

Looking Ahead

BEFORE I preview this year's coming issues of the *Journal of Aircraft*, I would like to call your attention to the Scope that appears on the inside front cover. The articles, Engineering Notes, and Design Forum papers scheduled for publication in the next few issues cover most of this Scope. The classical topics of aerodynamics, structures, design and aeroelasticity are well represented. Articles will also appear on air transportation and safety, weather issues, aging aircraft, morphing of aircraft, structural health monitoring, UAVs, micro air vehicles, CFD/CSD coupling, air launch into low earth orbit, reentry vehicle aerodynamics, airship optimization, wing rock, novel design methods, aircraft operations, formation flight, economic analysis. Our growing backlog of papers in the review process promises additional topics such as small aircraft transportation (SATS), sonic boom minimization, UAV design for ecological conservation, structural health management.

We are planning on two special sections to appear in 2006. One is on Morphing Aircraft. It is an initiative from the AIAA Adaptive Structures Technical Committee (ASTC). Vit Babuska, TC Secretary, is spearheading this one. It will have about seven articles. The other is sponsored by the Atmospheric Flight Mechanics (AFM) Technical Committee, and deals with the Small Aircraft Transportation System (SATS). The organizer of this one is John Valasek. From five to eight articles are anticipated.

Of course I hope you will continue to submit your excellent papers on advancing aircraft technology to this journal.

We are beginning our third year of receiving submittals to the *Journal of Aircraft* via our electronic journal administration system. Authors are invited to log onto our site: WriteTrack.net where full upload instructions are provided. As Editor-in-Chief, I receive immediate email notification and I can quickly assign the submitted paper to an associate editor, who is also notified immediately. An extensive reviewer database, developed with the continuing assistance of our Editorial Advisory Board, is now in place, immediately accessible by the associate editors who can quickly make his assignment. Over the past two years this new process has reduced the total time it takes to accept a paper from about six months, using the old manual process, to about five months on average. Authors, associate editors and reviewers have applauded the simplicity and are freed up to concentrate on the intellectual issues.

Turning now to some journal business, I would like to recognize the continued dedicated service of our fine associate editors who appear as the "2005 Team." The quality of the published papers attests to their thoroughness and willingness to help authors bring out their best. Occasionally, an Associate Editor will find that a non-US author needs extra help with publication format or grammar. Associate Editor Gil Crouse oversees our Board of International Editors, representing 19 countries, that appears on the inside front cover. They are ready to help authors in their respective countries with any such publication difficulties.

With great sorrow, we observe the passing last year of Dr. Bellur Nagabhushan. He served ably for several years as one of our able associate editors.

We are fortunate to have an editorial advisory board (EAB), also listed on the inside front cover. Most EAB members also serve on a technical committee relevant to this journal. In this way, these technical committees have a solid link to the journal for archival publication of their best meetings papers. EAB members help identify reviewers and also stimulate ideas for special sections (such as the two mentioned above) or survey papers dealing with topics of TC interest. This past year, EAB member Dr. Joseph Lee has provided assistance in contacting other EAB members and, where no EAB member has been assigned, contacting relevant TC chairs. As a result, several new EAB members have been identified and our reviewer list has grown.

The names of reviewers from January to end of September appear in this issue. I am sure you recognize many of these individuals and I certainly wish to thank them for their technical insight and willingness to assure that our published articles are accurate, timely, important to readers, and will retain lasting value. This journal would not exist without dedicated peer reviewers.

Norma Brennan ably directs the AIAA Publications staff. She efficiently oversees all journal activity along with her other publication duties. She has been especially helpful this past year as we further developed the WriteTrack online paper submission procedure for the *Journal of Aircraft*. Luke McCabe has been our Managing Editor since January 2004. Luke has been of great help to associate editors and authors alike, demonstrating great patience and thoroughness. Luke expertly helps with the development of the WriteTrack procedure. He patiently and expertly deals with all the special problems reported by editors and authors and then expertly engages the technical support staff in correcting the problem. Publications Specialist Alex McCray provided invaluable assistance to associate editors, authors, and myself whenever we encountered any problem with WriteTrack. However, we would not have the WriteTrack procedure at all without the technical support of John McAndrew and Sean Malone. They designed and built the system. Rick Ashley, Publications Web Developer, has now taken over all of the WriteTrack work. He interacts closely with editors and associate editors to identify remaining concerns and incorporate constructive ideas. I look forward to continuing my association with this fine professional staff.

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 Uncertainty also is published in this issue.

Thomas M. Weeks
Editor-in-Chief

Editor-in-Chief



THOMAS M. WEEKS completed his degree work at Syracuse University, Department of Mechanical and Aerospace Engineering, in 1965. He entered active commissioned service that year, assigned to the Air Force Flight Dynamics Laboratory (now the Air Vehicles Directorate of the Air Force Research Laboratory) at Wright-Patterson AFB, Ohio. His initial work was in the field of electrogasdynamics at the nearly completed 50 MW wind tunnel facility. In 1968, he separated from the Air Force, but took a civil position at the same location. He worked on a variety of projects, including unsteady hypersonic heating, transonic test techniques, and sonic boom, before becoming the Manager of the External Aerodynamics Group. He served first as the Deputy and then as the Manager of the DARPA/NASA/USAF X-29 Advanced Technology Demonstrator. He served as Chief of the Wind Tunnels Branch and the Technology Strategy Branch. He served as Acting Chief Scientist and Acting Deputy Director of the Directorate. He served as Chief of the Integration and Operations Division. He retired from the Air Vehicles Directorate in August of 1998 and is currently with Universal Technology Corporation in Dayton, OH.

Associate Editors



THOMAS W. AUGUSTINE is the Airframe Integration Technology Thrust Leader within The Boeing Company—Phantom Works—Survivability Design and Integration group. He received his B.S. in Aeronautical and Astronautical Engineering from Purdue University in 1982 and his M.S. in Engineering Management from Washington University in St. Louis in 1991. Mr. Augustine joined McDonnell Douglas in 1982 as a structural analysis engineer and worked on numerous production and developmental aircraft programs. Since 1990, he has worked in the research and development of affordable, survivable signature reduction structure technology. He is a senior member of the American Institute of Aeronautics and Astronautics and a member of the National Defense Industrial Association and the Tri-Service Low Observables Supportability Working Group.



INDERJIT CHOPRA is the Alfred Gessow Professor in Aerospace Engineering and Director of Alfred Gessow Rotorcraft Center at the University of Maryland. He received his B.S. in aero engineering from Punjab Engineering College, Chandigarh (India) in 1965; his M.E. from Indian Institute of Science, Bangalore in 1968; and his Sc.D. from MIT in 1977. He worked at the National Aerospace Laboratory, Bangalore from 1966 to 1974. His research there included wind-tunnel testing of scaled aeroelastic models of airplanes and launch vehicles. At MIT, he worked on dynamic analysis of wind turbines. In 1977, he joined NASA Ames/Stanford University Joint Institute of Aeronautics and Acoustics, where he worked for four-and-a-half years on the development of aeroelastic analysis of advanced rotor systems. In 1981, he joined the University of Maryland. He has been working on problems associated with aeromechanics of helicopter, smart structures and micro air vehicles. His graduate advising resulted in 34 Ph.D. and 60 M.S. degrees. An author of over 150 archival papers, Dr. Chopra has been Associate Editor of *Journal of the American Helicopter Society* (1987–91) and *Journal of Intelligent Materials and Systems* (1977–cont.). He was the recipient of 2002 AIAA Structures, Structural Dynamics and Materials Award, 2002 AHS Grover Bell Award, 2001 ASME Adaptive Structures and Material Systems Prize, 2002 A. J. Clark School of Engineering Faculty Outstanding Research Award, 2004 SPIE Smart Structures & Materials Lifetime Achievement Award. He has been a member of the Army Science Board (1997–2002). He is a Fellow of AIAA, ASME, AHS, NIA and Aeronautical Society of India.



GILBERT L. CROUSE, JR. is the Founder and President of DaVinci Technologies, Incorporated, which performs aircraft configuration design and develops aircraft design-oriented software tools. Dr. Crouse received his Ph.D. and M.S. in aerospace engineering from the University of Maryland and his B.S. in physics from Wheaton College. His specific areas of expertise and interest include configuration design, fixed-wing and rotary-wing aerodynamics, and computational analysis. Prior to forming DaVinci Technologies, Dr. Crouse was with BBN Technologies for six years and was appointed to Division Scientist by the President of BBN Technologies in 1999. He is a Senior Member of the AIAA, a member of the Aircraft Design Technical Committee, and a Member of the American Helicopter Society.



ROBERT E. DUFFY is currently President of RED Associates, a research, development, and consulting firm. A former member of the faculty of the Department of Mechanical Engineering, Aeronautical Engineering, and Mechanics at Rensselaer Polytechnic Institute, he was the Chairman of the aeronautical engineering academic program. He is the author of over 65 published papers and research reports in the areas of applied aerodynamics, flight mechanics, and experimental fluid dynamics. Dr. Duffy has served as a consultant to numerous governmental agencies, industrial concerns, and individuals. He is a past Member of the Atmospheric Flight Mechanics Technical Committee and is an Associate Fellow of AIAA.



FRANKLIN E. EASTEP is an Emeritus Professor of Aerospace Engineering at the University of Dayton. He received a B.S. in aeronautical engineering from Ohio State University in 1958, an M.S. in aeronautics from Air Force Institute of Technology in 1963, and a Ph.D. in aeronautics and astronautics from Stanford University in 1968. Dr. Eastep has been teaching and conducting research within the technical areas of structural dynamics, aeroelasticity, and unsteady aerodynamics since 1968. During that period, he has been the principal for 18 doctoral candidates and over 45 masters students. He served on active duty with the U.S. Air Force for 20 years, retiring in 1978. Dr. Eastep is a member of the American Academy of Mechanics and is a Fellow of AIAA. He is presently an NRC Senior Research Associate with the Air Force Research Laboratory at Wright-Patterson AFB.



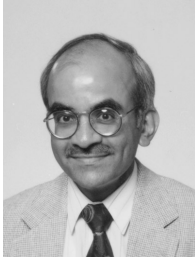
AHMED A. HASSAN is currently a Boeing Technical Fellow at the Boeing Company in Mesa, Arizona. His area of expertise is computational fluid dynamics (CFD). Dr. Hassan received his B.S. and M.S. from the University of Cairo in 1974 and 1976 respectively. He then received his Ph.D. from the University of Arizona in 1981. He was on the faculty of Arizona State University from 1981 to 1987 as an Assistant Professor. He joined the Boeing Company (then McDonnell Douglas Helicopter Company) in 1987, where he conducted research related to the application/development of CFD design and analysis tools to rotorcraft problems. He is the company representative on the corporate-wide CFD working group, an Associate Fellow of AIAA (1981 to the present), and a member of the American Helicopter Society (1987 to the present). He is currently serving as Associate Editor for the *AIAA Journal of Aircraft* in the area of CFD. Dr. Hassan has published more than 30 archival studies and presented more than 60 papers at national and international conferences. He holds six patents and has four additional patents pending with the U.S. Patent and Trademark Office. His work has focused on modeling the aerodynamics of rotor blade-vortex interactions and investigating novel flow control techniques for rotorcraft applications.



RONALD A. HESS received the B.S., M.S., and Ph.D. degrees in aerospace engineering from the University of Cincinnati. After completing his doctoral degree, he joined the faculty of the Department of Aeronautics at the U.S. Naval Postgraduate School in Monterey, California. In 1976 he joined the staff of the Flight Systems Research Division at NASA Ames Research Center. In 1982, he joined the faculty at the University of California, Davis, where he is currently a Professor in the Department of Mechanical and Aeronautical Engineering. His research interests lie in the areas of automatic and manual control and in human/machine systems. He is an Associate Fellow of AIAA, and a Senior Member of IEEE. In 2000, he was a recipient of the AIAA Mechanics and Control of Flight Award. He is also an Associate Editor of the *IEEE Transactions on Systems, Man, and Cybernetics, Part A*, and the *British Journal of Aerospace Engineering*.



KENNETH J. HOLT retired from McDonnell Douglas Corporation in 1990. He had been involved in flight test operations and marketing. He received his B.S. from Hampton University in Virginia and his M.B.A. from the University of Missouri, St. Louis. He served 20 years in the U.S. Air Force and retired as a Lieutenant Colonel and a Command Pilot. His background is in fighters. He has flown the F-86, F-100, F-4, F-15, and F-18, and he spent tours in the Air Training Command and Strategic Air Command. He joined McDonnell in 1973. There, he flew production test flights and was the company's interface with the military and Federal Aviation Administration for test flights. He developed much of the flight test operating procedure for the F-18 and AV8B, and was the McDonnell flight operations consultant to the Government Aircraft Factory F-18 facility at Avalon, Australia. He retired from active flying in 1984. Mr. Holt served as Chair of the Aircraft Operations Technical Committee from 1985 to 1987. He is a Senior Member of AIAA.



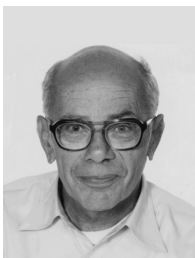
MAHENDRA C. JOSHI is a Manager in the Noise and Emissions group at Boeing Commercial Airplanes in Seattle, Washington. Prior to this assignment, he was responsible for acoustics and propulsion technologies in the Phantom Works organization of McDonnell Douglas in Long Beach, California. Dr. Joshi has more than 20 years of experience in the development of acoustic technology for air and space vehicles. This includes prediction and control of engine and airframe noise sources, sonic loads, and transmission of noise inside vehicles. He was selected as MDC Technical Fellow in 1993. He conducted rotorcraft noise research at Bell Helicopter Textron in Fort Worth, Texas, for four years and was a Postdoctoral Research Associate at NASA Langley Research Center for two years. He is an Associate Fellow of AIAA and was a Member of the Aeroacoustics Technical Committee. He received his Ph.D in Aerospace/Mechanical Engineering from the University of Tennessee Space Institute in 1977.



THOMAS W. STRGANAC is an Associate Professor of Aerospace Engineering at Texas A&M University. He received his B.S. in aerospace engineering from North Carolina State University in 1977, his M.S. in aerospace engineering from Texas A&M University in 1980, and his Ph.D. in engineering mechanics from Virginia Polytechnic Institute and State University in 1987. In 1975 he joined the staff at NASA's Wallops Flight Center where he served as an Engineer in NASA's Sounding Rocket Program Branch and the Lighter-Than-Air Program Office. In 1982 he transferred to NASA's Langley Research Center where he served as a Research Engineer until 1989. In 1989 he accepted an appointment on the faculty at Texas A&M University. His research interests focus on fluid-structure interaction, structural dynamics, nonlinear mechanics, material/system identification, and aeroelastic phenomena. He has organized and presented internationally short courses on Advanced Flight Tests (with Donald T. Ward) and Aeroelasticity, and he is the coauthor of the text titled *Introduction to Flight Test Engineering*. He has served on the Lighter-Than-Air Systems Technical Committee (TC), the Balloon Systems and Technology TC, and the Structural Dynamics TC. He is an Associate Fellow of the AIAA and a registered professional engineer.



BRIAN E. THOMPSON holds the NSERC-GM of Canada Chair of Engineering Design and Innovation at The University of Western Ontario. He received his B.A.Sc. (Mechanical Engineering) from the University of Waterloo in 1979 and a Ph.D. from Imperial College of Science and Technology in 1984. He has been at a licensed professional engineering since 1986 in Ontario and Connecticut. Dr. Thompson is a seasoned engineering designer with experience on advanced medical, automotive, aircraft, rocket-engine, and instrumentation concepts. He has industrial experience at Bell Northern Research, Scientific Research Associates, and Boeing and held previous academic appointments at Imperial College, the University of Waterloo, and RPI. His research places emphasis on studio pedagogy, trailing-edge flows, vehicular design, and emerging technologies. He was the Chief Engineer of the Aircraft Studio at RPI which produced the world's largest student-engineered aircraft. Thompson has engineering experience in a wide range of applications including commercial aircraft, high-speed snow plowing, hybrid electric automobiles, axial turbomachinery, centrifugal pumps, heat exchangers, telephony heat transfer, gas and steam turbines, and pulmonary ventilation. He has authored over 160 publications and technical reports, is a patent holder, and has presented invited lectures and short courses on aerodynamics, engineering studios, and aircraft design in the U.S., Europe, Canada, and the U.K.



MURRAY TOBAK is a Senior Staff Scientist at NASA Ames Research Center. He has degrees from the University of California and Stanford University, and has been a Research Scientist at NACA-NASA Ames Research Center since 1948. He has specialized in theoretical studies of fluid and flight dynamics of high-speed aircraft and missiles. His studies have been aimed at identifying problems in nonlinear dynamics, flow stability, 3D separated flow, and vortex phenomena requiring basic research and new analytical and experimental tools for their solution. He is an AIAA Associate Fellow and has received NASA's Exceptional Service Award.