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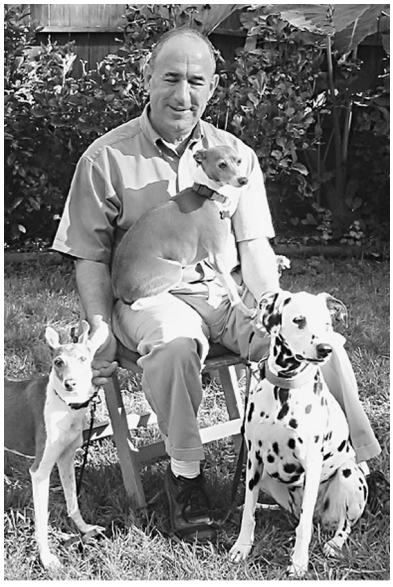
Journal Support

AS Editor-in-Chief, I would like to acknowledge all of the important contributors to this journal and thank them. The contributors are all of the authors, reviewers, Associate Editors, AIAA editorial staff, and TechBooks staff who are associated with the *Journal of Spacecraft and Rockets* (*JSR*). The *JSR* has a diverse scope with application-oriented articles, and I hope that the technical community continues to find the papers of interest. I need to thank the authors who have chosen the *JSR* as the means to disseminate their research to the technical aerospace community. I hope that they felt that the peer review process was professional and constructive. The peer review process and the high quality of the AIAA journals would not exist if it were not for the reviewers who voluntarily give of their time and provide in-depth reviews. Although it is only a small token of appreciation, their names are listed in this issue. I hope that we have successfully included all of them. I do, however, thank all who gave their time. The Associate Editors provide the cornerstone of this peer review process. They have the responsibility for the technical evaluation of the proposed papers and for maintaining the high quality of the published articles. To anyone who has ever had the responsibility of an Associate Editor position, a simple "thank you" probably seems insufficient. It is very difficult trying to balance your real job with one in which you attempt to contribute to your profession. The biographies of the AEs are included in this issue. Finally, we arrive at the AIAA editorial staff and the TechBooks staff. I want to thank Ms. Norma Brennan for her terrific help and just being a friend. Her ongoing assistance is invaluable. A big thanks to Ms. Amanda Maguire, whose help is always greatly appreciated. Also, I want to thank Ms. Carol Neff and her TechBooks staff for their patience and outstanding efforts in producing the special issues and sections published in the journal.

The AIAA Publications Committee and Editors-in-Chief are in the process of approving a revision to our long-standing Ethical Standards for Publication of Aeronautics and Astronautics Research. The revised document is published elsewhere in this issue. Instances of plagiarism, intentional or otherwise, have increased dramatically with the increase in the availability of documents electronically. Please take the time to read our Ethical Standards and to help to educate others on their applicability. An approved revised version of AIAA's Editorial Policy Statement on Numerical and Experimental Accuracy also is published in this issue.

E. Vincent Zoby
Editor-in-Chief



E. VINCENT ZOBY is employed by NASA and has been at the Langley Research Center since 1962. He received a B.S.M.E. from Virginia Polytechnic Institute and State University and an M.S. in Thermal Engineering from Old Dominion University. Mr. Zoby has been responsible for developing and demonstrating the applicability of approximate codes that define the aeroheating environment about spacecraft at both Earth and planetary entry conditions. This work encompassed preliminary design and/or postflight heating calculations for the RAM C, Re-Entry F, and Space Shuttle vehicles, as well as the Pioneer Venus and Galileo probes. [At this point, I probably need to note that my three dogs couldn't care less about this bio and only want to know when the next walk is due. The Dalmatian is Murphy and the two Italian Greyhounds are Banks (standing) and Enzo (sitting in my lap). For those with well-trained dogs, there is no way to explain the confusion the taking of this picture created.] Mr. Zoby has more than 90 publications in the area of hypersonic aerothermodynamics to his credit, including studies for computing the equilibrium high-temperature properties of gas mixtures and for the heat shield performance of entry probes. He is Langley's Technical Team Leader for the aerothermodynamics tasks with Boeing on the X-37 program. He was also a contributor to the HYPER-X X43A Return To Flight effort. Mr. Zoby served on the AIAA Thermophysics Technical Committee and is a Fellow of the AIAA.

Associate Editors

GREGORY S. AGNES is the Group Lead for Precision Deployable Structures at the Jet Propulsion Laboratory (JPL). Before coming to JPL, he served 11 years in the U.S. Air Force, achieving the rank of Major. He conducted research at the Air Force Research Laboratory and taught at the Air Force Institute of Technology. He received his B.S. in Aeronautical Engineering from Rensselaer, his M.S. in Aerospace Engineering from the University of Maryland, and his Ph.D. in Engineering Mechanics from Virginia Polytechnic Institute and State University. His research interests include vibrations, precision structures, nonlinear dynamics, and adaptive structures. When not in the laboratory he can usually be found in the company of his wife and three children on the soccer fields of the Santa Clarita Valley.

STAN A. BOUSLOG received B.S. (1980) and M.S. (1982) degrees in Aerospace Engineering from the University of Texas at Austin. For five years he served as the lead aerodynamics/flight mechanics engineer at Tracor Aerospace developing airborne countermeasure devices for tactical aircraft. While at Tracor, Mr. Bouslog also helped to develop methods to predict the reentry survivability of ballistic missile countermeasure devices. In 1988, Mr. Bouslog joined Lockheed and for eight years provided aerothermodynamics support to the Aerosciences Branch at NASA Johnson Space Center (JSC) on the Space Shuttle and the International Space Station Programs. Support to the Space Shuttle Program has included analytical and experimental investigations into Orbiter flight anomalies such as early boundary-layer transition. Space Station support included the development of engineering methods to predict Orbiter plume impingement effects on the Space Station. In 1996, Mr. Bouslog joined Rohr, Inc., and served as the Aerothermal Manager for the X-33 thermal protection system development. After cancellation of X-33, Mr. Bouslog returned to Lockheed Martin and provided aerothermodynamics support to NASA JSC for the X-38 Project and for the Columbia accident investigation. Recently, Mr. Bouslog joined the Thermal Design Branch at NASA JSC and is supporting the Space Shuttle Return-to-Flight efforts. Mr. Bouslog is an Associate Fellow of the AIAA.

IAIN D. BOYD received a B.S. in Mathematics (1985) and a Ph.D. in Aeronautics and Astronautics (1988) from the University of Southampton in England. He worked for four years as a contractor at NASA Ames Research Center in the area of rarefied gas dynamics. Dr. Boyd was a faculty member in Mechanical and Aerospace Engineering at Cornell University for six years and recently joined the Department of Aerospace Engineering at the University of Michigan. His research interests involve development of physical models and numerical algorithms using particle methods with applications to a variety of nonequilibrium gas and plasma dynamic systems. He has authored over 60 journal papers. He is the recipient of the 1998 AIAA Lawrence Sperry Award and the 1997 AIAA Electric Propulsion Best Paper Award.

RUSSELL M. CUMMINGS graduated from California Polytechnic State University with a B.S. and M.S. in Aeronautical Engineering in 1977 and 1985, respectively, before receiving his Ph.D. in Aerospace Engineering from the University of Southern California in 1988. He was recently named Professor of Aeronautics at the U.S. Air Force Academy. Prior to that he was Professor of Aerospace Engineering at Cal Poly from 1986 through 2004, where he served as department chair for four years. He worked for Hughes Aircraft Company in the Missile Systems Group as a missile aerodynamicist from 1979 through 1986. He completed a National Research Council postdoctoral research fellowship at NASA Ames Research Center in 1990, working on the computation of high-angle-of-attack flowfields in the Applied Computational Fluids Branch. He was named an AIAA Associate Fellow in 1990, received the AIAA National Faculty Advisor Award in 1995, and is the past chairman of the AIAA Student Activities Committee. In addition, he has been awarded the Northrop Grumman Excellence in Teaching and Applied Research, TRW Excellence in Teaching, and Litton Excellence in Research and Development awards. He received a B.A. in music from Cal Poly in 1999.

DAVID L. EDWARDS received a Bachelors of Science degree in Physics from the University of North Alabama in 1986. In 1989 he received a Masters of Science degree in Physics from Auburn University. His research focused on ion beam analysis of the oxide growth on thin silver films. NASA's Marshall Space Flight Center (MSFC) hired Dr. Edwards on 1 May 1989, and he has worked in the discipline of Space Environmental Effects on materials for 13 years. Dr. Edwards was accepted into the Materials Engineering Ph.D. program at Auburn University in 1991 and completed this program in August 1999. He is the Space Environments Team Lead in the Environmental Effects Group of MSFC's Engineering Directorate. He coordinates the activities of engineers, scientists, and technicians conducting basic research as well as program-related testing of space environmental effects on materials and systems. Research interests include quantifying the effects of material exposure to the space environment, ion beam analysis of materials, and investigating the interaction physics associated with advanced propulsion systems. Dr. Edwards is an active member of the committee to generate an International Standard titled "Simulation for Radiation Tests of Materials." This International Standard, when approved, will govern the procedure for performing radiation exposures of materials. Dr. Edwards and his wife, Sandy, live in Huntsville, Alabama, with their two children, Megan and Ashley.

NIKOLAOS A. GATSONIS received his undergraduate degree in Physics at the Aristotelian University of Thessaloniki, Greece (1983), an M.S. in Atmospheric Science at the University of Michigan (1996), and an M.S. (1987) and a Ph.D. (1991) in the Aeronautics and Astronautics Department of the Massachusetts Institute of Technology. From 1991 to 1993 he was a Postdoctoral Fellow at the Space Department of the Johns Hopkins University, Applied Physics Laboratory, where he worked on various aspects of spacecraft–space environment interactions in support of space experiments and missions. In 1994 he joined the Mechanical Engineering faculty at Worcester Polytechnic Institute, where he is currently an Associate Professor and Director of the Aerospace Program. His research areas include spacecraft–space environment interactions, spacecraft propulsion and micropropulsion, gasdynamics, and plasmadynamics. He has been pursuing his research interests with modeling, simulations, experiments, and participation in space experiments. A significant component of his research involves the development of fluid, particle, and hybrid numerical simulation methods for nonequilibrium, multicomponent, multiscale, gaseous, and plasma flows. He has authored or coauthored over sixty journal and conference proceedings papers. He is a member of the AIAA Electric Propulsion Technical Committee and served on the AIAA Space Science Technical Committee (1992–1996).

PETER G. HUSEMAN is the Aerophysics Technical Lead for the Crew Exploration Vehicle and various projects at Lockheed Martin Space Systems, Denver, Colorado. He has been affiliated with various missile and launch vehicle programs at the Denver Astronautics Division since 1980. His current responsibilities include aerodynamics, gas dynamics, aerothermal, computational fluid dynamics modeling, and wind-tunnel testing for ascent, reentry, and abort applications in the transonic, supersonic, and hypersonic flight regimes. He received his B.S. and M.S. degrees in Aeronautical and Astronautical Engineering from the University of Illinois at Urbana–Champaign in 1979 and 1980. He has authored 11 publications and received four company author awards. He is an Associate Fellow of the AIAA and recently served on the Thermophysics Technical Committee.

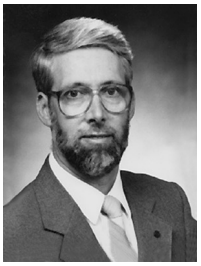
ANDREW D. KETSDEVER is currently a Group Leader and Senior Research Engineer at the U.S. Air Force Research Laboratory's (AFRL) Propulsion Directorate at Edwards Air Force Base, California. He has worked in the areas of nonequilibrium flows, rarefied gas dynamics, microfluidics, spacecraft-thruster interactions, and microspacecraft propulsion since starting at AFRL in 1992. Dr. Ketsdever received a Ph.D. in Aerospace Engineering from the University of Southern California (USC) in 1995, where he is currently a Research Professor in the Department of Aerospace and Mechanical Engineering. He regularly teaches graduate and undergraduate courses in rarefied gas dynamics, planetary atmospheres, microspacecraft design, and spacecraft–environment interactions and is the Director of the USC Student Microsatellite Program. He has been a member of the AIAA Thermophysics Technical Committee, has been involved with the AIAA Fluid Dynamics Technical Committee's Working Group in Microfluidics, has authored or coauthored over 50 technical papers, and has coedited an AIAA Progress in Astronautics and Aeronautics series book entitled *Micropropulsion for Small Spacecraft*.

ROGER L. KIMMEL is a Senior Research Engineer at the Air Vehicles Directorate of the Air Force Research Laboratory at Wright–Patterson Air Force Base in Dayton, Ohio. He received his B.S. in Mechanical Engineering from the Pennsylvania State University in 1982 and his Ph.D. in Mechanical and Aerospace Engineering from Princeton University in 1987. From 1986 to 1989 Dr. Kimmel served as a staff engineer for the Hughes Aircraft Company, Missile Systems Group, in Canoga Park, California. From 1989 to 1990 he served as a research engineer for Microcraft, Inc., at Wright–Patterson Air Force Base, and he has served there as an employee of the Air Force Research Laboratory since 1990. He is an Associate Fellow of AIAA and served on the Fluid Dynamics Technical Committee from 1998 to 2003. He is also a member of the American Society of Mechanical Engineers. His research has included shock–boundary-layer interactions, missile aerodynamics, transition and stability of hypersonic boundary layers, and plasma flow control. He was a member of the former U.S. Transition Study Group and is a current member of the AIAA Transition Study Group. Dr. Kimmel has authored or coauthored more than 60 technical papers.

CRAIG A. KLUEVER is a Professor of Mechanical and Aerospace Engineering at the University of Missouri–Columbia. He received his B.S. in aerospace engineering from Iowa State University in 1986 and worked at Rockwell International from 1986 to 1989 in the Space Shuttle Guidance, Navigation, and Control Group. He returned to Iowa State and completed his M.S. and Ph.D. degrees in aerospace engineering in 1990 and 1993, respectively. His research interests include mission design and analysis, trajectory optimization, guidance and control of aerospace vehicles, reentry flight mechanics, and orbital mechanics. An Associate Fellow of AIAA, he has served on its Astrodynamics and Atmospheric Flight Mechanics Technical Committees.

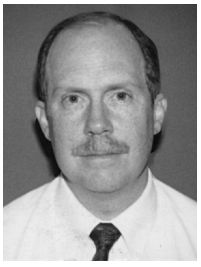
JOHN J. KORTE is a Senior Research Engineer in the Architectures, Mission, and Science Branch in the Systems Analysis & Concepts Directorate at NASA Langley Research Center. He received B.S. (1980) and M.S. (1984) degrees in mechanical engineering from Old Dominion University and a Ph.D. (1989) in aerospace engineering from North Carolina State University. He has authored or coauthored more than 50 technical publications. His primary fields of interest are computational fluid dynamics, hypersonic nozzle design, optimization, and multidisciplinary optimization for space vehicles. He is an Associate Fellow of AIAA and has received a NASA Exceptional Achievement Medal for the development of design and analysis procedures for hypersonic nozzles.

TONY C. LIN received his B.S. degree (1964) from National Taiwan University in Civil Engineering and his Ph.D. degree (1969) from Polytechnic Institute of Brooklyn in Aerospace Engineering. Over the years, he has worked at NASA Marshall Space Flight Center, Avco, and The Aerospace Corp. Since 1979, he has been with TRW/SSD and is currently a Department Manager. His primary fields of interest are aerothermodynamics, flight mechanics, computational fluid dynamics, and electromagnetic wave propagation.

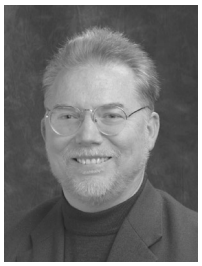


JAMES A. MARTIN holds degrees from West Virginia University, the Massachusetts Institute of Technology, and George Washington University. He has worked at the NASA Langley Research Center, the University of Alabama, and Boeing. His work has mostly involved the design and evaluation of reusable launch vehicles. Some recent work has been on crew escape for the Shuttle, the Space Launch Initiative, and a robotic lander on the moon.

CRAIG A. MCLAUGHLIN is an Assistant Professor in the Space Studies Department at the University of North Dakota (UND). His research interests are in spacecraft engineering, particularly in astrodynamics. He currently focuses his research on spacecraft formation flying, orbit determination and prediction, and mission planning for remote sensing. In addition, he is actively involved in the American Astronautical Society's Space Flight Mechanics Committee and the AIAA's Astrodynamics Technical Committee. He is also a member of the American Society for Engineering Education and the Planetary Society. Dr. McLaughlin came to UND from the Space Vehicles Directorate of the U.S. Air Force Research Laboratory. There he served as Principal Investigator for formation flying for the TechSat 21 mission and as Team Lead for the Guidance, Navigation, and Control Team. Before that he provided mission planning design and support for the MightySat II.1 technology demonstration satellite, which captured the first hyperspectral images taken from space. Dr. McLaughlin received his M.S. and Ph.D. in Aerospace Engineering Sciences at the University of Colorado at Boulder in 1994 and 1998, respectively. He received a B.S. in Aeronautical Engineering from Wichita State University in 1992. As an undergraduate he spent time working for Lockheed Engineering and Sciences Company in Houston, where he worked on the Space Shuttle program and several Space Shuttle payloads.

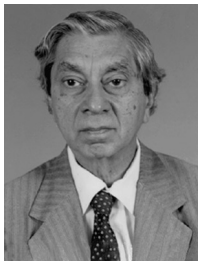


MARK S. MILLER received his B.S. and M.S. degrees in Aerospace Engineering from Auburn University and is an Associate Fellow of the AIAA. His areas of technical expertise include missile aerodynamic design, wind-tunnel testing, and performance analysis. He is currently Manager of the Missile Systems Department at Dynetics, Inc., where he directs a group of engineers supporting a variety of missile-related projects for the Department of Defense. He has also been the Principal Investigator on several Small Business Innovative Research Contracts evaluating advanced aerodynamic control technologies for a variety of atmospheric vehicles. Mr. Miller has been a member of both the AIAA Atmospheric Flight Mechanics and the Applied Aerodynamics Technical Committees, was the Technical Chair of the 1996 AIAA Applied Aerodynamics Conference, and has served as a coinstructor for the AIAA Short Course on Launch Vehicle and Missile Aerodynamics first taught in 2000.



LEE D. PETERSON is Associate Professor of Aerospace Engineering Sciences at the University of Colorado, Boulder. He has been an Associate Professor or Assistant Professor at the University of Colorado since 1991. Dr. Peterson is also Director of the McDonnell Douglas Aerospace Structural Dynamics and Control Laboratory and is a member of the Center for Aerospace Structures (CAS). From 1989 to 1991 Dr. Peterson was Assistant Professor of Aeronautics and Astronautics at Purdue University. Prior to his work at Purdue, Dr. Peterson was a member of the technical staff at Sandia National Laboratories, Albuquerque, New Mexico. He obtained his S.B. (1982), S.M. (1983), and Ph.D. (1987) in Aeronautics and Astronautics from the Massachusetts Institute of Technology. He has authored or coauthored more than 100 publications in the areas of space structure mechanics, dynamics, control, and design. His research interests are in the development of large, lightweight precision space structures for optical telescopes and interferometers. This includes experimental and theoretical research in the stability of structures and structural components at nanometer scales of deformation.

DAVID B. SPENCER is an Associate Professor of Aerospace Engineering at Pennsylvania State University. He teaches undergraduate and graduate courses in spacecraft dynamics and controls. Additionally, he conducts research in the areas of space debris dynamics, trajectory optimization, guidance, navigation, control, and theoretical and applied astrodynamics. Formerly, he was a member of the Technical Staff at The Aerospace Corporation in Los Angeles and held various technical and management positions at the U.S. Air Force Research Laboratory's Space Vehicles Directorate in Albuquerque, New Mexico. He has a B.S. in Mechanical Engineering from the University of Kentucky, an M.S. in Aeronautics and Astronautics from Purdue University, and a Ph.D. in Aerospace Engineering Sciences from the University of Colorado at Boulder. He was named an AIAA Associate Fellow in 1998, is the author of several technical publications, and serves on both the AIAA Astrodynamics Technical Committee and the AAS Space Flight Mechanics Technical Committee.



IRWIN E. VAS has been employed by The Boeing Company since 1987. He received his B.M.E. and B.A.E. from the Catholic University of America, his M.S.E. from Princeton University, and his Ph.D. in Aeronautics and Astronautics from New York University. He worked in supersonic and hypersonic experimental gas dynamics at Princeton University for 25 years. The high-Reynolds-number supersonic flows dealt primarily with two- and three-dimensional shock wave/boundary-layer interactions. The hypersonic flows created in helium and heated nitrogen facilities dealt with two-dimensional and axially symmetric phenomena of sharp and blunted shapes, including incidence effects. On leaving Princeton University, he joined the Solar Energy Research Institute (currently the National Renewable Energy Laboratory) as Program Manager for Wind Energy. He later joined Flow Industries/Flowind Corporation in Seattle, Washington, a company that designed and manufactured vertical-axis wind turbines. He is currently working on advanced space transportation technologies and systems for the Defense and Space Group of The Boeing Company. He has published approximately 100 technical papers in the area of gas dynamics, wind energy, and space technologies. He is an Associate Fellow of the AIAA.

PAUL WEINACHT has been a Senior Researcher at the U.S. Army Research Laboratory (ARL) and the former U.S. Army Ballistics Research Laboratory since 1982. His interests include computational fluid dynamics modeling of aerodynamic flows for projectiles and missiles, flight mechanics, and heat transfer. Dr. Weinacht received a B.S. in Aerospace Engineering from the University of Notre Dame (1978), an M.S. in Naval Architecture and Marine Engineering from the Massachusetts Institute of Technology (1980), a Diploma from the von Kármán Institute for Fluid Dynamics (1981), and a Ph.D. in Mechanical Engineering from the University of Delaware (1996). In 1995, Dr. Weinacht received the Louis and Edith Zernow Award for the Most Significant Recent Advancement in Fundamental Ballistics, presented at the 15th International Symposium on Ballistics, Jerusalem, Israel. During the 1999–2000 academic year, Dr. Weinacht served as the ARL Visiting Scientist at the U.S. Military Academy, West Point, New York. He is an Associate Fellow of the AIAA and has served on the AIAA Atmospheric Flight Mechanics Technical Committee. He also served as a Technical Program Chair for the 36th AIAA Aerospace Sciences Meeting.