaches annual short courses at the Pennsylvania State University and the University of Dayton.

A Life Fellow of ASME, Dr. Ungar has been on numerous committees and has provided a wide variety of services to the Society. For his achievements, he was awarded the ASME Centennial medallion in 1981.

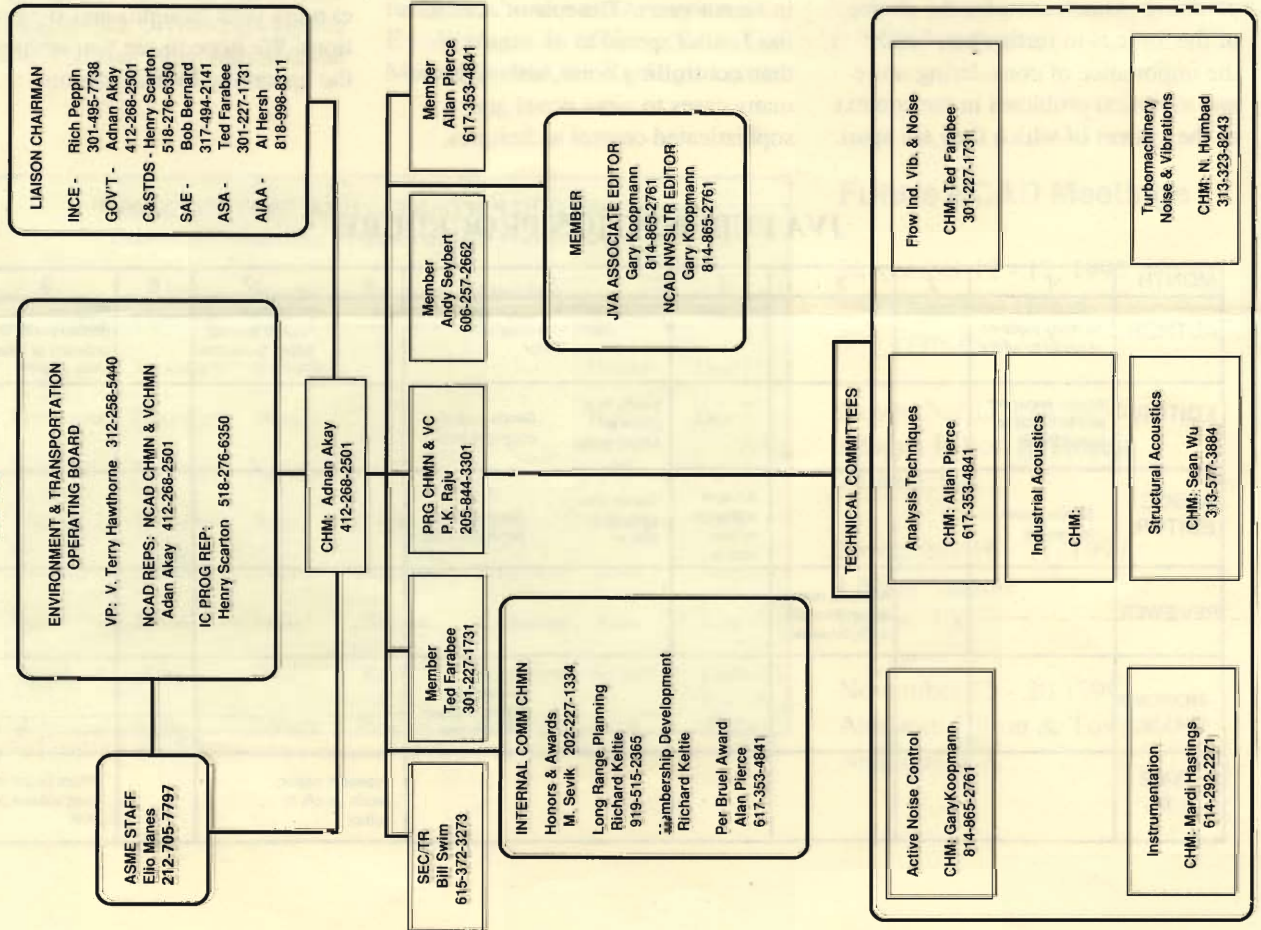
Dr. Ungar is a Fellow and past-president of the Acoustical Society of America, from which he received the 1983 Trent-Crede Silver Medal in Shock and Vibration. He is also a past-president of the Institute

for Noise Control Engineering, and an Associate Fellow of the American Institute of Aeronautics and Astronautics.

Sevik to Give Rayleigh Lecture at '95 IMECE

NCAD is pleased to announce that Maurice Sevik will give the Rayleigh Lecture at the 1995 International Mechanical Engineering Congress and Exposition in San Francisco. The lecture titled "*Information Extraction From the Scattered Field of Waterborne Structures*", will be Tuesday, November 14, 1995, beginning at 3:45 p.m.

NCAD ORGANIZATION
1994-95



NCAD IMECE TECHNICAL PAPER ORGANIZATION

	NOV (IMECE)	JAN	MARCH	MAY	JUNE	JULY	AUG	NOV @IMECE
NCAD PROGRAM CHAIR	Sets next year's technical session agenda	Sends out 'Call for Papers' identifying sessions and session chairs	Coordinates Technical Chairs	Solicits and forwards ASME forms 1337				Coordinates NCAD IMECE Sessions
SESSION CHAIR	Solicits papers for sessions	Accepts abstracts and requests papers (1/15/95)	Forwards two recommended reviewers for each paper to paper review chair	Complete ASME form M&F 1337	Advise Program Chair of accepted papers	Sends bound volume info to paper review chair forward; table of contents, title page, author list (with names and addresses)		Chairs technical sessions
AUTHOR		Submits abstract to session chair	Sends manuscript to Paper Review Chair for review (3/15/95)			Sends final mat to Paper Review Chair with completed forms; 1336 and 1903		Presents paper
REVIEWERS			Reviews manuscript per ASME format (complete ASME reviewer form 1257)					
HONORS CHAIR						Distribute honors papers for review		Presents 'Best Paper' award
ASME PUBL							Prints bound volumes & individual papers	IMECE papers available at meeting
PAPER REVIEW CHAIR			1) Sends papers out for review 2) Sends copy of paper to session chair		1) Send reviews to authors; send author kit and forms 2) Advise session organizer of paper status 3) Forward honors papers to hrs chair	Check for author completed forms; 1338 and 1903	Sends camera ready mats to ASME Tech Publ (completed form 1256 for unbound papers)	