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Announcements and Acknowledgments

Summary. This editorial announces recent policy and personnel changes and acknowledges service to the *AIAA Journal.*

Length Limitations. I am very pleased to announce that AIAA has ended its length limitation policy for full-length papers. Thus, we are now able to accommodate longer papers although all manuscripts should be as *brief and concise* as proper presentation of the ideas will allow. Past length limitations on Technical Notes (maximum of nine manuscript pages) and Readers' Forum items (maximum of four manuscript pages) remain in place, however, in keeping with the intent of these publishing vehicles for prompt disclosure of information having relatively limited scope. The details of the new length limitation policy can be found in the Information for Contributors to Journals of the AIAA, which appears in each issue of the journal.

Scope. The statement of scope of the *AIAA Journal* appears on the front inside cover of each issue. The topics within our scope include aeroacoustics, aerodynamics, combustion, fundamentals of propulsion, fluid mechanics and reacting flows, fundamental aspects of the aerospace environment, hydrodynamics, lasers and associated phenomena, plasmas, research instrumentation and facilities, structural mechanics and materials, optimization, and thermomechanics and thermochemistry. Every effort is made to accommodate the decision of authors that the *AIAA Journal* is the most appropriate journal for their manuscript. Manuscripts that depart excessively from the scope, however, are returned to authors along with suggestions about more appropriate alternative journals.

Suggested Reviewers and Associate Editors. To assist the review process, authors are asked to include the names and addresses of five suggested reviewers in the covering correspondence for submitted manuscripts. It is also helpful for authors to suggest Associate Editors (AEs) for their submission; such requests are honored whenever possible. To help authors suggest potential AEs, brief biographical sketches providing the background of each AE are published in the first issue of the journal each year, and the AE handling each published paper is noted at the end of the paper, which helps indicate the types of papers that particular AEs are handling.

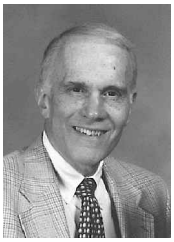
Reappointed Editors. Several individuals have agreed to serve another term as Associate Editors, as follows: Promode R. Bandyopadhyay, Naval Undersea Warfare Center; John Kallinderis, University of Texas at Austin; and Anthony M. Waas, University of Michigan. The past service of these individuals, and their willingness to continue to serve in order to help maintain the editorial continuity of the journal, is very much appreciated.

Newly Appointed Editors. I am very pleased to announce the appointment of several new Associate Editors, as follows: Amr Baz, University of Maryland; Josette R. Bellan, Jet Propulsion Laboratory; Eric R. Johnson, Virginia Polytechnic Institute and State University; Achille Messac, Northeastern University; Philip J. Morris, Pennsylvania State University; Anthony N. Palazotto, Air Force Institute of Technology; Martin Sichel, University of Michigan; and Ronald M. C. So, Hong Kong Polytechnic University. The willingness of these individuals to help fill the editorial needs of the journal is very much appreciated.

Editorial Advisory Board. A new addition to our operations and to our masthead is the formation of an Editorial Advisory Board. The board consists of senior individuals active in the fields of aeronautics and astronautics and functions to provide technical advice about the editorial policies of the journal. The charter members of Editorial Advisory Board are as follows: Satya N. Atluri, University of California, Los Angeles; Dennis M. Bushnell, NASA Langley Research Center; Earl H. Dowell, Duke University; Edward M. Greitzer, Massachusetts Institute of Technology; Robert G. Loewy, Georgia Institute of Technology; Robert W. MacCormack, Stanford University; Simon Ostrach, Case Western Reserve University; Eli Reshotko, Case Western Reserve University; Anatol Roshko, California Institute of Technology; George W. Springer, Stanford University; Byron D. Tapley, University of Texas; Raymond Viskanta, Purdue University; Forman A. Williams, University of California, San Diego; and Israel J. Wygnanski, University of Arizona. The service of these individuals to help develop the quality of the journal is very much appreciated.

Acknowledgments. The editorial staff of the AIAA deserve special mention for effectively dealing with the publication problems of a widely circulated monthly journal, as follows: John D. Anderson (Vice President—Publications), Norma Brennan (Director of Publications), and Mary Ellen Lanham (Managing Editor, *AIAA Journal*). The efforts of individuals who served as Editors of Special Sections of the journal during the past year are greatly appreciated, as follows: U. B. Mehta, NASA Ames Research Center, for editing a special section on *Credible Computational Fluid Dynamics Simulations*; and M. K. King, NASA Headquarters, and H. D. Ross, NASA Lewis Research Center, for editing a special section on *Microgravity.* Special thanks are also due to our retiring Associate Editors, as follows: Ashok D. Belegundu, Pennsylvania State University; George A. Kardomateas, Georgia Institute of Technology; and Charles G. Speziale, Boston University. Among these, George A. Kardomateas deserves particular mention for serving an extra year as an Associate Editor in order to assist the transition to a new Editor-in-Chief. Finally, we all owe a debt of gratitude to the individuals who reviewed papers for the journal this year: their names follow.

G. M. Faeth
Editor-in-Chief



GERARD M. FAETH, A.B. Modine Professor of Aerospace Engineering and Head of the Gas Dynamics Laboratories at the University of Michigan, received the B.M.E. from Union College (New York) in 1958 and the M.S. in 1961 and Ph.D. in 1964 from the Pennsylvania State University, both in mechanical engineering. He joined the faculty of the Department of Mechanical Engineering at the Pennsylvania State University in 1958, where he was promoted to the rank of Professor in 1975 before retiring as Professor Emeritus upon assuming his present position in 1985. His current research interests include homogeneous and heterogeneous combustion phenomena, multiphase flows, radiation in participating media, optical properties of particulate matter, and buoyant and nonbuoyant turbulent flows. Dr. Faeth has served as a Member of the AIAA Propellants and Combustion Technical Committee (1976–1978, 1979–1984, and 1994–2000). He is a recipient of the American Society of Mechanical Engineers (ASME) Heat Transfer Division's Memorial Award (1988) and the AIAA Propellants and Combustion Award (1993). He is corecipient of best paper awards from ASME in 1984, 1985, 1987, and 1993; from AIAA in 1984 and 1994; and from the Combustion Institute in 1996. He is a Fellow of AIAA, ASME, and the American Association for the Advancement of Science and a member of the National Academy of Engineering and the Combustion Institute. He was an Associate Technical Editor (1981–1985) and the Technical Editor (1985–1990) of the *Journal of Heat Transfer* of the ASME and a Deputy Editor (1984–1990) and the U.S. Editor (1990–1996) of *Combustion and Flame*, the journal of the Combustion Institute. He is a member of the Editorial Advisory Boards of *Combustion Science and Technology*, *Progress in Energy and Combustion Science*, *Atomization and Sprays*, and the *Annual Review in Numerical Fluid Mechanics and Heat Transfer*. Dr. Faeth is author or coauthor of more than 350 articles and papers.

Associate Editors

SURESH K. AGGARWAL is Professor of Mechanical Engineering at the University of Illinois at Chicago and received his Ph.D. in aerospace engineering from the Georgia Institute of Technology in 1979. Since then, he has served on the Professional Research Staff at Princeton University and as a Senior Research Engineer at Carnegie Mellon University. He joined the University of Illinois at Chicago faculty in 1984. His research interests include gaseous and spray combustion phenomena, direct numerical simulation of multiphase flows, multicomponent fuel droplet modeling, high-pressure droplet phenomena, partially premixed flames, and microgravity combustion. Dr. Aggarwal has served as a Member of the AIAA Propellants and Combustion Technical Committee (1985–1989 and 1991–1994). He is currently serving as a Member of the AIAA Terrestrial Energy Technical Committee and the American Society of Mechanical Engineers (ASME)–IGTI Fuels and Combustion Technical Committee. He is an Associate Fellow of AIAA and a member of ASME and the Combustion Institute. He has been a Technical Organizer for the Propellants and Combustion Technical Committee at the AIAA Aerospace Sciences Meeting (1989) and Joint Propulsion Conference (1993) and for the ASME Turbo Expo-Fuel and Combustion Program (1994). He has also served on numerous occasions as a consultant to government and industrial organizations. Dr. Aggarwal is a recipient of the University of Illinois Scholar Award and a biographee in *Who's Who in Science and Engineering* and *Who's Who in America*. He is an Associate Fellow of AIAA and a member of ASME and the Combustion Institute. He has authored or coauthored more than 125 articles and papers.

PROMODE R. BANDYOPADHYAY is a Research Scientist at the U.S. Naval Undersea Warfare Center (NUWC) at Newport, Rhode Island. His research experience includes seven years at NUWC, nine years as an in-house contractor at the Viscous Flow Branch, NASA Langley Research Center, two years in the Mechanical Engineering Department, University of Houston, and one year in the Engineering Department, Cambridge University. Currently, he is involved in the development of emerging technologies like MEMS, Biomimetics, and new hydrodynamics technology, particularly in drag reduction in salt water employing Lorentz force and in low-speed maneuvering hydrodynamics including applied biolocomotion. He has conducted research on the organized nature of turbulence in turbulent boundary layers, trailing vortices, effects of roughness, transitional pipe flows, wall jets, the effects of pressure gradients, freestream turbulence, multiple curvatures in turbulent boundary layers, and vortex flows in gas–liquid separators. He has developed a structural model of the turbulent boundary layer and several hydrodynamic devices and instrumentation: a brisk maneuvering device and a dual flapping foil device for maneuvering and propulsion of small underwater bodies at low speeds, an internal reflection-type skin friction meter, and a stepped axisymmetric nose for drag reduction. He has published 150 articles, about 40 in the archival journals, edited one book, and holds six patents. He received his B.S. in mechanical engineering in 1968 from the University of North Bengal, an M.S. in mechanical engineering in 1970 from the University of Calcutta, a Ph.D. in applied mechanics in 1974 from the Indian Institute of Technology, Madras, and a Ph.D. in aerodynamics in 1978 from the University of Cambridge, Cambridge, England, United Kingdom. He was an Adjunct Professor in the Electrical Engineering Department, University of Rhode Island, and in the Mechanical Engineering Department, Old Dominion University, Norfolk, Virginia. He has received a NASA award for Technology Utilization and Application and an American Society of Mechanical Engineers (ASME)–NUWC award for developing emerging technologies. He is an Associate Fellow of AIAA, a fellow of ASME, a life member of the American Physical Society, and a fellow of Wolfson College, University of Cambridge. He has served as a Member of the Fluid Dynamics Technical Committee of the AIAA and ASME. He is serving as Associate Editor of the ASME *Journal of Fluids Engineering* and the *AIAA Journal*.

AMR M. BAZ is Professor of Mechanical Engineering at the University of Maryland at College Park. He received his B.S. in mechanical engineering from Cairo University, Cairo, Egypt, in 1966 and his M.S. and Ph.D. in mechanical engineering from the University of Wisconsin–Madison in 1970 and 1973, respectively. His research interests include active and passive control of vibration and noise, smart structures and shape memory composites. His research is funded by ARO, ONR, BMDO, NASA, and NOAA. He has been the recipient of seven awards for excellence in teaching, design, and academic performance, including the Egyptian National Award & First Class Medal for Best Achievements in Science & Arts. He is a Member of AIAA and a fellow of the American Society of Mechanical Engineers (ASME). Dr. Baz served as Chairman of the ASME Washington, D.C., Chapter in 1990–1991 and as a member of the ASME Edwin Church Medal Award Committee (1993–1998). He has been a member of the honorary societies Sigma-Xi, Phi-Kappa-Phi, and Tau-Beta-Pi. He is listed in the *American Men & Women of Science* and *Who's Who of American Inventors*. Dr. Baz is member of the Editorial Board of *Journal of Vibration and Control* and is author of over 100 research papers and five U.S. patents.

JOSETTE BELLAN is a Senior Research Scientist at the Jet Propulsion Laboratory (JPL) and a Visiting Associate at the California Institute of Technology (Caltech) in the Department of Aerospace Engineering. She has also lectured at Caltech and has been a Chancellor's Distinguished Lecturer at the University of California, Irvine. Dr. Bellan obtained her Ph.D. in Aerospace and Mechanical Sciences from Princeton University in 1974; her M.S. and M.A. in the same discipline in 1972, also from Princeton; and an M.S. in Applied Mathematics and AEA in Continuum Mechanics from the University of Sciences of Paris in 1969. Following her Ph.D., she completed one year as a Postdoctoral Fellow at Princeton University and further became a Member of the Research Staff in the same department. Since 1978 she has conducted research at the Jet Propulsion Laboratory in a variety of topics. Her current interests include drop and spray evaporation and combustion, with emphasis on dense-spray behavior and polydispersity; multicomponent liquid fuels, porous materials, and particularly biomass pyrolysis; granular materials; direct numerical simulation of multiphase flows; large eddy simulations of multiphase flows; and supercritical fluid drop behavior both isolated and in clusters of drops. She is the coauthor of four books and has numerable journal publications. She is also an Amelia Earhart Fellow, is the recipient of the JPL Exceptional Service Award, and has 34 NASA Certificates of Recognition. Dr. Bellan is an AIAA Associate Fellow, an ASME fellow, and a member of the Combustion Institute and is on the Board of Directors of the Institute for Liquid Atomization and Spray Systems (ILASS). She has been a Member of the AIAA Propellants and Combustion Committee during 1984–1987 and from 1995 to now and organized the 30th Aerospace Sciences program for this committee; she was a Member of the AIAA National Awards Committee in 1990–1992 and is currently chairing it. In ASME she is a member of the K-11 Committee and organized sessions for the 1984 and 1990 Winter Annual Meetings. In the Combustion Institute she is a member of the Executive Committee of the Western States Section and was Program and Paper Chairperson in 1987–1989 and 1997–1999, respectively. She was Paper Chairperson for ILASS during 1995–1997 and is the General Conference Chair for the International Conference on Liquid Atomization and Spray Systems in 2000. In addition to the *AIAA Journal*, Dr. Bellan is on the Editorial Boards of *Atomization and Sprays* and *Progress in Energy and Combustion Science*.

ALEX BERMAN is a retired aerospace engineer. He received a B.A. and an M.A. in physics from the University of Connecticut in 1949 and 1952. He was employed by Kaman Aerospace Corporation from 1951 until 1991, when he retired. At that time, he was the head of the Research Department as Assistant Director for Research. He was responsible for projects that included advanced structural dynamics, vibration analysis, structural system identification, generalized component synthesis, and advanced computer program architecture. He directed and was a major participant in numerous research projects funded by NASA, the U.S. Army, and the U.S. Air Force. He has published over 50 technical papers. He has made presentations at numerous technical conferences and workshops and has given seminars at universities in his fields of expertise. He has been an Associate Editor since 1995. He is a Member of the AIAA and the American Helicopter Society.

ADITI CHATTOPADHYAY is a Professor in the Department of Mechanical and Aerospace Engineering at Arizona State University (ASU). She received her M.S. (1981) and Ph.D. (1984) degrees from the School of Aerospace Engineering at the Georgia Institute of Technology, Atlanta, Georgia. She was a Research Scientist with Analytical Services and Materials, Inc., Hampton, Virginia, and worked at the Interdisciplinary Research Office at NASA Langley Research Office prior to joining the faculty at ASU in 1990. She received a NASA Certificate of Excellence in recognition of her work in the multidisciplinary design optimization area in 1989. Her current research interests include mechanics of composites, adaptive structures, rotary wing dynamics, and multidisciplinary design optimization. Dr. Chattopadhyay has served as a Member of the AIAA Structures Technical Committee (1993–1996 and 1997–2000). She is the chair of the American Helicopter Society (AHS) Aircraft Design Committee and a Member of the AHS Education Committee. Dr. Chattopadhyay is an Associate Editor of Inverse Problems in Engineering. She has served on the program committee for various national and international conferences, including the AIAA Structures, Structural Dynamics, and Materials Conference. Dr. Chattopadhyay has received several academic awards and best paper awards. She was inducted into the Georgia Institute of Technology Hall of Fame and received the Outstanding Engineering Alumni Award in 1995. Dr. Chattopadhyay is currently the Principal Investigator of several research grants funded by agencies such as U.S. Army Research Office, Air Force Office of Scientific Research, NASA (Langley, Ames, and Lewis Research Centers) and industries such as The Boeing Company and AlliedSignal Engines. Her research has received several citations in *Aerospace America*. Her research was highlighted at the U.S. Army Research Office's Annual Review through an invited talk in 1997. Dr. Chattopadhyay is the author or coauthor of more than 180 technical papers and articles. She is an Associate Fellow of AIAA.

PEYMAN GIVI, Professor of Mechanical and Aerospace Engineering and Director of the Computational Fluid Dynamics Laboratory at the State University of New York at Buffalo, received the B.E. from the Youngstown State University (Ohio) in 1980 and Ph.D. from the Carnegie Mellon University (Pennsylvania) in 1984. He joined the faculty of the State University of New York (SUNY) at Buffalo in 1988. Prior to that he was a Research Scientist at Flow Industries, Inc., in Kent, Washington, and had visiting appointments at the NASA Langley Research Center and the NASA Lewis Research Center. His current research interests include turbulence, combustion, computational methods, multiphase transport, magnetohydrodynamics, theoretical statistics, spectral analysis, stochastic processes, and systems analysis and controls. He is a recipient of the Presidential Faculty Fellowship from President George Bush (1992), Young Investigator Award of the Office of Naval Research (1990), and the Presidential Young Investigator Award of the National Science Foundation (1990). He also received the Outstanding Educator of the Year Award from SUNY at Buffalo in 1994. Givi is a member of the editorial boards of *Progress in Energy and Combustion Science* and *Computers and Fluids*.

JAYAVANT (JAY) P. GORE, Professor of Mechanical Engineering at Purdue University, received his B.E. (M.E.) degree from the University of Poona, India, in 1978 and the M.S. (1982) and Ph.D. (1986) degrees in mechanical engineering from the Pennsylvania State University. He completed his postdoctoral training program at the University of Michigan prior to joining the faculty at the University of Maryland in 1987. In 1991, Dr. Gore joined Purdue University as an Associate Professor and was promoted to his present rank in 1995. His research interests include numerical and experimental studies of turbulent combustion, partially premixed flames, flame radiation, chemistry-radiation interactions, NO_x and soot formation and emission, radiant burner flames, sensors for pollutant control, fire detection, and effervescent atomization. Dr. Gore teaches two graduate courses in combustion and two undergraduate courses in thermodynamics. He is the Chairman of the American Society of Mechanical Engineers (ASME) K-11 Committee on Heat Transfer in Fire and Combustion, a Senior Member of the AIAA, a Member of the AIAA Propellants and Combustion Committee, and a Member of the Combustion Institute. He serves on the Board of Advisors of the Central States Section of the Combustion Institute. Dr. Gore is an author or coauthor of over 150 articles and papers. He received the 1987 Best Paper in Heat Transfer Literature Award from the ASME and the Presidential Young Investigator Award in 1991.

JAMES C. HERMANSON is an Associate Professor in the Mechanical Engineering Department at Worcester Polytechnic Institute (WPI). He received a B.S. in Aeronautics and Astronautics from the University of Washington in 1977 and an M.S. in 1980 and a Ph.D. in 1985, both in Aeronautics at the California Institute of Technology. Before joining the WPI faculty, he was a Research Scientist at United Technologies Research Center, where he conducted research programs in the areas of compressible mixing, combustion, and heat transfer. Prior to this, Dr. Hermanson was on the staff of the University of Washington Applied Physics Laboratory, where he performed research in hydrodynamics and marine propulsion. He also held a postdoctoral appointment at the Universität Göttingen, Göttingen, Germany, where he studied soot formation in premixed flames. After the B.S. degree, he spent two years at the Boeing Aerospace Company, where he worked in cruise missile aerodynamics and solid rocket propulsion. Professor Hermanson's current research interests and activities include fuel injection in compressible flow, unsteady diffusion flame combustion, condensation phenomena, and heat transfer, and he is the Director of the WPI Heat Transfer Laboratory. He is the author or coauthor of over 50 journal articles and papers. Dr. Hermanson is a Senior Member of the AIAA, and he served on the Air-Breathing Propulsion Technical Committee from 1994 to 1996. He is also a member of the American Society of Mechanical Engineers, the American Physical Society, the Combustion Institute, and the National Space Society.

ERIC RAYMOND JOHNSON is a Professor in the Aerospace and Ocean Engineering Department, Virginia Polytechnic Institute and State University, Blacksburg, Virginia. He earned his doctoral degree in Applied Mechanics from the University of Michigan in 1976 and has been a faculty member at Virginia Tech since then. Prior to his doctorate he worked in industry for four-and-one-half years on the analysis and design of servohydraulic control systems for vehicles and industrial applications. His research interests are in structures, solid mechanics, buckling and postbuckling, composite materials, and optimal design. In particular, his work has concentrated on the response and failure of composite material structures in application to flight vehicles, which includes composite stiffener crippling, failure of dropped-ply laminates, the nonlinear response of stiffened composite shells under internal pressure, and energy absorption of composite structure. He teaches courses in thin-walled structures, elastic instability of structures, variational and energy methods, and optimal design of composite materials and structures. He is a Senior Member of the AIAA and a member of the American Society of Mechanical Engineers.

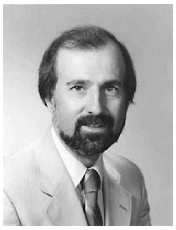
K. KAILASANATH is the Head of the Center for Reactive Flow and Dynamical Systems at the U.S. Naval Research Laboratory. He received his Ph.D. from the Georgia Institute of Technology in 1980 and has been at the U.S. Naval Research Laboratory since then. Prior to that, he received his M.S.A.E. from the Georgia Institute of Technology in 1979 and his B.Tech. in aeronautical engineering from the Indian Institute of Technology (Madras) in 1976. His research interests include the structure, stability, and dynamics of flames and detonations; combustion instabilities; multiphase flows; fire dynamics and suppression; subsonic and supersonic mixing and noise generation; and the simulation of advanced propulsion system concepts. He is an Associate Fellow of the AIAA and has served as Chair of the AIAA Propellants and Combustion Technical Committee (1996–1998). He is also currently on the board of the journal *Combustion Theory and Modeling* and the board of the Eastern States Section of the Combustion Institute. Dr. Kailasanath is author or coauthor of more than 150 journal articles and conference papers.

JOHN KALLINDERIS is an Associate Professor at the Department of Aerospace Engineering and Engineering Mechanics of the University of Texas at Austin. He received a Diploma in mechanical engineering from the National Technical University of Athens, Greece, and a Ph.D. degree in aeronautics and astronautics from the Massachusetts Institute of Technology in 1989. His main research interests are in the areas of adaptive numerical methods for engineering simulations, parallel computation, and computational grid generation, as well as large-scale flow simulations. He has received several research grants from sources including the National Science Foundation (NSF), NASA, ARPA, the U.S. Air Force Office of Scientific Research, the State of Texas, and IBM. He has also worked as a consultant in industry. John has served as a conference session organizer and reviewer of papers and proposals, as well as member of various panels at NSF and NASA. In 1993 he received the NSF Young Investigator Award, as well as the Teaching Excellence Award for the Department of Aerospace Engineering and Engineering Mechanics. In 1997, he received the AIAA Lawrence Sperry Award for a notable contribution to the advancement of aeronautics or astronautics. John has authored over 80 journal and conference papers, as well as six book chapters. He has given 34 invited lectures in industry, government laboratories, and academia in both the United States and Europe.

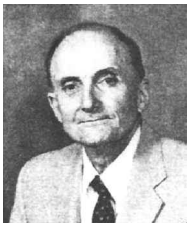
ROBERT P. LUCHT is currently a Professor in the Department of Mechanical Engineering at Texas A&M University. He received his B.S. degree in nuclear engineering in 1977 and his M.S. and Ph.D. degrees in mechanical engineering in 1979 and 1981, all from Purdue University. After a year of postdoctoral research at Purdue University, he joined the Combustion Research Facility at Sandia National Laboratories and worked there as a member of the technical staff and then as a department manager until 1992, when he became a faculty member at the University of Illinois. He joined the faculty at Texas A&M University in September 1998. The focus of his research is the development and application of laser diagnostic techniques for combustion systems and for nonreacting flows. Currently, his research group is developing dual-pump and high-resolution coherent anti-Stokes Raman scattering (CARS) techniques for multiparameter measurements, using planar laser-induced fluorescence (PLIF) methods for visualizing molecular mixing and studying the physics of degenerate four-wave mixing (DFWM) and polarization spectroscopy. His group is also applying CARS, DFWM, and PLIF techniques for measurements in diamond-forming flames, in spark ignition and compression ignition engines, and in a gas turbine combustion simulator. He was the program chair for the 1996 Optical Society of America (OSA) Topical Meeting on Laser Applications in Chemical and Environmental Analysis and is the General Chair for the same meeting in 1998. He is a Member of AIAA, American Society of Mechanical Engineers, the Society of Automotive Engineers, the OSA, and the Combustion Institute. He is the author or coauthor of more than 50 articles. He is a fellow of the Optical Society of America.

D. SCOTT McRAE is Professor of Aerospace and Mechanical Engineering at North Carolina State University (NCSU). His research interests are in computational fluid dynamics, including analysis and development of numerical methods. A current and ongoing major thrust is accuracy enhancement of both steady and unsteady numerical solutions through the application of dynamic solution adaptive meshing. Recent applications have been high-speed inlet unstart, compressor cascades, shock tunnels, and air pollution modeling. Dr. McRae serves on the Allocations Committee of the North Carolina Supercomputing Center and is active in campus computing issues. Prior to joining the NCSU faculty in 1981, Dr. McRae retired from the U.S. Air Force after 20 years of service. His Air Force assignments included the SR-71 Operational Engineering Section from 1966 to 1969 and computational fluid dynamics research assignments at the Hypersonics Research Laboratory (later Theoretical Aerodynamics Laboratory) of the Air Force Aerospace Research Laboratories from 1971 to 1975 and the Air Force Flight Dynamics Laboratory from 1975 to 1981, where he headed the Laboratory's Flight Vehicle Technology Office at NASA's Ames Research Center from 1977 to 1981. Dr. McRae received his B.S. from NCSU in 1961 and his M.S. from the University of Missouri in 1966, both in mechanical engineering. He received the Ph.D. in aerospace engineering from the Air Force Institute of Technology in 1976.

ACHILLE MESSAC received his B.S. (1981), M.S. (1982) and Ph.D. (1986) from the Department of Aeronautical and Astronautical Engineering at the Massachusetts Institute of Technology. He is an Associate Professor in the Mechanical, Industrial and Manufacturing Engineering Department at Northeastern University. He founded and serves as the Director of the Multidisciplinary Design Laboratory, where he is leading the development of Physical Programming, a methodology that brings optimization within the easy reach of industry engineers in a multidisciplinary environment. Physical Programming also facilitates the effective use of optimization by experts by entirely eliminating the use of difficult-to-obtain numerical weights in forming the aggregate objective function. He has led winning student teams in two American Society of Mechanical Engineers (ASME) Motion Control Design Contests. The students had used Physical Programming to optimize their designs to meet stringent requirements. He is Co-Director of the Laboratory for Design and Manufacturing, a state-of-the-art teaching and research laboratory that facilitates the integration of cooperative education, teaching, and research in the area of design and manufacturing. Prior to 1994, he was a Senior Member of the Technical Staff at Draper Laboratory, where he led and participated in numerous research and development projects. While there, his research topics included deployment and multibody dynamics, structural optimization, optimal control, and Control Structure Integrated Design, of which he was a pioneer in the mid-1980s. He led such NASA efforts as the development of a large simulation for the dynamics and control of the Stabilized Payload Deployment System, a two-arm payload manipulator for the shuttle orbiter, for which he received an award. He also led the development of a large simulation to study the dynamic stability, the structural behavior, and the control properties of the space system composed of the space station (SS), the Space Shuttle, and the translating SS mobile transporter. He is an Associate Fellow of the AIAA, a former member of the AIAA Structural Dynamics Technical Committee, and a present member of the AIAA Multidiciplinary Design Optimization Technical Committee (of which he chairs of the Education Subcomittee). He is a member of the ASME. He has authored or coauthored more than 50 articles. He is a recipient of the prestigious CAREER grant of the National Science Foundation.



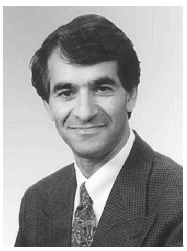
PHILIP J. MORRIS is the Boeing/A.D. Welliver Professor of Aerospace Engineering at the Pennsylvania State University. He obtained his B.S. (hons.) in Aeronautics and Astronautics in 1967, his M.S. in Advanced Acoustics in 1968, and his Ph.D. in Aeronautics and Astronautics in 1971, all from the University of Southampton, Southampton, England. His research experience includes two years at the University of Toronto Institute for Aerospace Studies and five years with the Lockheed–Georgia Company prior to joining the faculty of the Department of Aerospace Engineering at Penn State in 1977. He was promoted to the rank of Professor in 1986. His research interests include aeroacoustics, computational aeroacoustics, turbulence modeling, and hydrodynamic stability. Dr. Morris has served as a member of the AIAA Aeroacoustics Technical Committee (1981–1984, 1989–1995) and was chairman (1993–1995). He was General Chairman of the AIAA 13th Aeroacoustics Conference (1990). He has offered an AIAA Professional Short Course on Aircraft Noise annually since 1996. Dr. Morris was the recipient of the Best Paper Award at the AIAA 11th Aeroacoustics Conference and received the Publication Award from NASA Lewis Research Center in 1997. He has received the Outstanding Teaching (1984), Outstanding Research (1990), and Premier Research (1997) awards from the Penn State Engineering Society. Dr. Morris is a fellow of APS, an Associate Fellow of AIAA, and member of AHS and ASA. He is a member of the Editorial Board of the *Proceedings IMechE. Part G, Journal of Aerospace Engineering*.



ANTHONY N. PALAZOTTO, Professor of Aerospace Engineering at the Air Force Institute of Technology, received his M.Sc.E. from Brooklyn Polytechnic Institute in 1961 and Ph.D. from New York University in 1968. Professor Palazotto's interests include nonlinear mechanics, shell analysis, finite elements, composite materials, viscoplasticity, and nonlinear dynamics. Dr. Palazotto is the coauthor of a textbook, *The Nonlinear Analysis of Shell Structures*, published by the AIAA in 1992. He contributed a chapter to the text *Buckling and Post Buckling of Composite Plates* published by Chapman and Hall in 1995. In addition he has authored over 160 archival technical publications and made more than 200 presentations at technical conferences. Dr. Palazotto received the Hetanyi Award in 1982 from the Society of Experimental Mechanics, the Cleary Award in 1981 from the Air Force Material Laboratory, and the Structures, Structural Dynamics, and Material Award from ASCE in 1986. Dr. Palazotto is a fellow of the ASCE and an Associate Fellow of the AIAA. He is a registered professional engineer.

ALLEN PLOTKIN is Professor of Aerospace Engineering and Engineering Mechanics at San Diego State University, where he has been a faculty member since 1985. He received B.S. and M.S. degrees from Columbia University and a Ph.D. from the Division of Engineering Mechanics at Stanford University in 1968. From 1968 to 1985 he was a faculty member in the Department of Aerospace Engineering of the University of Maryland, where he was promoted to the rank of Professor in 1977. During 1975–1976 he was a Visiting Associate in Engineering Science at the California Institute of Technology. His research interests are aerodynamics, hydrodynamics, and basic incompressible fluid mechanics. The research has emphasized the blending of analytical and computational techniques for the solution of a wide variety of flow problems, including fluid jets, airfoil and hydrofoil theory, ground effect, separation, and vortex modeling. He served two terms as a Member of the AIAA Fluid Dynamics Technical Committee. He is an American Society of Mechanical Engineers Fellow and an AIAA Associate Fellow and a Member of the Society of Naval Architects and Marine Engineers and the American Society for Engineering Education. He is the coauthor (with J. Katz) of *Low-Speed Aerodynamics*: *From Wing Theory to Panel Methods*, published in 1991 in the McGraw–Hill Series in Aeronautical and Aerospace Engineering and the author of approximately 40 journal articles. He has been an Associate Editor of the *AIAA Journal* since 1986.

SUNIL SAIGAL, Professor of Civil and Environmental Engineering at Carnegie Mellon University, received his B.S. in civil engineering in 1978 from Punjab Engineering College, M.S. in structural engineering in 1980 from the Indian Institute of Science, and Ph.D. in aeronautics and astronautics in 1985 from Purdue University. Before joining Carnegie Mellon University in 1989, he served on the faculty of Mechanical Engineering at Worcester Polytechnic Institute (1986–1989). He served as the Director, Mechanics and Materials Program at the National Science Foundation from 1996 to 1998, has held summer assignments at Hibbitt, Karlsson, and Sorensen, Inc. (1987), NASA Lewis Research Center (1990 and 1991), and Oak Ridge National Laboratory (1993), and spent a year (1992) as a visiting engineer at Mercedes Benz A.G. in Stuttgart, Germany. His primary research interest lies in the area of computational solid and structural mechanics. He has contributed to developments in finite elements, boundary elements, and the element-free Galerkin methods with applications in shape optimization, inverse problems, mechanics of materials, and probabilistic analysis. Dr. Saigal is an Associate Fellow of AIAA and has served on the AIAA Technical Committee for Structures since 1992. He is the recipient of the 1987 Worcester Engineering Society Admiral Ralph Earle medal, the 1988 Society of Automotive Engineers Ralph R. Teetor Educational Award, the 1990 National Science Foundation Presidential Young Investigator Award, the 1990 Carnegie Mellon University George Tallman Ladd Research Award, the 1994 American Society of Civil Engineers (ASCE) Pittsburgh Section Professor of the Year Award, and the 1996 Carnegie Mellon University Richard Teare Award for excellence in teaching. He is the Associate Editor for Computational Mechanics for the ASCE *Journal of Engineering Mechanics* and on the Advisory Editorial Board for the *International Journal for Numerical Methods in Engineering*. Dr. Saigal is author and coauthor of more than 75 journal articles.



MOHAMMAD (MO) SAMIMY is Professor and Associate Chair of Mechanical Engineering at the Ohio State University. He received his B.S. in 1978 from Arya-Mehr (currently Sharif) University of Technology in Tehran, Iran, and his M.S. in 1981 and Ph.D. in 1984, all in mechanical engineering, from the University of Illinois at Urbana–Champaign. He spent one year as a visiting Assistant Professor at the University of Illinois before joining the faculty of the Ohio State University in 1985. His current research interests are gas dynamics, compressible turbulence, optical diagnostics, flow control, and mixing and combustion processes in natural-gas-powered internal combustion engines. Dr. Samimy has been a visiting research fellow at NASA Lewis Research Center, Wright Laboratories, the NASA Ames Research Center/Stanford Center for Turbulence Research, and CEAT/LEA Laboratories at the University of Poitiers in France and has lectured extensively in the United States and abroad. He was an Associate Editor of the *Journal of Propulsion and Power* (1993–1996), has served as a Member of the AIAA Airbreathing Technical Committee (Chair of Ramjet/Scramjet Subcommittee), is currently the Chair-Elect of the AIAA Aerodynamic Measurement Technology Technical Committee and the Chair of the Honors and Awards Subcommittee, and has organized or coorganized numerous meetings and sessions in AIAA and American Society of Mechanical Engineers (ASME) Conferences. Dr. Samimy is a fellow of ASME, an Associate Fellow of AIAA, and author or coauthor of over 100 technical papers.

PASQUALE M. SFORZA joined the University of Florida's Graduate Engineering & Research Center as Director and Professor of Aerospace Engineering in 1998. He received a B.Ae.E. in 1961 and an M.S. and Ph.D. in Astronautics in 1962 and 1965, respectively, from Polytechnic Institute of Brooklyn. He was appointed to the faculty of Polytechnic in 1965 and served there until 1998. He was promoted to Professor in 1977 and served as Head of Mechanical and Aerospace Engineering from 1983 to 1986 and as Head of Aerospace Engineering from 1987 to 1995. He is an Associate Fellow of AIAA and served as Editor-in-Chief of the *AIAA Student Journal* (1969–1970), AIAA National Lecturer in Wind Engineering (1976), Associate Editor of the *AIAA Journal* (1980–1983), and Book Review Editor of the *AIAA Journal* since 1983. His research in turbulent jet mixing, vortex aerodynamics, and energy transfer led to three patents and over 100 articles and papers. He received the Technology Achievement Award from the AIAA Long Island Section in 1977 and an Outstanding Paper award from AIAA in 1992. He is a member of the editorial board of the *Journal of Applied Fire Science* and was a member of the advisory board of the New York State Legislative Commission on Science and Technology (1978–1984). He is active in consulting for industry and government agencies through Flowpower, Inc., a consulting firm he founded in 1978.

MARTIN SICHEL, Professor Emeritus of Aerospace Engineering at The University of Michigan, received the B.M.E. and M.M.E from Rensselaer Polytechnic Institute in 1950 and 1951 in mechanical engineering, and the Ph.D. in aeronautical engineering from Princeton University in 1961. From 1951 to 1956 he worked as a development engineer for the General Electric Co. and for the Army Chemical Center while in the U.S. Army. He joined the faculty of the Department of Aerospace Engineering at the University of Michigan in 1961 and was promoted to the rank of Professor in 1968. His current research interests include the numerical simulation and modeling of gaseous, dust, and spray detonation phenomena; the group combustion of sprays; combustion and explosion of dust air mixtures; and supersonic combustion. He has been the principal or coprincipal advisor for over 35 doctoral students from 1961 to the present. He has been a member of the AIAA Air Breathing Propulsion and Propellants and Combustion committees. He has been a member of the Program Committees for the 21st–27th Symposium (International) on Combustion and the 13th–16th International Colloquium on the Dynamics of Explosions and Reactive Systems. He is a Fellow of AIAA and the American Association for the Advancement of Science. He is the recipient of The Cybulski Medal from the Polish Academy of Sciences for research in combustion (1995) and of the A.K. Oppenheim Prize (1995) at the International Colloquium on the Dynamics of Explosions and Reactive Systems. Dr. Sichel is the author or coauthor of more than 100 articles and papers.

RONALD M. C. SO, Chair Professor and Head, Department of Mechanical Engineering, the Hong Kong Polytechnic University (PolyU), Hung Hom, Kowloon, Hong Kong, received the B.S. (Hons) from the University of Hong Kong in 1962, the M.Eng. from McGill University, Montreal, Quebec, Canada, in 1966, and the M.A. and Ph.D. in Aerospace and Mechanical Sciences from Princeton University, Princeton, New Jersey, in 1968 and 1971, respectively. He joined Union Camp Corporation, Princeton, New Jersey, in 1970, working on pulp and paper research. Shortly thereafter, he joined Rutgers University, New Brunswick, New Jersey, first as a Postdoctoral Fellow and then as a Research Assistant Professor in 1972 to work on problems related to atmospheric dispersion and pollution. He left Rutgers to join General Electric Research and Development (GE R&D) Center, Schenectady, New York, in 1976 to work on research and development in the areas of propulsion and power generation. In 1981, he left GE R&D to become an Associate Professor in the Department of Mechanical and Aerospace Engineering, Arizona State University (ASU), Tempe, Arizona. The following year he was promoted to Professor and remained there until 1996, when he took a two-year leave of absence to head the Mechanical Engineering Department at PolyU. In 1998, he resigned from ASU to become the Head at PolyU. His research led to the Dugald Clerk Prize, Institution of Mechanical Engineers, London, in 1991 for his contributions made to combustion in IC engines, the Lewis F. Moody Award of the American Society of Mechanical Engineers (ASME) for contributions in the area of computational fluid dynamics, and the Doctor of Science (D.Sc.) by the University of Hong Kong for original contributions in fluid dynamics and heat transfer. The current research interests of Dr. So include turbulence modeling, flow-induced vibrations, buoyant and nonbuoyant turbulent flows, and turbulent heat transfer modeling. Dr. So is a fellow of ASME, IMechE, and HKIE and an Associate Fellow of AIAA. He is an Associate Editor of *AIAA Journal* (1993–1995, 1998–2001), an Advisory Editor of the *International Journal of Mechanical Sciences* (1997–2002) and the *International Journal of Heat and Fluid Flow* (1994–2000), a Special Editor of *Combustion Science and Technology* (1988), and an Editor of ASME Special Publications (1984, 1986). Dr. So is the author or coauthor of more than 220 articles and papers.

ANTHONY M. WAAS, Associate Professor of Aerospace Engineering, and Director, Composite Structures Laboratory at the University of Michigan, received his B.Sc. with first class honors from Imperial College, Univ. of London, London, in 1982 and the M.S. in 1983 and Ph.D in 1988 with a minor in Applied Mathematics from the California Institute of Technology, all in aeronautics. He joined the faculty of the Department of Aerospace Engineering at the University of Michigan in 1988, where he was promoted to the rank of Associate Professor in 1994. His current research interests include mechanics of composite structures and composite materials, structural stability, optical methods for experimental stress analysis, biomechanics, and smart materials and structures. Dr. Waas has served as a member of the AIAA Structures Technical Committee (1991–1994, 1997–2000), the American Society of Mechanical Engineers (ASME) Technical Committee on Instability of Solids and Structures (1995–2000), ASME Technical Committee on Experimental Mechanics (1996–1999), and the ASME Aerospace Division Committee (1998). He is a recipient of the Royal Aeronautical Society Prize of Imperial College (1982), the William Balhaus Prize in Aeronautics at GALCIT (1988), a Rackham Faculty Fellowship (1990), a University of Michigan Aerospace Department Teaching Award (1995), the SAE Ralph Teetor Award (1995), the American Academy of Mechanics Junior Award for Research (1997), and the University of Michigan Aerospace Department Research Award (1998). He is an Associate Fellow of AIAA and a member of ASME, ASC, and the American Academy of Mechanics. He is an Associate Editor of the *Journal Composites: B* and serves on the Editorial Advisory Board of the AIAA *Journal of Aircraft*. He is author or coauthor of more than 50 articles and papers.

Editorial Policy Statement on Numerical Accuracy and Experimental Uncertainty

The purpose of this statement is to reiterate the desire to have high-quality investigations with properly documented results published in the AIAA journals, and to clarify acceptable standards for presentation of numerical and experimental results. Recently there has been considerable concern with the quality of published numerical solutions. Also the practice of including error bars on experimental results is often lacking. In response to these problems, a succinct policy statement on these items is as follows:

> *The AIAA journals will not accept for publication any paper reporting (1) numerical solutions of an engineering problem that fails adequately to address accuracy of the computed results or (2) experimental results unless the accuracy of the data is adequately presented.*

The implementation of this policy will be at the discretion of the Editors and Associate Editors of the journals.

The accuracy of the computed results is concerned with how well the specified governing equations in the paper have been solved numerically. The appropriateness of the governing equations for modeling the physical phenomena and comparison with experimental data is not part of this evaluation. Accuracy of the numerical results can be judged from grid refinement studies, variation of numerical parameters that influence the results, comparison with exact solutions, and any other technique the author selects. The validity of the accuracy estimation will be judged by the reviewers of the paper. An estimate of accuracy of the numerical results must be presented when comparisons with other numerical and experimental results are given, and when new results of the author will likely become data for future comparisons. Since accuracy of various computed results obtained from a numerical solution can vary significantly, the accuracy of the result being used must be stated. Accuracy of results from a validated code must still be established to show that proper input parameters have been used with the code.

Estimates of experimental uncertainty are required for all plotted or tabulated data obtained by authors. If data from other workers are used, they require no uncertainty. Unless otherwise stated and properly referenced, it is assumed that the uncertainty of authors' output data is estimated by the small-sample method[1] with assumed odds 20:1. All reported data must show uncertainty estimates if used in text or tables; for example, $T = 642 \pm 8$ K. All figures reporting new data should contain uncertainty estimates either on the figure with error bars in both coordinate directions or in the caption; for example, uncertainty in $T = \pm 8$ K at 20:1 odds. Investigations with limited data should present tabulated results in the paper while extensive data should be available elsewhere in tabulated form for use by other workers.

Finally, the accepted documentation procedures for a technical investigation must be used. For computational papers, the author must provide an adequate description of the numerical solution procedure, if not documented elsewhere. In addition, the complete governing equations must be specified with sufficient detail along with the input parameters to the code so that a reader could reproduce the results of the paper. For papers concerned with experimental test, thorough documentation of the experimental conditions, instrumentation, and data reduction techniques is required.

[1] Kline, S. J., and McClintock, F. A., "Describing Uncertainties in Simple-Sample Experiments," *Mechanical Engineering*, Jan. 1953, pp. 3–8.