

2010-2011 IMAC Advisory Board

CONFERENCE DIRECTOR

ALFRED L. WICKS



Dr. Wicks received his Ph.D. from Michigan Tech University. Dr. Wicks was a co-founder of Stress Technology Inc and Vibration Analysis Inc. Since joining the faculty of the Mechanical Engineering Department at Virginia Tech in 1986, Dr. Wicks has developed numerous techniques for applying scanning laser technology to dynamics measurements. He has taught numerous courses on signal processing, instrumentation, modal analysis and vibrations. Current funded research in unmanned systems involves sensing technologies, navigation strategies, and wireless communications

Using his expertise in signal processing and instrumentation, he was the co-leader the DARPA Grand Challenge team in 2004 from Virginia Tech through qualifying to the 5th position in Barstow. During the second Grand Challenge Dr. Wicks was the team leader for Team Rocky placing 9th with at Primm NV. In the Urban Challenge, the Virginia Tech team finished 3rd. He is also served the Technical Chairman of the International Modal Analysis Conference for the last 12 years.

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RAJ K. SINGHAL



Raj K. Singhal received his BSc in Mechanical Engineering (*with Honours*) from the Panjab University in India (1970), his MEng in Mechanical Engineering (*with Distinction*) from the Indian Institute of Science, Bangalore (1973), and his PhD in Mechanical Engineering from the University of Saskatchewan, Canada (1986), where his PhD research work was on *Vibrational Behaviour of Stators of Electrical Machines*. He has published in reputed journals and presented at international conferences numerous papers in these areas: static/dynamic analysis of structures including vibration of membranes, plates, and shells; modal analysis; system identification; experimental vibration and modal analysis; static load testing; mass properties measurements; and photogrammetric/non-contact measurements. Dr. Singhal is corecipient of 2002 Canadian Astronautics and Space Institute's A. J. Saber Award for Best paper on Astronautics or related topics "*Force Limited Vibration Testing Applied to the FTS Instrument of SCISAT-1*". He held the position of an Adjunct Research Professor in the Department of Mechanical and Aerospace Engineering, Carleton University, Ottawa for the period July 1993 to July 1996. He has been an Adjunct Professor, Department

of Mechanical Engineering, University of Ottawa since 1998. He has and still serves as Technical Committee Member and as Session Chair for several international conferences. Currently he is Manager, Structural Qualification Facilities (vibration, shock, modal, static load testing, mass properties, and photogrammetry measurements) at the Canadian Space Agency's David Florida Laboratory (DFL). The DFL is Canada's world-class facility for the assembly, integration, and environmental testing of space and non-aerospace hardware for both national and international companies and organizations.

FUTURE CONFERENCE COMMITTEE

FRANÇOIS M. HEMEZ



Dr. Hemez has been Technical Staff Member at Los Alamos National Laboratory since 1997. He was a member of the Weapon Response group for seven years; served as its Validation Methods team leader for one year; and is currently with X-Division. He manages the code verification project of the Advanced Scientific Computing program and contributes to the development and application of Verification and Validation (V&V), uncertainty quantification, and decision-making for engineering, nuclear energy, and weapon physics projects. Before joining Los Alamos, François Hemez was a research associate of the French National Center for Scientific Research (CNRS), working in the area of test-analysis correlation and finite element model updating. Dr. Hemez chaired the Society for Experimental Mechanics (SEM) technical division on model validation and uncertainty quantification from 2005-2009; has served on the advisory board of the SEM International Modal Analysis Conference since 2006; and served was on the SEM executive board from 2007-2009. He co-developed a short course on V&V and taught the first-ever V&V graduate course offered

in a U.S. University (University of California San Diego, spring 2006). François Hemez received the Junior Research Award of the European Association of Structural Dynamics (2005); and two U.S. Department of Energy Defense Program Awards of Excellence for applying V&V to programmatic work at Los Alamos (2006). Dr. Hemez has authored over 270 publications and reports (including 21 peer-reviewed papers) since 1994.

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FUTURE CONFERENCE COMMITTEE – *continued*

DANIEL J. INMAN



Daniel J. Inman received his Ph.D. from Michigan State University in Mechanical Engineering in 1980 and is the Director of the Center for Intelligent Material Systems and Structures and the G.R. Goodson Professor in the Department of Mechanical Engineering at Virginia Tech. Since 1980, he has published six books, eight software manuals, 20 book chapters, over 191 journal papers and 380 proceedings papers, given 34 keynote or plenary lectures, graduated 48 Ph.D. students and supervised more than 65 MS degrees. He is a Fellow of the American Academy of Mechanics (AAM), the American Society of Mechanical Engineers (ASME), the International Institute of Acoustics and Vibration (IIAV), and the American Institute of Aeronautics and Astronautics (AIAA). He is currently Technical Editor of the *Journal of Intelligent Material Systems and Structures* (1999-), Technical Editor of the *Shock and Vibration Digest* (1998-), and Technical Editor of the journal *Shock and Vibration* (1999-). He has served as Technical Editor of *ASME Journal of Vibration and Acoustics* (1990-1999), and as Associate Editor of the following: *ASME Journal of Vibration and Acoustics* (1986-89), *ASME Journal of Applied Mechanics* (1988-94), *Mechanics of Machines and Structures* (1986-98), *International Journal of Analytical and Experimental Modal Analysis* (1986-1990) and *Journal of Intelligent Material Systems and Structures* (1992-1999) and *Smart Materials and Structures* (1991-2001). He has been awarded the ASME Adaptive Structures Award in April 2000, the ASME/AIAA SDM Best Paper Award in April 2001, the SPIE Smart Structures and Materials Life Time Achievement Award in 2003, the ASME Best Paper in Adaptive Structures in 2007, the DeMichele Award in 2007 from SEM and the ASME Den Hartog Award in 2007.

DAVID J. EWINS



David Ewins has spent the past 50 years studying and measuring vibration in a range of application areas - mostly in aerospace, defence and other hi-tech industries (including the vibration isolation analysis if an interferometer at NPL in the 1970s). Having studied at Imperial College London and Cambridge University, he has been based at Imperial, throughout his career, and as Professor of Vibration Engineering since 1983, with periods as Visiting Professor overseas in the USA, France, Switzerland and Singapore. Following partial 'retirement' in 2005 (he still spends 1 day per week at Imperial), he now spends most of his time at Bristol University where he is Director of the £20M BLADE (Bristol Laboratory for Advanced Dynamics Engineering) laboratories and Director of the AgustaWestland UTC in Vibration Reduction.

His research has focused on two main areas – Modal Testing (and its applications) and Vibrations in Turbomachinery, in the latter case, working closely with Rolls-Royce since 1963. Current research priorities are (i) developing new test strategies to improve the effectiveness of vibration testing by an order of magnitude, including the development of new laser-based measurement techniques; (ii) properly accounting for the effects that structural joints have on the dynamics of engineering structures and (iii) incorporating robustness characteristics in dynamic analysis and design.

He founded the Dynamic Testing Agency in 1990 (now the Dynamics and Testing Working Group in NAFEMS), has published a textbook and many papers on Modal Testing, and a total of more than 300 papers on structural dynamics in general. He set up the first Rolls-Royce University Technology Centre (Vibration UTC) at Imperial College on 1990 and is currently setting up the new AgustaWestland UTC in Vibration Reduction at Bristol University. Between these two projects, as the first Temasek Professor in Singapore (at Nanyang Technological University), he set up the Centre for the Mechanics of Microsystems (CMMS) between 1999-2002.

He is a Fellow of the Royal Society and of the Royal Academy of Engineering.

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IMAC PROGRAM PLANNING COMMITTEE

JAMES P. DE CLERCK



Dr. James De Clerck is a Professor of Practice in the Mechanical Engineering – Engineering Mechanics Department at Michigan Technological University. He received his Ph.D. in Engineering Mechanics in 1991. Prior to joining Michigan Tech in 2009, Jim was a Project Design Engineer at the General Motors Noise and Vibration Center in Milford, Michigan. His areas of expertise include noise and vibration, structural dynamics, design, modal analysis, model validation, inverse methods applied to design, and advanced measurement techniques.

RANDALL J. ALLEMANG



Dr. Randall J. Allemang is a member of the faculty of the Mechanical Engineering Program, School of Dynamic Systems at the University of Cincinnati, where he currently also serves as Director of the Structural Dynamics Research Laboratory (UC-SDRL). He has been actively involved in the area of experimental modal analysis at the University of Cincinnati, Structural Dynamics Research Lab for over thirty-five years, pioneering the use of multiple input, multiple output estimation of frequency response functions, developing the concept of cyclic averaging, formulating the modal assurance criterion (MAC), the enhanced frequency response function and reformulating modal parameter estimation algorithms into the unified matrix (coefficient) polynomial approach (UMPA). During this period, Dr. Allemang has authored or co-authored over 140 technical articles, including chapters for 2 different handbooks and numerous refereed articles. Dr. Allemang has participated in over 50 invited seminars or lectures in the United States as well as in Taiwan, Japan, Korea (NSF), India (NSF), Belgium, Germany and France, including being asked to give the keynote address at both the Leuven International Seminar on Modal Analysis (1990) and the 11th International Modal Analysis Conference (1993). Dr. Allemang continues to serve on the IMAC Advisory Board (Chairman, 1986-1995), is serving on the Editorial Board of Sound and Vibration Magazine, and has served as the Associate Technical Editor for Mechanical Systems and Signal Processing (MSSP) and Editor for the International Journal of Analytical and Experimental Modal Analysis (IJAEMA). He currently serves on the International Advisory Board for Experimental Mechanics.

Dr. Allemang also served as President for the Society of Experimental Mechanics (SEM), 2003-2004, and on the Executive Board of SEM from 1998-2006. He is very active in teaching in the areas of experimental methods, vibrations and automotive design and serves as Faculty Advisor to a number of student groups at UC including the Formula SAE Team (Bearcat MotorSports), Engineering Tribunal, Tau Beta Pi and Pi Tau Sigma.

PETER AVITABILE



Dr. Peter Avitabile is Director of the Modal Analysis and Controls Laboratory and Assistant Professor in Mechanical Engineering at the University of Massachusetts Lowell. He has a BS, MS and Doctorate in Mechanical Engineering from Manhattan College, URI, UMASS, respectively. He has over 25 years of experience in design and analysis using FEM and experimental modal analysis techniques. His main area of research is structural dynamics specializing in modeling, testing and correlation of analytical and experimental models. Pete has contributed many technical papers and articles including his "Modal Space" article series in Experimental Techniques.

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EXHIBITOR PLANNING COMMITTEE

EVRO T. WEE SIT



Mr. Wee Sit is the founder and managing editor of SVcommunity.com, a website dedicated to the sound and vibration community. He is also the founder and president of Sage Technologies which markets sound and vibration instruments. Mr. Wee Sit began his career in 1985 as a test engineer for General Motors specializing in powertrain noise and vibration. He then joined Bruel & Kjaer as a field applications engineer and later started an independent engineering consultancy. He is a frequent seminar instructor on the subjects of acoustics, vibration, modal analysis, instrumentation, and signal processing. Mr. Wee Sit holds a BSME/EE from General Motors Institute (now Kettering University). He contributes a perspective from industry based on his engineering and marketing experience.

DAVID L. HUNT



Mr. Hunt's technical background includes many years in the application of experimental methods to modal testing. He has authored numerous technical papers on the subject and continues to serve on the Advisory Board for the International Modal Analysis Conferences. Dave began his career at SDRC in 1972 and joined the San Diego office in 1976. He served SDRC in a number of technical and business capacities, and together with Ralph Brillhart, helped establish the SDRC ATA group as the leader in the modal test community. Since 1993, Dave held the position of Aerospace Business Manager. His primary role at ATA is Vice President for Business Development. His responsibilities include client relationships, proposals, contracts, as well as technical consulting to ATA modal testing projects.

Mr. Hunt obtained his B.S. in Engineering Analysis/Mechanical from the University of Cincinnati in 1976.

MARK H. RICHARDSON



Mark Richardson received his Ph.D. in Mechanical Engineering from the University of Notre Dame in 1970. In 1973, he joined Hewlett Packard Co., Santa Clara, CA. where he directed the development of the first commercially available FFT-based modal testing system. Later, he directed the development of the first dedicated modal testing instrument, the HP 5423A Structural Dynamics Analyzer.

In 1979, he co-founded Structural Measurement Systems, Inc. (SMS) and was President and CEO until it was sold to GenRad in 1989. In 1991, he co-founded Vibrant Technology, Inc., a supplier of structural testing software, where he is currently President and CEO.

Vibrant Technology markets the ME'scopeVES Visual Engineering Series of post-test analysis software worldwide through a network of sales representatives and OEM resellers. ME'scopeVES is used to visualize, analyze, and document static, dynamic and acoustic behavior of machines and mechanical structures.

ME'scopeVES applications include vibration troubleshooting, predictive maintenance, monitoring of critical machines and structures, manufacturing quality control, and new product R&D.