

# Chronological Index

**J83-323 Thickness and Camber Effects in Slender Wing Theory.** A Plotkin, *University of Maryland* (21, 12, p. 1755) Technical Note

Technical Comment by Ana Laverón-Simavilla and José Manuel Perales, *Universidad Politécnica de Madrid, Spain* (43, 11, p. 2462) Reply (43, 11, p. 2462)

**J04-049 Rotational Effects on the Boundary-Layer Flow in Wind Turbines.** Horia Dumitrescu and Vladimir Cardos, *Institute of Statistics and Applied Mathematics, Romania* (42, 2, p. 408) Technical Note

Technical Comment by D. H. Wood, *University of New Castle, Australia* (43, 10, p. 2268) Reply (43, 10, p. 2269)

**J04-197 Rapid Preliminary Design of Rectangular Linear Cellular Alloys for Maximum Heat Transfer.** Rajesh S. Kumar and David L. McDowell, *Georgia Institute of Technology* (42, 8, p. 1652) Article based on AIAA Paper 2002-5569 Errata (43, 1, p. 219)

**J05-001 Birth of American Soaring Flight: A New Technology.** Simine Short, *National Soaring Museum* (43, 1, p. 17) History of Key Technologies

**J05-002 Accuracy of the Induced Velocity from Helicoidal Wake Vortices Using Straight-Line Segmentation.** Sandeep Gupta and J. Gordon Leishman, *University of Maryland* (43, 1, p. 29) Article

**J05-003 Effect of Airfoil Aerodynamic Loading on Trailing Edge Noise Sources.** Stephane Moreau, *Valeo Motors and Actuators, France*; and Michel Roger, *Ecole Centrale de Lyon, France* (43, 1, p. 41) Article based on AIAA Paper 2003-3225

**J05-004 Nonlinear Aeroelastic Computation of a Wing/Pylon/Finned-Store Using Parallel Computing.** Dong-Hyun Kim, *GyeongSang National University, South Korea*; Young-Min Park, *Korea Aerospace Research Institute, South Korea*; In Lee and Oh Joon Kwon, *Korea Advanced Institute of Science and Technology, South Korea* (43, 1, p. 53) Article

**J05-005 Aerofoil-Vortex Interaction Using the Compressible Vorticity Confinement Method.** Romuald Morvant, Ken K. Badcock, and George G. Barakos, *University of Glasgow, Great Britain* (43, 1, p. 63) Article

**J05-006 Cartesian Grid Method for Moderate-Reynolds-Number Flows Around Complex Moving Objects.** Jo-Einar Emblemssvåg, Ryuta Suzuki, and Graham V. Candler, *University of Minnesota* (43, 1, p. 76) Article

**J05-007 Far-Field Acoustic Investigation into Chevron Nozzle Mechanisms and Trends.** Bryan Callender and Ephraim J. Gutmark, *University of Cincinnati*; and Steve Martens, *General Electric Aircraft Engines* (43, 1, p. 87) Article based on AIAA Paper 2003-1058

**J05-008 Ninety-Degree Acoustic Spectrum of a High Speed Air Jet.** Marvin E. Goldstein, *NASA John H. Glenn Research Center* (43, 1, p. 96) Article

**J05-009 Modeling the Buckling of Axially Compressed Elastic Cylindrical Shells.** S. R. Bodner and M. B. Rubin, *Technion-Israel Institute of Technology, Israel* (43, 1, p. 103) Article

**J05-010 Temporal Linear Stability Analysis of Three-Dimensional Compressible Binary Shear Layers.** Ivan Fedoun, *CNRS, France*; and Nicolas Lardjane, *Simulog, France* (43, 1, p. 111) Article

**J05-011 Acoustic Propagation on Irrotational Mean Flows Using Transient Finite and Infinite Elements.** James A. Hamilton and Richard J. Astley, *University of Southampton, Great Britain* (43, 1, p. 124) Article based on AIAA Paper 2003-3208

**J05-012 Reference Enthalpy Method Developed from Solutions of the Boundary-Layer Equations.** William E. Meador and Michael K. Smart, *NASA Langley Research Center* (43, 1, p. 135) Article

**J05-013 Experiments and Modeling of an Unsteady Turbulent Channel Flow.** Sedat F. Tardu and Paulo Da Costa, *Laboratoire des Ecoulements Géophysiques et Industriels, France* (43, 1, p. 140) Article

**J05-014 Nonlinear Aspects of Hypersonic Boundary-Layer Stability on a Porous Surface.** Ndaona Chokani, *Duke University*; Dmitry A. Bountin, Alexander N. Shiplyuk, and Anatoly A. Maslov, *Russian Academy of Sciences, Russia* (43, 1, p. 149) Article based on AIAA Paper 2004-0255

**J05-015 Outflow Conditions for Integrated Large Eddy Simulation/Reynolds-Averaged Navier-Stokes Simulations.** Jörg U. Schlüter, Heinz Pitsch, and Parviz Moin, *Stanford University* (43, 1, p. 156) Article based on AIAA Paper 2002-3171

**J05-016 Beam Steering and Shaping of Smart Cylindrical Antenna.** Vijay K. Gupta, *Engineering College Kota, India*; P. Seshu, K. K. Issac, and R. K. Shevgaonkar, *Indian Institute of Technology, Bombay, India* (43, 1, p. 165) Article

**J05-017 Dual-Band Infrared Imagery of an Atlas 5 Launch Vehicle in Flight.** Arnold C. Goldberg, *U.S. Army Research Laboratory* (43, 1, p. 174) Article

**J05-018 Performance of Smart Damping Treatment Using Piezoelectric Fiber-Reinforced Composites.** Manas C. Ray, *Texas A&M University*; and Nilanjan Mallik, *Indian Institute of Technology, India* (43, 1, p. 184) Article

**J05-019 Spectrum Evaluation Method for Wrinkled Membranes.** Takashi Iwasa, *Institute of Space and Astronautical Science, Japan*; Mindy Jacobson, *NASA Goddard Space Flight Center*; and M. C. Natori, *Institute of Space and Astronautical Science, Japan* (43, 1, p. 194) Article based on AIAA Paper 2004-1742

**J05-020 Efficient Modification Scheme of Stress-Strain Tensor for Wrinkled Membranes.** Kyoichi Nakashino and Michihiro C. Natori, *Institute of Space and Astronautical Science, Japan* (43, 1, p. 206) Article based on AIAA Paper 2003-1981

**J05-021 Use of Vortex Generators to Control Internal Supersonic Flow Separation.** Andrzej Szumowski and Jan Wojciechowski, *Warsaw University of Technology, Poland* (43, 1, p. 216) Technical Note

**J05-022 Influence of Gravity on Combustion Synthesis of Advanced Materials.** Alex Mukasyan and Cheryl Lau and Arvind Varma, *University of Notre Dame* (43, 2, p. 225) Article

**J05-023 Euler Solution Using Cartesian Grid with a Gridless Least-Squares Boundary Treatment.** E. P. C. Koh and Her-Mann Tsai, *National University of Singapore, Singapore*; and Feng Liu, *University of California* (43, 2, p. 246) Article based on AIAA Paper 2003-1120

**J05-024 Control of Edney IV Interaction by Pulsed Laser Energy Deposition.** Russell G. Adelgren, *U.S. Air Force Test Pilot School*; Hong Yan, Gregory S. Elliott, and Doyle D. Knight, *Rutgers University*; Thomas J. Beutner, *U.S. Air Force Office of Scientific Research*; and Alexander A. Zheltovodov, *Russian Academy of Sciences, Russia* (43, 2, p. 256) Article

**J05-025 Reduced-Order Modeling of a Heaving Airfoil.** G. C. Lewin and H. Haj-Hariri, *University of Virginia* (43, 2, p. 270) Article

**J05-026 Application of Simultaneous Perturbation Stochastic Approximation Method for Aerodynamic Shape Design Optimization.** Xiu Qing Xing and Murali Damodaran, *Nanyang Technological University, Singapore* (43, 2, p. 284) Article based on AIAA Paper 2003-5643

**J05-027 Calculation of Airfoil Flutter by an Euler Method with Approximate Boundary Conditions.** Chao Gao, Shijun Luo, and Feng Liu, *University of California, Irvine*; and David M. Schuster, *NASA Langley Research Center* (43, 2, p. 295) Article

**J05-028 Verification and Validation of Time Domain Impedance Boundary Condition in Lined Ducts.** Shi Zheng and Mei Zhuang, *Michigan State University* (43, 2, p. 306) Article

**J05-029 Modeling Pulsed-Blowing Systems for Flow Control.** Byung-Hun Kim and David R. Williams, *Illinois Institute of Technology*; Steve Emo and Mukund Acharya, *Honeywell Engines Systems, and Services* (43, 2, p. 314) Article

**J05-030 Sound Generated by a Pair of Axisymmetric Viscous Coaxial Vortex Rings.** Keith Y. Liow, Mark C. Thompson, and Kerry Hourigan, *Monash University, Australia* (43, 2, p. 326) Article

**J05-031 Evaluation of High-Order Spectral Volume Method for Benchmark Computational Aeroacoustic Problems.** Z. J. Wang, *Michigan State University* (43, 2, p. 337) Article based on AIAA Paper 2003-0880

**J05-032 Numerical Investigation of Reflected Shock/Vortex Interaction near an Open-Ended Duct.** Shen-Min Liang, Wen-Tai Chung, and Hua Chen, *National Cheng Kung University, Taiwan (ROC)*; and Shih-Hwa Shyu, *Wu-Feng Institute of Technology College, Taiwan (ROC)* (43, 2, p. 349) Article

**J05-033 Reduced-Order Model for Efficient Simulation of Synthetic Jet Actuators.** Nail K. Yamaleev, *North Carolina A&T State University*; Mark H. Carpenter, *NASA Langley Research Center*; and Frederick Ferguson, *North Carolina A&T State University* (43, 2, p. 357) Article

**J05-034 Aerodynamic Performance of Transonic Bethe-Zal'dovich-Thompson Flows past an Airfoil.** Paola Cinnella and Pietro M. Congedo, *University of Lecce, Italy* (43, 2, p. 370) Article

**J05-035 Penetration of a Transverse Supersonic Jet into a Subsonic Compressible Crossflow.** Steven J. Beresh, John F. Henfling, Rocky J. Erven, and Russell W. Spillers, *Sandia National Laboratories* (43, 2, p. 379) Article based on AIAA Paper 2004-1112

**J05-036 Experimental Investigation of a Pulse Detonation Engine with a Two-Dimensional Ejector.** Daniel C. Allgood and Ephraim Gutmark, *University of Cincinnati*; Adam Rasheed and Anthony Dean, *General Electric Global Research Center* (43, 2, p. 390) Article based on AIAA Paper 2004-0864

**J05-037 Efficient Finite Difference Design Sensitivities.** Uri Kirsch and Michael Bogomolni, *Technion—Israel Institute of Technology, Israel*; and Fred van Keulen, *Koiter Institute Delft, The Netherlands* (43, 2, p. 399) Article

**J05-038 Minimizing Blade Dynamic Response in a Bladed Disk Through Design Optimization.** Jianfu Hou, *Defence Science and Technology Organization, Australia*; and Charles Cross, *U.S. Air Force Research Laboratory* (43, 2, p. 406) Article

**J05-039 Direct Least-Squares Formulation of a Stiffness Adjustment Method.** Brian H. Sako and Alvar M. Kabe, *The Aerospace Corporation* (43, 2, p. 413) Article based on AIAA Paper 2004-1531

**J05-040 Effect of Pressure Distribution on Energy Dissipation in a Mechanical Lap Joint.** Yaxin Song, D. Michael McFarland, Lawrence A. Bergman, and Alexander F. Vakakis, *University of Illinois* (43, 2, p. 420) Article

**J05-041 Ballistic Perforation of Conically Cylindrical Steel Projectile into Three-Dimensional Braided Composites.** Bohong Gu and Yuling Li, *Donghua University, China (PRC)* (43, 2, p. 426) Article

**J05-042 Aeroacoustic Carousel.** M C M Wright, *University of Southampton, Great Britain* (43, 2, p. 435) Technical Note based on AIAA Paper 2003-3264

**J05-043 Decrease of the Effective Reynolds Number with Eddy-Viscosity Subgrid Modeling.** Christophe Bogey and Christophe Bailly, *Ecole Centrale de Lyon, France* (43, 2, p. 437) Technical Note

**J05-044 Damage Identification of Plate Structures Using a Hybrid Genetic-Sensitivity Approach.** Scott M. Bland and Rakesh K. Kapania, *Virginia Polytechnic Institute and State University* (43, 2, p. 439) Technical Note based on AIAA Paper 2002-5463

**J05-045 Buckling of a Circular Plate Weakened by Concentric Hinge or Partial Crack.** C. Y. Wang, *Michigan State University* (43, 2, p. 442) Technical Note

**J05-046 Narrow-Linewidth Ultraviolet Source for Rayleigh and Raman Applications.** Lipeng Qian, Sohail H. Zaidi, and Richard B. Miles, *Princeton University* (43, 3, p. 451) Article based on AIAA Paper 2004-20

**J05-047 Nonstationary Collisional Dynamics in Determining Nitric Oxide Laser-Induced Fluorescence Spectra.** John W. Daily, *University of Colorado, Boulder*; Wolfgang G. Bessler, *University of Heidelberg, Germany*; Christof Schulz, *University of Duisburg-Essen, Germany*; Volker Sick, *University of Michigan*; and Thomas B. Settersten, *Sandia National Laboratory* (43, 3, p. 458) Article based on AIAA Paper 2004-389

**J05-048 Assimilation of Physical Chemistry Models for Lifetime Analysis of Pressure-Sensitive Paint.** Wim Ruyten, *Aerospace Testing Alliance* (43, 3, p. 465) Article based on AIAA Paper 2004-0880

**J05-049 Correlation-Based Image Registration for Applications Using Pressure-Sensitive Paint.** Sang-Hyun Park and Hyung Jin Sung, *Korea Advanced Institute of Science and Technology, South Korea* (43, 3, p. 472) Article based on AIAA Paper 2004-882

**J05-050 Planar Particle Imaging Doppler Velocimetry: A Three Component Velocity Measurement Technique.** Mark P. Wernet, *NASA John H. Glenn Research Center at Lewis Field* (43, 3, p. 479) Article based on AIAA Paper 2004-0022

**J05-051 Three Dimensional Planar Doppler Velocity Measurements in a Full-Scale Rotor Wake.** Robert L. McKenzie, *MetroLaser Inc*; and Michael S. Reinath, *NASA Ames Research Center* (43, 3, p. 489) Article based on AIAA Paper 2004-2474

**J05-052 Development of Megahertz-Rate Planar Doppler Velocimetry for High Speed Flows.** Brian S. Thurow, Naibo Jiang, Walter R. Lempert, and Mo Samimy, *The Ohio State University* (43, 3, p. 500) Article based on AIAA Paper 2004-0023

**J05-053 Uncertainty Analysis of Laser-Doppler-Velocimetry Measurements in a Swirling Flowfield.** Venkatraman A. Iyer and Mark A. Woodmansee, *General Electric Global Research Center* (43, 3, p. 512) Article based on AIAA Paper 2004-1226

**J05-054 High-Frequency Oscillating-Hot-Wire Sensor for Near-Wall Diagnostics in Separated Flows.** Yongxiang Li and Ahmed M. Naguib, *Michigan State University* (43, 3, p. 520) Article based on AIAA Paper 2004-1041

**J05-055 Intelligent Genetic Algorithm and Its Application to Aerodynamic Optimization of Airplanes.** Jenn-Long Liu, *Leader University, Taiwan (ROC)* (43, 3, p. 530) Article

**J05-056 Computations of Wall Distances Based on Differential Equations.** Paul G. Tucker, *University of Wales, Swansea, Great Britain*; Chris L. Rumsey, *NASA Langley Research Center*; Philippe R. Spalart, *Boeing Commercial Airplanes*; Robert B. Bartels and Robert T. Biedron, *NASA Langley Research Center* (43, 3, p. 539) Article based on AIAA Paper 2004-2232

**J05-057 Vortex Buffeting of Aircraft Tail: Interpretation via Proper Orthogonal Decomposition.** Younjong Kim and Donald Rockwell, *Lehigh University*; and Antonios Liakopoulos, *University of Thessaly, Greece* (43, 3, p. 550) Article

**J05-058 Reduced-Order-Model Approach for Aeroelastic Analysis Involving Aerodynamic and Structural Nonlinearities.** Sorin L. Munteanu, John Rajadas, Changho Nam, and Aditi Chattopadhyay, *Arizona State University* (43, 3, p. 560) Article

**J05-059 Structural Behavior of Thin- and Thick-Walled Composite Blades with Multicell Sections.** Sung Nam Jung and Il Ju Park, *Chonbuk National University, South Korea* (43, 3, p. 572) Article based on AIAA Paper 2002-1432

**J05-060 Sensitivity of Repeated Eigenvalues to Perturbations.** Kanika N. Vessel, Yitshak M. Ram, and Su-Seng Pang, *Louisiana State University* (43, 3, p. 582) Article

**J05-061 Modeling the Effect of Shock Unsteadiness in Shock/Turbulent Boundary-Layer Interactions.** Krishnendu Sinha, Krishnan Mahesh, and Graham V. Candler, *University of Minnesota* (43, 3, p. 586) Article based on AIAA Paper 2004-1129

**J05-062 Interaction of Plume with Shock Waves in Laser Ablation.** Diomar C. Lobao, *Concordia University, Canada*; and Alex Povitsky, *University of Akron* (43, 3, p. 595) Article based on AIAA Paper 2003-3923

**J05-063 Antialiasing Filters for Coupled Reynolds-Averaged/Large-Eddy Simulations.** Jorg U. Schluter and Heinz Pitsch, *Stanford University* (43, 3, p. 608) Article based on AIAA Paper 2004-0258

**J05-064 Effects of Numerics on Navier-Stokes Computations of Hypersonic Double-Cone Flows.** Marie-Claude Druguet, *Université de Provence, France*; Graham V. Candler and Ioannis Nompelis, *University of Minnesota* (43, 3, p. 616) Article based on AIAA Paper 2003-3548

**J05-065 Multistage Coupling for Unsteady Flows in Turbomachinery.** Kenneth C. Hall and Kivanc Ekici, *Duke University* (43, 3, p. 624) Article

**J05-066 Experimental and Numerical Determination of Micropropulsion Device Efficiencies at Low Reynolds Numbers.** Andrew D. Ketsdever, *U.S. Air Force Research Laboratory*; Michael T. Clabough, Sergey F. Gimelshein, and Alina A. Alexeenko, *University of Southern California* (43, 3, p. 633) Article

**J05-067 High-Speed Digital-Particle-Image-Velocimetry Study of Vortex Breakdown.** Sundie M. Klute, *Lunna Innovations*; Pavlos P. Vlachos and Demetri P. Telionis, *Virginia Polytechnic Institute and State University* (43, 3, p. 642) Article

**J05-068 Fuzzy Finite Element Approach for Analysis of Fiber-Reinforced Laminated Composite Beams.** Qing Liu and Singiresu S. Rao, *University of Miami* (43, 3, p. 651) Article

**J05-069 High-Performance Domainwise Parallel Direct Solver for Large-Scale Structural Analysis.** Jeong Ho Kim, *Korea Institute of Science and Technology Information, South Korea*; Chang Sung Lee and Seung Jo Kim, *Seoul National University, South Korea* (43, 3, p. 662) Article

**J05-070 Active Control of Nonlinear Panel Flutter Under Yawed Supersonic Flow.** Khaled Abdel-Motagaly, *Boeing Phantom Works*; Xinyun Guo, *Old Dominion University*; Bin Duan, *Claritas Inc.*; and Chuh Mei, *Old Dominion University* (43, 3, p. 671) Article

- J05-071 Use of the Arc-Length Method for Capturing Mode Jumping in Postbuckling Aerostructures.** Marco Cerini and Brian G. Falzon, *Imperial College London, Great Britain* (43, 3, p. 681) Article
- J05-072 Postbuckling Behavior of Triangular Plates.** M. Azhari, A. R. Shahidi, and M. M. Saadatpour, *Isfahan University of Technology, Iran*; and Mark A. Bradford, *The University of South Wales, Australia* (43, 3, p. 690) Article
- J05-073 Virtual Origin of Incompressible and Supersonic Turbulent Bluff-Body Wakes.** Masaki Nakagawa and Werner J. Dahm, *University of Michigan* (43, 3, p. 697) Technical Note
- J05-074 The Supercritical Peanut: The Navy's Pioneer in High-Speed Flight Research.** George R. Inger, *Iowa State University* (43, 4, p. 706) History of Key Technologies based on AIAA Paper 2003-0288
- J05-075 Flow Control of a Sharp-Edged Airfoil.** Segio Miranda, Pavlos P. Vlachos, and Demetri P. Telionis, *Virginia Polytechnic Institute and State University*; and Matthew D. Zeiger, *Aeroprobe Corporation* (43, 4, p. 716) Article based on AIAA Paper 2001-0119
- J05-076 Surface Modification Method for Aerodynamic Design Optimization.** Hyoung-Jin Kim, Salim Koc, and Kazuhiro Nakahashi, *Tohoku University, Japan* (43, 4, p. 727) Article based on AIAA Paper 2004-2328
- J05-077 Experimental Study of Incompressible Jets with Different Initial Swirl Distributions: Mean Results.** Robert T. Gilchrist and Jonathan W. Naughton, *University of Wyoming* (43, 4, p. 741) Article based on AIAA Paper 2003-0639
- J05-078 Acoustic Source Terms for the Linearized Euler Equations in Conservative Form.** Mattias Billson, Lars-Erik Eriksson, and Lars Davidson, *Chalmers University of Technology, Sweden* (43, 4, p. 752) Article
- J05-079 Stability of Hypersonic Boundary Layers over a Compression Corner.** P. Balakumar, *NASA Langley Research Center*; Hongwu Zhao, *Old Dominion University*; and Harold Atkins, *NASA Langley Research Center* (43, 4, p. 760) Article based on AIAA Paper 2002-2848
- J05-080 Autonomous Control of Micro Aircraft Vehicles Falling Through an Atmospheric Boundary Layer.** A. J. Dorgan, E. Loth, and E. Frazzoli, *University of Illinois at Urbana-Champaign* (43, 4, p. 768) Article
- J05-081 Axisymmetric Jet Shear-Layer Excitation Induced by Laser Energy and Electric Arc Discharges.** Russell G. Adelgren, Greg S. Elliott, Jason B. Crawford, *Rutgers—The State University of New Jersey*; Campbell D. Carter and Jeffrey M. Donbar, *U.S. Air Force Research Laboratory*; and Dennis F. Grosjean, *Innovative Scientific Solutions Inc.* (43, 4, p. 776) Article based on AIAA Paper 2002-0729
- J05-082 Thrust Augmentation and Vortex Ring Evolution in a Fully-Pulsed Jet.** Paul S. Krueger, *Southern Methodist University*; and Morteza Gharib, *California Institute of Technology* (43, 4, p. 792) Article
- J05-083 Harmonic Balance Approach for an Airfoil with a Freeplay Control Surface.** Liping Liu and Earl H. Dowell, *Duke University* (43, 4, p. 802) Article
- J05-084 Unsteady Calibration of Fast-Response Pressure Probes, Part 1: Theoretical Studies.** Espen S. Johansen and Othon K. Rediniotis, *Texas A&M University* (43, 4, p. 816) Article
- J05-085 Unsteady Calibration of Fast-Response Pressure Probes, Part 2: Water-Tunnel Experiments.** Espen S. Johansen and Othon K. Rediniotis, *Texas A&M University* (43, 4, p. 827) Article
- J05-086 Unsteady Calibration of Fast-Response Pressure Probes, Part 3: Air Jet Experiments.** Espen S. Johansen and Othon K. Rediniotis, *Texas A&M University* (43, 4, p. 835) Article
- J05-087 Optimization of Flexible Multibody Dynamic Systems Using the Equivalent Static Load Method.** Byung-Soo Kang and Gyung-Jin Park, *Hanyang University, South Korea*; and Jasbir S. Arora, *University of Iowa* (43, 4, p. 846) Article
- J05-088 Use of Kriging Models to Approximate Deterministic Computer Models.** Jay D. Martin, *Applied Research Laboratory*; and Timothy W. Simpson, *Pennsylvania State University* (43, 4, p. 853) Article
- J05-089 Probabilistic Structural Optimization Under Reliability, Manufacturability, and Cost Constraints.** Masoud Rais-Rohani and Qiulin Xie, *Mississippi State University* (43, 4, p. 864) Article based on AIAA Paper 2003-1631
- J05-090 Enriched Performance Measure Approach for Reliability-Based Design Optimization.** Byeng D. Youn, Kyung K. Choi, and Liu Du, *University of Iowa* (43, 4, p. 874) Article
- J05-091 Coupled High-Order Shear Layerwise Analysis of Adaptive Sandwich Piezoelectric Composite Beams.** Theofanis S. Plagianakos and Dimitris A. Saravanos, *University of Patras, Greece* (43, 4, p. 885) Article based on AIAA Paper 2004-1716
- J05-092 Improved Transverse Shear Calculations for Rate-Dependent Analyses of Polymer Matrix Composites.** Linfa Zhu, *Arizona State University*; Heung Soo Kim, *Inha University, South Korea*; Aditi Chattopadhyay, *Arizona State University*; and Robert K. Goldberg, *NASA John H. Glenn Research Center at Lewis Field* (43, 4, p. 895) Article based on AIAA Paper 2004-1638
- J05-093 Approximate Solution and Optimum Design of Compression-Loaded, Postbuckled Laminated Composite Plates.** Cezar G. Diaconu and Paul M. Weaver, *University of Bristol, Great Britain* (43, 4, p. 906) Article based on AIAA Paper 2004-1565
- J05-094 Generalized Transonic Unsteady Aerodynamics via Computational-Fluid-Dynamics/Indicial Approach.** Piergiorgio Marzocca, *Clarkson University*; Liviu Librescu, *Virginia Polytechnic Institute and State University*; Dong-Hyun Kim, *Gyeongsang National University, South Korea*; In Lee, *Korea Advanced Institute of Science and Technology, South Korea*; and Stephen Schober, *Clarkson University* (43, 4, p. 915) Technical Note based on AIAA Paper 2003-1925

**J05-095 Chaotic Flow Generated by an Oscillating Foil.** Paolo Blondeaux and Laura Guglielmini, *University of Genoa, Italy*; and Michael S. Triantafyllou, *Massachusetts Institute of Technology* (**43**, 4, p. 918) Technical Note

**J05-096 Synthetic Jets in Cross-Flow.** Ivana M. Milanovic, *University of Hartford*; and K. B. M. Q. Zaman, *NASA John H. Glenn Research Center at Lewis Field* (**43**, 5, p. 929) Article based on AIAA Paper 2003-3714

**J05-097 Calibration and Data-Reduction Algorithms for Nonconventional Multihole Pressure Probes.** Vijay Ramakrishnan and Othon K. Rediniotis, *Texas A&M University* (**43**, 5, p. 941) Article

**J05-098 Analysis and Prediction of Thin-Airfoil Stall Phenomena with Hybrid Turbulence Methodology.** Soshi Kawai, *University of Tokyo, Japan*; and Kozo Fujii, *Japan Aerospace Exploration Agency, Japan* (**43**, 5, p. 953) Article based on AIAA Paper 2004-2714

**J05-099 Microstructural Effects in Multilayers with Large Moduli Contrast Loaded by Flat Punch.** Linfeng Chen, *University of Virginia*; Edward E. Urquhart, *Maerkisches Werk*; and Marek-Jerzy Pindera, *University of Virginia* (**43**, 5, p. 962) Article

**J05-100 Advanced Test Strategy for Identification and Characterization of Nonlinearities of Aerospace Structures.** Dennis Goege, Ulrich Fuellekrug, and Michael Sinapius, *Deutsches Zentrum für Luft- und Raumfahrt, Germany*; Michael Link, *University of Kassel, Germany*; and Lothar Gaul, *University of Stuttgart, Germany* (**43**, 5, p. 974) Article

**J05-101 Key Links to Space Weather: Forecasting Solar-Generated Shocks and Proton Acceleration.** Craig D. Fry, *Exploration Physics International, Inc.*; Murray Dryer, *National Oceanic and Atmospheric Administration*; Wei Sun and Charles S. Deehr, *University of Alaska*; Zdenka Smith, *National Oceanic and Atmospheric Administration*; Angels Aran, *Inst. d'Estudis Espacials de Catalunya, Spain*; Thomas R. Detman, *National Oceanic and Atmospheric Administration*; David Lario, *Johns Hopkins University*; Blas Sanahuja, *University of Barcelona, Spain*; and Syun I. Akasofu, *University of Alaska* (**43**, 5, p. 987) Article based on AIAA Paper 2003-1226

**J05-102 Strain Rate Effect on Four-Step Three-Dimensional Braided Composite Compressive Behavior.** Baozhong Sun, Liu Yang, and Bohong Gu, *Donghua University, China (PRC)* (**43**, 5, p. 994) Article

**J05-103 Effects of Inflow Conditions and Forcing on Subsonic Jet Flows and Noise.** Christophe Bogey and Christophe Bailly, *Ecole Centrale de Lyon, France* (**43**, 5, p. 1000) Article based on AIAA Paper 2003-3170

**J05-104 Nozzle Shaping for Reduction of Jet Noise from Single Jets.** Krishna Viswanathan, *The Boeing Company* (**43**, 5, p. 1008) Article based on AIAA Paper 2004-2974

**J05-105 Investigation of Three-Dimensional Dynamic Stall Using Computational Fluid Dynamics.** Agis Spentzos, George N. Barakos, Ken J. Badcock, and Bryan E. Richards, *University of Glasgow, Great Britain*; P. Wernert, *French-German Institute of Saint-Louis, France*; Scott Schreck, *National Renewable Energy Laboratory*; and M. Raffel, *DLR, German Aerospace Research Center, Germany* (**43**, 5, p. 1023) Article

**J05-106 Nonlinear Disturbance Evolution Across a Hypersonic Compression Corner.** Hongwu Zhao, *University of Colorado*; and Ponnappalam Balakumar, *NASA Langley Research Center* (**43**, 5, p. 1034) Article

**J05-107 Fast Fourier Transform Convergence Criterion for Numerical Simulations of Periodic Fluid Flows.** Mohamed H. Ahmed and Thomas J. Barber, *University of Connecticut* (**43**, 5, p. 1042) Article based on AIAA Paper 2004-0738

**J05-108 Large-Structure Topology in a Three-Dimensional Supersonic Base Flow.** Alan L. Kastengren and J. Craig Dutton, *University of Illinois Urbana-Champaign* (**43**, 5, p. 1053) Article based on AIAA Paper 2004-2340

**J05-109 Eddy-Current-Based Momentum Transfer Method to Suppress Three-Dimensional Separation.** Datta V. Gaitonde and James H. Miller, *U.S. Air Force Research Laboratory* (**43**, 5, p. 1064) Article

**J05-110 Reduced-Order Structure of Reacting Rectangular Jets.** Jennifer L. Edwards and Frederick C. Gouldin, *Cornell University*; Fernando F. Grinstein and Kazhikathra Kailasanath, *U.S. Naval Research Laboratory* (**43**, 5, p. 1075) Article based on AIAA Paper 2002-1011

**J05-111 Accurate Spatial Resolution Estimates for Reactive Supersonic Flow with Detailed Chemistry.** Joseph M. Powers and Samuel Paolucci, *University of Notre Dame* (**43**, 5, p. 1088) Article based on AIAA Paper 2005-1171

**J05-112 Luminescence Lifetime Response of Pressure-Sensitive Paint to a Pressure Transient.** Thomas F. Drouillard, *Colorado School of Mines*; and Mark A. Linne, *Lund Institute of Technology, Sweden* (**43**, 5, p. 1100) Article

**J05-113 Stability and Vibration of Mindlin Sector Plates: An Analytical Approach.** Ashish Sharma and Hari B. Sharda, *Thapar Institute of Engineering and Technology, India*; and Yogendra Nath, *Indian Institute of Technology, India* (**43**, 5, p. 1109) Article

**J05-114 Postbuckling of Laminated Cylindrical Shells in Different Formulations.** Izhak Sheinman and Mahmood Jabareen, *Technion—Israel Institute of Technology, Israel* (**43**, 5, p. 1117) Article

**J05-115 Boundary Element Method's Treatment of Interfacial Thermal Stresses Between Dissimilar Anisotropic Materials.** Yui-Chuin Shiah and Yi-Ji Lin, *Feng Chia University, Taiwan (ROC)* (**43**, 5, p. 1124) Article

**J05-116 Use of Low-Dimensional Methods for Wake Flowfield Estimation from Dynamic Strain.** Ryan F. Schmit, *Clarkson University*; and Mark N. Glauser, *Syracuse University* (**43**, 5, p. 1133) Technical Note based on AIAA Paper 2003-0626

**J05-117 Low Diffusion Efficient Upwind Scheme.** Ge-Cheng Zha, *University of Miami* (**43**, 5, p. 1137) Technical Note

**J05-118 Constant-Temperature and Constant-Voltage Anemometer Use in a Mach 2.5 Flow.** Julien L. Weiss, *Universität Stuttgart*; Ndaona Chokani, *Duke University*; and Geneviève Comte-Bellot, *Ecole Centrale de Lyon, France* (**43**, 5, p. 1140) Technical Note based on AIAA Paper 2003-1277

**J05-119 Comparative Study of Single-Block versus Multiblock Jet Flow Computations.** Ali Uzun and M. Yousuff Hussaini, *Florida State University*; and Craig L. Streett, *NASA Langley Research Center* (**43**, 5, p. 1143) Technical Note

**J05-120 Experiments on Streamline-Curvature Instability in Boundary Layers on a Yawed Cylinder.** Naoko Tokugawa and Shohei Takagi, *Japan Aerospace Exploration Agency, Japan*; and Nobutake Itoh, *Teikyo University, Japan* (**43**, 6, p. 1153) Article based on AIAA Paper 99-0814

**J05-121 Extension of Harten-Lax-van Leer Scheme for Flows at All Speeds.** Hong Luo and Joseph D. Baum, *Science Applications International Corporation*; and Rainald Lohner, *George Mason University* (**43**, 6, p. 1160) Article based on AIAA Paper 2003-3840

**J05-122 Experimental Investigations in Low-Noise Trailing Edge Design.** Michaela Herr and Werner Dobrzynski, *DLR, German Aerospace Center, Germany* (**43**, 6, p. 1167) Article based on AIAA Paper 2004-2804

**J05-123 Experimental Application of an Active Control Loop on Backward-Facing Step Flow.** Franck Marrot, Pierre Gajan, Simone Pauzin, and Frank Simon, *ONERA, France* (**43**, 6, p. 1176) Article

**J05-124 Turbulence Correlation Length-Scale Relationships for the Prediction of Aeroacoustic Response.** Denis A. Lynch and William K. Blake, *U.S. Naval Surface Warfare Center*; and Thomas J. Mueller, *University of Notre Dame* (**43**, 6, p. 1187) Article based on AIAA Paper 2002-2569

**J05-125 Turbulent Flow Downstream of a Propeller, Part 1: Wake Turbulence.** Denis A. Lynch and William K. Blake, *U.S. Naval Surface Warfare Center*; and Thomas J. Mueller, *University of Notre Dame* (**43**, 6, p. 1198) Article

**J05-126 Turbulent Flow Downstream of a Propeller, Part 2: Ingested, Propeller-Modified Turbulence.** Denis A. Lynch and William K. Blake, *U.S. Naval Surface Warfare Center*; and Thomas J. Mueller, *University of Notre Dame* (**43**, 6, p. 1211) Article

**J05-127 Infinite Swept-Wing Navier-Stokes Computations with  $e^N$  Transition Prediction.** Hans W. Stock, *DLR, German Aerospace Center, Germany* (**43**, 6, p. 1221) Article

**J05-128 Three-Dimensionality in Reynolds-Averaged Navier-Stokes Solutions Around Two-Dimensional Geometries.** Mikhail Shur, *Federal Scientific Center "Applied Chemistry," Russia*; Philippe R. Spalart, *Boeing Commercial Airplanes*; Kyle D. Squires, *Arizona State University*; Mikhail Strelets, *Federal Scientific Center "Applied Chemistry," Russia*; and Andrey Travin, *Federal Scientific Center, Russia* (**43**, 6, p. 1230) Article

**J05-129 Experimental and Numerical Study of Hypersonic Rarefied Gas Flow over Flat Plates.** Nobuyuki Tsuboi, *Japan Aerospace Exploration Agency, Japan*; and Yoichiro Matsumoto, *The University of Tokyo, Japan* (**43**, 6, p. 1243) Article

**J05-130 Validation Study of a Multidomain Spectral Code for Simulation of Turbulent Flows.** Gustaaf B. Jacobs, *Brown University*; David A. Kopriva, *Florida State University*; and Farzad Mashayek, *University of Illinois at Chicago* (**43**, 6, p. 1256) Article based on AIAA Paper 2004-0659

**J05-131 Computational Study of a Supersonic Base Flow Using Hybrid Turbulence Methodology.** Soshi Kawai, *University of Tokyo, Japan*; and Kozo Fujii, *Japan Aerospace Exploration Agency, Japan* (**43**, 6, p. 1265) Article based on AIAA Paper 2004-0068

**J05-132 Single-Cycle Performance of Idealized Liquid-Fueled Pulse Detonation Engines.** Sally Cheatham and Kazhikathra Kailasanath, *U.S. Naval Research Laboratory* (**43**, 6, p. 1276) Article

**J05-133 Pulsating Mode of Flame Propagation in Two-Dimensional Channels.** Changrong Cui and Moshe Matalon, *Northwestern University*; and Thomas L. Jackson, *University of Illinois at Urbana-Champaign* (**43**, 6, p. 1284) Article

**J05-134 Reliability-Based Optimization of Active Non-stationary Random Vibration Control.** Wei Gao, *University of New South Wales, Australia* (**43**, 6, p. 1293) Article

**J05-135 Mode Traces in Degenerate Eigensystems and Augmented Assurance.** Amar S. Bahra and Paul D. Greening, *University College London, Great Britain* (**43**, 6, p. 1299) Article

**J05-136 Extended Radial Basis Functions: More Flexible and Effective Metamodeling.** Anoop A. Mullur and Achille Messac, *Rensselaer Polytechnic Institute* (**43**, 6, p. 1306) Article

**J05-137 Multiobjective Optimization Using Coupled Response Surface Model and Evolutionary Algorithm.** Yongsheng Lian, *Ohio Aerospace Institute*; and Meng-Sing Liou, *NASA John H. Glenn Research Center at Lewis Field* (**43**, 6, p. 1316) Article based on AIAA Paper 2004-4323

**J05-138 Compensation of Anelastic Error in Force Measurement.** Boris A. Slutsky, *NASA Ames Research Center* (**43**, 6, p. 1326) Article

**J05-139 Critical Void Content for Polymer Composite Laminates.** Michelle L. Costa, *Instituto de Aeronáutica e Espaço, Brazil*; Sérgio F. de Almeida, *Instituto Tecnológico de Aeronáutica, Brazil*; and Mirabel C. Rezende, *Instituto de Aeronáutica e Espaço, Brazil* (**43**, 6, p. 1336) Article

**J05-140 Probability of Failure of Composite Cylinders Subjected to Axisymmetric Loading.** Hazem E. Soliman and Rakesh K. Kapania, *Virginia Polytechnic Institute and State University* (**43**, 6, p. 1342) Article based on AIAA Paper 2004-4342

**J05-141 Optimum Shape Design of Composite Structures Using Boundary-Element Method.** Azam Tafreshi, *University of Manchester, Great Britain* (**43**, 6, p. 1349) Article

**J05-142 Power Flow Analysis of Complex Structures Using Characteristic Constraint Modes.** Yung-Chang Tan, Matthew Castanier, and Christophe Pierre, *University of Michigan* (**43**, 6, p. 1360) Article

**J05-143 First-Order Shear Deformation,  $p$ -Version, Finite Element for Laminated Plate Nonlinear Vibrations.** Pedro Ribeiro, *Universidade do Porto, Portugal* (**43**, 6, p. 1371) Article based on AIAA Paper 2003-1711

**J05-144 Thermal Postbuckling Characteristics of Laminated Conical Shells with Temperature-Dependent Material Properties.** B. P. Patel, *Indian Institute of Technology, India*; K. K. Shukla, *Motilal Nehru National Institute of Technology, India*; and Y. Nath, *Indian Institute of Technology Delhi, India* (**43**, 6, p. 1380) Article

**J05-145 Time Decay of n Family of Vortices.** Georgios H. Vatifas, Yasser Aboelkassem, and Kamran Siddiqui, *Concordia University, Canada* (**43**, 6, p. 1389) Technical Note

**J05-146 Capturing the Knudsen Layer in Continuum-Fluid Models of Nonequilibrium Gas Flows.** Duncan A. Lockerby, *King's College London, Great Britain*; Jason M. Reese, *University of Strathclyde, Great Britain*; and Michael A. Gallis, *Sandia National Laboratories* (**43**, 6, p. 1391) Technical Note

**J05-147 Experimental Laser Sensing for Aircraft Vibration Suppression.** Ernest D. Shackelford; Anindya Ghoshal, *United Technologies Research Center*; Mannur Sundaresan, *North Carolina A&T State University*; Mark J. Schulz, *University of Cincinnati*; C. R. Ashokkumar, *University of Miami*; and Frederick Ferguson, *North Carolina A&T State University* (**43**, 6, p. 1394) Technical Note

**J05-148 Preliminary Analysis of Nonlinearity in Military Jet Aircraft Noise Propagation.** Kent L. Gee, Thomas B. Gabrielson, Anthony A. Atchley, and Victor W. Sparrow, *Pennsylvania State University* (**43**, 6, p. 1398) Technical Note based on AIAA Paper 2004-3009

**J05-149 Planar Shock Generator for Wind Tunnels with Circular Cross Section.** Simon R. Sanderson, *California Institute of Technology* (**43**, 6, p. 1401) Technical Note

**J05-150 Davidson Method for Eigenpairs and Their Derivatives.** Huiqing Xie, *East China University of Science and Technology, China (PRC)*; and Hua Dai, *Nanjing University of Aeronautics and Astronautics, China (PRC)* (**43**, 6, p. 1403) Technical Note

**J05-151 Control of Vortical Flow over a Rounded Leading-Edge Delta Wing.** Florent Renac, Didier Barberis, and Pascal Molton, *ONERA, France* (**43**, 7, p. 1409) Article based on AIAA Paper 2003-4008

**J05-152 Control of the Flow Around Square Cylinders at Incidence by Using a Rod.** Mustafa Sarioglu, Yahya E. Akansu, and Tahir Yavuz, *Karadeniz Technical University, Turkey* (**43**, 7, p. 1419) Article

**J05-153 Hypersonic Flow Simulation by the Gas-Kinetic Bhatnagar-Gross-Krook Scheme.** Ong J. Chit, *University Technology MARA Penang Branch, Malaysia*; Ashraf A. Omar and Waqar Asrar, *International Islamic University Malaysia, Malaysia*; and Zairil A. Zaludin, *University Putra Malaysia, Malaysia* (**43**, 7, p. 1427) Article

**J05-154 Efficient High-Resolution Wake Modeling Using the Vorticity Transport Equation.** Richard E. Brown and Andrew J. Line, *Imperial College London, Great Britain* (**43**, 7, p. 1434) Article

**J05-155 Influence of Joint Relaxation on Deterministic and Stochastic Panel Flutter.** Raouf A. Ibrahim and Dimitru M. Beloiu, *Wayne State University*; and Chris L. Pettit, *U.S. Air Force Research Laboratory* (**43**, 7, p. 1444) Article

**J05-156 Efficient Reduced-Order System Identification for Linear Systems with Multiple Inputs.** Taehyoun Kim, *Boeing Commercial Airplane Group* (**43**, 7, p. 1455) Article based on AIAA Paper 2004-2036

**J05-157 Flow Around an Object Projected from a Cavity into a Supersonic Freestream.** Scott T. Bjorge and Mark F. Reeder, *U.S. Air Force Institute of Technology*; Chelakara Subramanian, *Florida Institute of Technology*; Jim Crafton and Sergey Fonov, *Innovative Scientific Solutions* (**43**, 7, p. 1465) Article based on AIAA Paper 2004-1253

**J05-158 Experiments and Analyses of Distributed Exhaust Nozzles.** Kevin W. Kinzie, *NASA Langley Research Center*; David B. Schein and W. David Solomon Jr., *Northrop Grumman Integrated Systems* (**43**, 7, p. 1476) Article based on AIAA Paper 2002-2555

**J05-159 Aerodynamic Modification of Supersonic Flow Around Truncated Cone Using a Pulsed Electrical Discharges.** Daniel Bivolaru and Spencer P. Kuo, *Polytechnic University* (**43**, 7, p. 1482) Article

**J05-160 Flow Structure on Diamond and Lambda Planforms: Trailing-Edge Region.** B. Yaniktepe, *Lehigh University, Turkey*; and D. Rockwell, *Lehigh University* (**43**, 7, p. 1490) Article

**J05-161 Aspects of Low- and High-Frequency Actuation for Aerodynamic Flow Control.** Ari Glezer, Michael Amitay, and Andrew M. Honohan, *Georgia Institute of Technology* (**43**, 7, p. 1501) Article based on AIAA Paper 2003-0533

**J05-162 Transonic Helicopter Noise.** Aimee S. Morgans, Sergey A. Karabasov, Ann P. Dowling, and Tom P. Hynes, *University of Cambridge, Great Britain* (**43**, 7, p. 1512) Article

**J05-163 Ballistic Impact Behavior of Thick Composites: Analytical Formulation.** N. K. Naik and A. V. Doshi, *Indian Institute of Technology Bombay, India* (**43**, 7, p. 1525) Article

**J05-164 Boundary-Layer Dispersion of Near-Wall Injected Particles of Various Inertias.** Andy J. Dorgon, Eric Loth, and Todd L. Bocksell, *University of Illinois at Urbana-Champaign*; and P. K. Yueng, *Georgia Institute of Technology* (**43**, 7, p. 1537) Article

**J05-165 Influence of Jet Inlet Conditions on Time-Average Behavior of Transverse Jets.** Marina Campolo, *Universidad Complutense de Madrid, Italy*; Gian Maria Degano and Alfredo Soldati, *Universita di Udine, Italy*; and Luca Cortelezzi, *McGill University, Canada* (**43**, 7, p. 1549) Article

**J05-166 Numerical Simulation of Transonic Buffet over a Supercritical Airfoil.** Sébastien Deck, *ONERA, France* (**43**, 7, p. 1556) Article

**J05-167 Strong Baroclinic Effects in a Light Jet in a Pulsed Coflow.** Marc Saudreau, *Institut de Mecanique des Fluides de Toulouse, France*; Jacques Borée, *Ecole Nationale Supérieure de Mecanique et d'Aerothermique, France*; and Georges Charnay, *Institut de Mecanique des Fluides de Toulouse, France* (**43**, 7, p. 1567) Article

**J05-168 Density Measurements in an Axisymmetric Underexpanded Jet by Background-Oriented Schlieren Technique.** Lakshmi Venkatakrishnan, *National Aerospace Laboratories, India* (**43**, 7, p. 1574) Article based on AIAA Paper 2004-2603

**J05-169 Mixed-Discrete Fuzzy Multiobjective Programming for Engineering Optimization Using Hybrid Genetic Algorithm.** Singiresu S. Rao and Ying Xiong, *University of Miami* (**43**, 7, p. 1580) Article

**J05-170 Formation and Stability of Near Chapman-Jouguet Standing Oblique Detonation Waves.** Giovanni Fusina, *Defence Research and Development Canada, Canada*; Jean P. Sislian, *University of Toronto, Canada*; and Bernard Parent, *Seoul National University, South Korea* (**43**, 7, p. 1591) Article based on AIAA Paper 2004-1125

**J05-171 Three-Dimensional Thermomechanical Buckling of Functionally Graded Materials.** Kyung-Su Na and Ji-Hwan Kim, *Seoul National University, South Korea* (**43**, 7, p. 1605) Article

**J05-172 Damage Tolerance and Fail Safety of Welded Aircraft Wing Panels.** Xiang Zhang, *Cranfield University, Great Britain*; and Yazhi Li, *Northwestern Polytechnical University, China (PRC)* (**43**, 7, p. 1613) Article

**J05-173 Burger's Original Model of Turbulence.** S. K. Versteeg and J. K. Clutter, *University of Texas at San Antonio* (**43**, 7, p. 1624) Technical Note

**J05-174 Finite Element-Based Boundary Treatment in the Hybrid Particle Method.** Hao Huang and Sunil Saigal, *University of South Florida*; and Carl T. Dyka, *Naval Surface Warfare Center* (**43**, 7, p. 1626) Technical Note

**J05-175 Magnetoaerodynamic Actuator for Hypersonic Flow Control.** Joseph S. Shang, *Wright State University*; and Sergey T. Surzhikov, *Russian Academy of Science, Russia* (**43**, 8, p. 1633) Article based on AIAA Paper 2004-0508

**J05-176 Characterization of Steady Blowing for Flow Control in a Hump Diffuser.** Jonathan Luedke, Paolo Graziosi, Kevin Kirtley, and Ciro Cerretelli, *General Electric Global Research* (**43**, 8, p. 1644) Article based on AIAA Paper 2004-4963

**J05-177 Passive Control of Plume Interference on Slender Axisymmetric Bodies.** Young-Ki Lee, Srinivasan Raghunathan, and Emmanuel Benard, *Queen's University of Belfast, Northern Ireland* (**43**, 8, p. 1653) Article

**J05-178 Dual-Stiffness Sensor for Damage Detection, Localization, and Prognostics.** Kelah Wakha, Majeed A. Majed, Abhijit Dasgupta, and Darryll J. Pines, *University of Maryland* (**43**, 8, p. 1663) Article

**J05-179 Fine-Scale Turbulence Noise from Hot Jets.** Christopher K. Tam and Nikolai N. Pastouchenko, *Florida State University*; and K. Viswanathan, *The Boeing Company* (**43**, 8, p. 1675) Article based on AIAA Paper 2004-0362

**J05-180 Design of a Comfortable Rotor Airfoil Using Distributed Piezoelectric Actuators.** Phuriwat Anusonti-Inthra, Roberto Sarjeant, Mary Frecker, and Farhan Gandhi, *Pennsylvania State University* (**43**, 8, p. 1684) Article

**J05-181 Reliability Estimation and Design with Insufficient Data Based on Possibility Theory.** Zissimos P. Mourelatos and Jun Zhou, *Oakland University* (**43**, 8, p. 1696) Article based on AIAA Paper 2004-4586

**J05-182 Low Energy-Consumption Hybrid Vibration Suppression Based on Energy-Recycling Approach.** Kanjuro Makihara, Junjiro Onoda, and Kenji Minesugi, *Japan Aerospace Exploration Agency, Japan* (**43**, 8, p. 1706) Article

**J05-183 Perturbed Compressible Equations for Aeroacoustic Noise Prediction at Low Mach Numbers.** Jung-Hee Seo and Young J. Moon, *Korea University, South Korea* (**43**, 8, p. 1716) Article based on AIAA Paper 2003-3270

**J05-184 Microgravity Laminar Diffusion Flame In a Perpendicular Fuel and Oxidizer Stream Configuration.** Lynda Brahm, Thomas Victoris, Sebastien Rouvreau, and Pierre Joulain, *Ecole Nationale Supérieure de Mécanique et d'Aérotechniques, France*; Laurent David, *Université de Poitiers, France*; and Jose L. Torero, *University of Edinburgh, Great Britain* (**43**, 8, p. 1725) Article

**J05-185 Numerical-Experimental Comparisons of Second-Mode Behavior for Blunted Cones.** Ian J. Lyttle and Helen L. Reed, *Arizona State University*; Alexander N. Shiplyuk, Anatoly A. Maslov, and Dmitry M. Buntin, *Russian Academy of Sciences, Russia*; and Steven P. Schneider, *Purdue University* (**43**, 8, p. 1734) Article based on AIAA Paper 2004-0907

**J05-186 Compact Difference Scheme Applied to Simulation of Low-Sweep Delta Wing Flow.** Raymond E. Gordnier and Miguel R. Visbal, *U.S. Air Force Research Laboratory* (**43**, 8, p. 1744) Article based on AIAA Paper 2003-0620

**J05-187 Experimental and Numerical Studies of Dilution Systems for Low-Emission Combustors.** Céline Prière and Laurent Y. Gicquel, *Centre Européen pour la Recherche et la Formation Avancée en Calculs Scientifique, France*; Pierre Gajan and Alain Strzelecki, *ONERA, France*; Thierry Poinot, *Institut de Mécanique des Fluides de Toulouse, France*; and Claude Bérat, *Turboméca, France* (**43**, 8, p. 1753) Article

**J05-188 Planar Fluorescence Imaging of a Supersonic Axisymmetric Base Flow with Mass Bleed.** Joel P. Kuehner, *Washington and Lee University*; and J. C. Dutton, *University of Texas at Arlington* (**43**, 8, p. 1767) Article based on AIAA Paper 2004-2650

**J05-189 Head-On Collision of a Planar Shock Wave with Deformable Porous Foams.** Malmud Guy, *Ben-Gurion University of the Negev, Israel*; David Levi-Hevroni, *Nuclear Research Center-Negev, Israel*; and Avi Levy, *Ben-Gurion University of the Negev, Israel* (**43**, 8, p. 1776) Article

**J05-190 Direct Simulation Monte Carlo Modeling of Homogenous Condensation in Supersonic Plumes.** Jiaqiang Zhong, Michael I. Zeifman, and Deborah A. Levin, *Pennsylvania State University*; and Sergey F. Gimelshein, *University of Southern California* (**43**, 8, p. 1784) Article

**J05-191 Pointwise Bias Error Bounds and Min-Max Design for Response Surface Approximations.** Melih Papila, Raphael T. Haftka, *University of Florida*; and Layne T. Watson, *Virginia Polytechnic Institute and State University* (**43**, 8, p. 1797) Article



**J05-192 Real-Time Structural Damage Monitoring by Input Error Function.** Bong-Hwan Koh, Prasad Dharap, and Satish Nagarajaiah, *Rice University*; and Minh Q. Phan, *Dartmouth College* (43, 8, p. 1808) Article

**J05-193 Multiscale Modeling for the Long-Term Behavior of Laminated Composite Structures.** Anastasia H. Muliana, *Texas A&M University*; and Rami Haj-Ali, *Georgia Institute of Technology* (43, 8, p. 1815) Article based on AIAA Paper 2004-1637

**J05-194 Toward a Probabilistic Preliminary Design Criterion for Buckling Critical Composite Shells.** Johann Arbocz, *Delft University of Technology, The Netherlands*; and Mark W. Hilburger, *NASA Langley Research Center* (43, 8, p. 1823) Article based on AIAA Paper 2003-1842

**J05-195 Effect of Nanotube Functionalization on the Elastic Properties of Polyethylene Nanotube Composites.** Gregory M. Odegard, *Michigan Technological University*; Sarah-Jane V. Frankland, *National Institute of Aerospace*; and Thomas S. Gates, *NASA Langley Research Center* (43, 8, p. 1828) Article based on AIAA Paper 2003-1701

**J05-196 Stiffness Degradation in Hygrothermal Aged Cross-Ply Laminate with Transverse Cracks.** A. Tounsi and K. Amara, *Universite de Sidi Bel Abbes, Algeria* (43, 8, p. 1836) Article

**J05-197 Genetic Algorithm for Mixed Integer Nonlinear Programming Problems Using Separate Constraint Approximations.** Vladimir B. Gantovnik, Zafer Gurdal, Layne T. Watson, and Christine M. Anderson-Cook, *Virginia Polytechnic Institute and State University* (43, 8, p. 1844) Article

**J05-198 Self-Sustained Oscillations past Perforated and Slotted Plates: Effect of Plate Thickness.** Emine Celik, Ahmet C. Sever, and Donald Rockwell, *Lehigh University* (43, 8, p. 1850) Technical Note

**J05-199 New Advanced  $k$ - $w$  Turbulence Model for High-Lift Aerodynamics.** Antti K. Hellsten, *Helsinki University of Technology, Finland* (43, 9, p. 1857) Article based on AIAA Paper 2004-1120

**J05-200 Drag Reduction of a Near-Sonic Airplane by Using Computational Fluid Dynamics.** Wataru Yamazaki, Kisa Matsushima, and Kazuhiro Nakahashi, *Tohoku University, Japan* (43, 9, p. 1870) Article based on AIAA Paper 2004-34

**J05-201 Control of Sublayer Streaks Using Microjet Actuators.** Duncan A. Lockerby, *Brunel University, Great Britain*; Peter W. Carpenter, *University of Warwick, Great Britain*; and Christopher Davies, *Cardiff University, Great Britain* (43, 9, p. 1878) Article

**J05-202 Mean-Flow-Multigrid for Implicit Reynolds-Stress-Model Computations.** G. A. Gerolymos and I. Vallet, *Universite Pierre-et-Marie-Curie, France* (43, 9, p. 1887) Article based on AIAA Paper 2004-2527

**J05-203 Large-Eddy Simulation of Subsonic Turbulent Jets and Their Radiated Sound.** Niklas Andersson, Lars-Erik Eriksson, and Lars Davidson, *Chalmers University of Technology, Sweden* (43, 9, p. 1899) Article based on AIAA Paper 2004-3024

**J05-204 Similarity Analysis for Transpired Turbulent Boundary Layers Subjected to External Pressure Gradients.** Raul Bayoan Cal and Luciano Castillo, *Rensselaer Polytechnic Institute* (43, 9, p. 1913) Article

**J05-205 Measurement of Flow Conductivity and Density Fluctuations in Supersonic Nonequilibrium Magnetohydrodynamic Flows.** Rodney Meyer, Munetake Nishihara, Adam Hicks, Naveen Chintala, Michael Cundy, Walter R. Lempert, and Igor V. Adamovich, *The Ohio State University*; and Sivaram Gogineni, *Innovative Scientific Solutions, Inc.* (43, 9, p. 1923) Article based on AIAA Paper 2004-0510

**J05-206 Discrete Adjoint Approach for Modeling Unsteady Aerodynamic Design Sensitivities.** Jeffrey P. Thomas, Kenneth C. Hall, and Earl H. Dowell, *Duke University* (43, 9, p. 1931) Article based on AIAA Paper 2003-0041

**J05-207 Parallel Unstructured Mesh Adaptation Method for Moving Body Applications.** Peter A. Cavallo, Neeraj Sinha, and Gregory M. Feldman, *Combustion Research & Flow Technology, Inc.* (43, 9, p. 1937) Article based on AIAA Paper 2004-1057

**J05-208 Constrained Aerodynamic Optimization of Three-Dimensional Wings Driven by Navier–Stokes Computations.** Boris Epstein, *Academic College of Tel-Aviv-Yaffo, Israel*; and Sergey Peigin, *Israel Aircraft Industries, Israel* (43, 9, p. 1946) Article

**J05-209 Numerical Simulation of Separation Control for Transitional Highly Loaded Low-Pressure Turbines.** Donald P. Rizzetta and Miguel R. Visbal, *U.S. Air Force Research Laboratory* (43, 9, p. 1958) Article based on AIAA Paper 2004-2204

**J05-210 Flow Simulation Around an Airfoil by Lattice Boltzmann Method on Generalized Coordinates.** Taro Imamura, *Japan Aerospace Exploration Agency, Japan*; Kojiro Suzuki, *Tokyo University, Japan*; Takashi Nakamura and Masahiro Yoshida, *Japan Aerospace Exploration Agency, Japan* (43, 9, p. 1968) Article based on AIAA Paper 2004-244

**J05-211 Hybrid Compressible-Incompressible Numerical Method for Transient Drop-Gas Flows.** Amrita R. Wadhwa and John Abraham, *Purdue University*; and Vinicio Magi, *University of Basilicata, Italy* (43, 9, p. 1974) Article

**J05-212 Temporal and Spatial Evolution of a Laser Spark in Air.** Nick G. Glumac, Gregory S. Elliott, and Martin Boguszko, *University of Illinois, Urbana–Champaign* (43, 9, p. 1984) Article

**J05-213 Performance of a Shock Tube with a Large-Area Contraction.** George Emanuel, U.S. Satyanand, and Frank Lu, *University of Texas at Arlington* (43, 9, p. 1995) Article

**J05-214 Forced Vibrations of Functionally Graded Plates in the Three-Dimensional Setting.** Isaac Elishakoff, *Florida Atlantic University*; Cristina Gentilini and Erasmo Viola, *University of Bologna, Italy* (43, 9, p. 2000) Article

**J05-215 Multidisciplinary Design Optimization of Aircraft Combustor Structure: An Industry Application.** Yuexi Xiong, Mike Moscinski, Mark Frontera, and Su Yin, *General Electric Global Research Center*; Mehmet Dede and Mike Paradis, *General Electric Aircraft Engines* (43, 9, p. 2008) Article

- J05-216 Flutter and Thermal Deflection Suppression of Composite Plates Using Shape Memory Alloy.** Bin Duan, *Claritas Inc.*; Khalad Abdel-Motagaly, *Titan Systems Corp.*; Xinyun Guo and Chuh Mei, *Old Dominion University* (43, 9, p. 2015) Article based on AIAA Paper 2003-1513
- J05-217 Consistent Third-Order Shell Theory with Application to Composite Cylindrical Cylinders.** Roman A. Arciniega and J. N. Reddy, *Texas A&M University* (43, 9, p. 2024) Article
- J05-218 Fracture Analysis of Stiffened Panels Under Combined Tensile, Bending, and Shear Loads.** Gadyam S. Palani, Nagesh R. Iyer, and B. Dattaguru, *Indian Institute of Technology, India* (43, 9, p. 2039) Article
- J05-219 Stability Analysis of a Delaminated Beam Subjected to Follower Compression.** Quan Wang, F. Moslehy, and D. W. Nicholson, *University of Central Florida* (43, 9, p. 2052) Article
- J05-220 Enthalpy Measurement in Inductively Heated Plasma Generator Flow by Laser Absorption Spectroscopy.** Makoto Matsui and Kimiya Komurasaki, *University of Tokyo, Japan*; Georg Herdrich and Monika Auweter-Kurtz, *University of Stuttgart, Germany* (43, 9, p. 2060) Article based on AIAA Paper 2004-1222
- J05-221 Control of Vortex Breakdown over Highly Swept Wings.** Ephraim J. Gutmark, *University of Cincinnati*; and Stephen A. Guillot, *Techsburg, Inc.* (43, 9, p. 2065) Technical Note
- J05-222 Feedback Linearization Control for Panel Flutter Suppression with Piezoelectric Actuators.** Seong Hwan Moon, *Korea University of Technology, South Korea*; Dongkyoung Chwa, *Ajou University, South Korea*; and Seung Jo Kim, *Seoul National University, South Korea* (43, 9, p. 2069) Technical Note
- J05-223 Effect of Imperfections on Thermal Buckling of Functionally Graded Cylindrical Shells.** Babak Mirzavand and Mohammad R. Eslami, *Amirkabir University of Technology, Iran*; and Reza Shahsiah, *Azad University, Iran* (43, 9, p. 2073) Article
- J05-224 Tip Vortex Behind a Wing Undergoing Deep-Stall Oscillation.** David M. Birch and Tim Lee, *McGill University, Canada* (43, 10, p. 2081) Article
- J05-225 Approximation of Unsteady Aerodynamic Forces  $Q(k, M)$  by Use of Fuzzy Techniques.** Adrian Hiliuta and Ruxandra M. Botez, *Ecole de Technologie Supérieure, Canada*; and Marty Brenner, *NASA Dryden Flight Research Center* (43, 10, p. 2093) Article
- J05-226 Framework for Aircraft Conceptual Design and Environmental Performance Studies.** Nicolas E. Antoine and Ilan M. Kroo, *Stanford University* (43, 10, p. 2100) Article based on AIAA Paper 2004-4314
- J05-227 Formation Criterion for Synthetic Jets.** Ryan Holman and Yogen Utturkar, *University of Florida*; Rajat Mittal, *George Washington University*; Barton L. Smith, *Utah State University*; and Louis Cattafesta, *University of Florida* (43, 10, p. 2110) Article
- J05-228 Vectoring of Adjacent Synthetic Jets.** Barton L. Smith, *Utah State University*; and Ari Glezer, *Georgia Institute of Technology* (43, 10, p. 2117) Article based on AIAA Paper 99-0669
- J05-229 Skin-Friction Reduction on Body of Revolution Using Boundary-Layer Alteration Devices.** Vladimir I. Kornilov, *Russian Academy of Sciences, Russia* (43, 10, p. 2125) Article
- J05-230 Optimal Reciprocalization of Measured Displacements.** Menahem Baruch, *Technion, Israel Institute of Technology, Israel* (43, 10, p. 2133) Article
- J05-231 Evaluation of Near-Wall Turbulence Models for Deliberately Roughened Liquid Annular Seals.** Larry A. Villasmil, Hamn-Ching Chen, and Dara W. Childs, *Texas A&M University* (43, 10, p. 2137) Design Forum based on AIAA Paper 2003-3741
- J05-232 Space-Time Mapping Analysis of Airfoil Nonlinear Interaction with Unsteady Inviscid Flow.** Vladimir V. Golubev and Reda R. Mankbadi, *Embry-Riddle Aeronautical University*; and Ray Hixon, *Hixon Technologies* (43, 10, p. 2147) Article based on AIAA Paper 2004-3003
- J05-233 Direct Calculation of Wave Implosion for Detonation Initiation.** Bao Wang, Hao He, and S.-T. John Yu, *The Ohio State University* (43, 10, p. 2157) Article
- J05-234 Application of Gas-Kinetic Scheme with Kinetic Boundary Conditions in Hypersonic Flow.** Qibing Li and Song Fu, *Tsinghua University, China (PRC)*; and Kun Xu, *Hong Kong University of Science and Technology, Hong Kong* (43, 10, p. 2170) Article
- J05-235 Analysis and Characteristics of Choked Swirling Nozzle Flows.** Alon Gany, Marat Mor, and Claudio Goldman, *Technion—Israel Institute of Technology, Israel* (43, 10, p. 2177) Article
- J05-236 Three-Dimensional Normal Shock-Wave/Boundary-Layer Interaction in a Rectangular Duct.** Taro Handa and Mitsuharu Masuda, *Kyushu University, Japan*; and Kazuyasu Matsuo, *University of Kitakyushu, Japan* (43, 10, p. 2182) Article
- J05-237 Alternative Formulations for Transient Dynamic Response Optimization.** Qian Wang and Jasbir S. Arora, *University of Iowa* (43, 10, p. 2188) Article based on AIAA Paper 2009-2277
- J05-238 Analysis of Eigenvalues and Modal Interaction of Stochastic Systems.** Debraj Ghosh, *Johns Hopkins University*; Roger G. Ghanem, *University of Southern California*; and John Red-Horse, *Sandia National Laboratories* (43, 10, p. 2196) Article
- J05-239 Alternative Formulations for Structural Optimization: An Evaluation by Using Trusses.** Qian Wang and Jasbir S. Arora, *The University of Iowa* (43, 10, p. 2202) Article
- J05-240 Energy Optimization in Local Shape Control of Structures with Nonlinear Piezoelectric Actuators.** Dongchang Sun and Liyong Tong, *University of Sydney, Australia* (43, 10, p. 2210) Article
- J05-241 Novel Two-Stage Injector for Flame Stabilization in Supersonic Flows.** Tobias Sander, Anatoliy Lyubar, Holger M. Emberger, and Thomas Sattelmayer, *Technical University of Munich, Germany* (43, 10, p. 2218) Article based on AIAA Paper 2002-5229

- J05-242 Parallel Multispecies Genetic Algorithm for Physics and Parameter Estimation in Structural Dynamics.** David C. Zimmerman and Soren S. Jorgensen, *University of Houston* (**43**, 10, p. 2224) Article
- J05-243 Transverse Normal Strain Effect on Thermal Stress Analysis of Homogeneous and Layered Plates.** E. Carrera, *Politecnico di Torino, Italy* (**43**, 10, p. 2232) Article
- J05-244 Investigation of Delamination Caused by Impact Using a Cohesive-Layer Model.** Yupeng Li and Srinivasan Sridharan, *Washington University in St. Louis* (**43**, 10, p. 2243) Article
- J05-245 Brazier Effect in Multibay Airfoil Sections.** Luca S. Cecchini and Paul M. Weaver, *University of Bristol, Great Britain* (**43**, 10, p. 2252) Article based on AIAA Paper 2004-1522
- J05-246 Genetic-Algorithm Optimization of a Chemistry Mechanism for Oxidation of Liquid Hydrocarbons.** Andrew S. Wade, Adrian G. Kyne, Nicolae S. Mera, Mohammed Pourkashanian, Derek B. Ingham, and Sean Whittaker, *The University of Leeds, Great Britain* (**43**, 10, p. 2259) Technical Note
- J05-247 Numerical Evaluation of Optimization Algorithms for Low-Reynolds-Number Aerodynamic Shape Optimization.** Marc Secanell and Afzal Suleman, *University of Victoria, Canada* (**43**, 10, p. 2262) Technical Note
- J05-248 Optimal Loading of a Tension Kite.** Peter S. Jackson, *University of Auckland, New Zealand* (**43**, 11, p. 2273) Article
- J05-249 Passive Control for Turbofan Tonal Noise.** Basman Elhadidi and Hafiz M. Atassi, *University of Notre Dame* (**43**, 11, p. 2279) Article
- J05-250 Effect of Geometric Scaling on Aerodynamic Performance.** Ronan Grimes, Ed Walsh, David Quin, and Mark Davies, *University of Limerick, Ireland* (**43**, 11, p. 2293) Article
- J05-251 Minimum-State Unsteady Aerodynamics for Aeroservoelastic Configuration Shape Optimization of Flight Vehicles.** Marat Mor and Eli Livne, *University of Washington* (**43**, 11, p. 2299) Article based on AIAA Paper 2004-1762
- J05-252 Structure of Supersonic Twin Jets.** Mehmet B. Alkislar, Anjaneyulu Krothapalli, Isaac Choutapalli, and Luiz M. Lourenco, *Florida A&M University, and Florida State University* (**43**, 11, p. 2309) Article based on AIAA Paper 2004-0011
- J05-253 Fluidic Oscillation Influences on V-Shaped Bluffbody Flow.** Rong F. Huang and Kuo T. Chang, *National Taiwan University of Science and Technology, Taiwan (ROC)* (**43**, 11, p. 2319) Article
- J05-254 Optimization of Flapping Airfoils For Maximum Thrust and Propulsive Efficiency.** Ismail H. Tuncer and Mustafa Kaya, *Middle East Technical University, Turkey* (**43**, 11, p. 2329) Article based on AIAA Paper 2003-0420
- J05-255 Minimization of Acoustic Radiation from Thick Multilayered Sandwich Beams.** Huseyin Denli, J. Q. Sun, and T. W. Chou, *University of Delaware* (**43**, 11, p. 2337) Technical Note
- J05-256 Acoustic Resonances in Rectangular Open Cavities.** W. Koch, *DLR, German Aerospace Center, Germany* (**43**, 11, p. 2342) Article based on AIAA Paper 2004-2843
- J05-257 Mesoscaling of Reynolds Shear Stress in Turbulent Channel and Pipe Flows.** Tie Wei, Patrick A. McMurtry, Joseph C. Klewicki, and Paul Fife, *University of Utah* (**43**, 11, p. 2350) Article
- J05-258 Large-Eddy Simulation of Transitional Boundary Layer with Impinging Shock Wave.** Susumu Teramoto, *University of Tokyo, Japan* (**43**, 11, p. 2354) Article
- J05-259 Kinetic Model Solution for Microscale Gas Flows.** Chan H. Chung, *Daegu University, South Korea* (**43**, 11, p. 2364) Article based on AIAA Paper 2004-2590
- J05-260 Zonal-Detached-Eddy Simulation of the Flow Around a High-Lift Configuration.** Sebastien Deck, *ONERA, France* (**43**, 11, p. 2372) Article
- J05-261 Turbulent Characteristics of a Transverse Supersonic Jet in a Subsonic Compressible Crossflow.** Steven J. Beresh, John F. Henfling, Rocky J. Erven, and Russell W. Spillers, *Sandia National Laboratories* (**43**, 11, p. 2385) Article based on AIAA Paper 2004-2341
- J05-262 Experimental Study on Capillary Flow in a Vane-Wall Gap Geometry.** Yongkang Chen and Steven H. Collicott, *Purdue University* (**43**, 11, p. 2395) Article based on AIAA Paper 2004-1149
- J05-263 Efficient Response Surface Modeling by Using Moving Least-Squares Method and Sensitivity.** Chwail Kim and Semyung Wang, *Gwangju Institute of Science and Technology, South Korea*; and Kyung K. Choi, *University of Iowa* (**43**, 11, p. 2404) Article
- J05-264 Nonlinear Perturbation Theory for Structural Dynamic Systems.** Hua-Peng Chen, *University of Glasgow, Great Britain* (**43**, 11, p. 2412) Article
- J05-265 Hybrid Variable Fidelity Optimization by Using a Kriging-Based Scaling Function.** Shawn E. Gano and John E. Renaud, *University of Notre Dame*; and Brian Sanders, *U.S. Air Force Research Laboratory* (**43**, 11, p. 2422) Article based on AIAA Paper 2004-4460
- J05-266 High-Frequency Response Functions for Composite Plate Monitoring with Ultrasonic Validation.** Gyuhae Park, Amanda C. Rutherford, Jeanneette R. Wait, Brett Nadler, Charles Farrar, and Thomas N. Claytor, *Los Alamos National Laboratory* (**43**, 11, p. 2431) Article
- J05-267 Effect of Uniform Magnetic Field on Equilibrium Combustion Compositions: Constant Volume.** Ashish Gupta and John Baker, *University of Alabama* (**43**, 11, p. 2438) Article
- J05-268 Impact Damage in Fiber Metal Laminates, Part 1: Experiment.** Jeremy Laliberté, *National Research Council Canada, Canada*; Paul V. Straznicky, *Carleton University, Canada*; and Cheung Poon, *Ryerson University, Canada* (**43**, 11, p. 2445) Article
- J05-269 Impedance Modeling Technique for a Fluid-Loaded Structure.** Chih-Chun Cheng and Pe-Wen Wang, *National Chung Cheng University, Taiwan (ROC)* (**43**, 11, p. 2454) Technical Note

**J05-270 Numerical Solver for Dense Gas Flows.** Paola Cinnella and Pietro M. Congedo, *Università degli Studi di Lecce, Italy* (**43**, 11, p. 2458) Technical Note

**J05-271 Numerical Study of a Separated-Reattached Flow on a Blunt Plate.** Ibrahim E. Abdalla and Zhiyin Yang, *Loughborough University, Great Britain* (**43**, 12, p. 2465) Article

**J05-272 Direct Measurement of Unsteady Fluid Dynamic Forces for a Hovering Dragonfly.** Manabu Yamamoto, *Toyota Motor Corporation, Japan*; and Koji Isogai, *Nippon Bunri University, Japan* (**43**, 12, p. 2475) Article

**J05-273 Computation of Actuation Power Requirements for Smart Wings with Morphing Airfoils.** Frank Gern, Daniel J. Inman, and Rakesh K. Kapania, *Virginia Polytechnical Institute and State University* (**43**, 12, p. 2481) Article

**J05-274 Aeroelastic Model Reduction for Affordable Computational Fluid Dynamics-Based Flutter Analysis.** Taehyoun Kim, Moeljo Hong, Kumar G. Bhatia, and Gautam Sengupta, *Boeing Company* (**43**, 12, p. 2487) Article based on AIAA Paper 2004-2040

**J05-275 Identifying Parameter-Dependent Volterra Kernels to Predict Aeroelastic Instabilities.** Rick Lind, *University of Florida*; Richard J. Prazenica and Martin J. Brenner, *NASA Dryden Flight Research Center*; and Dario H. Baldelli, *ZONA Technology* (**43**, 12, p. 2496) Article based on AIAA Paper 2004-1517

**J05-276 Modeling of Aeroservoelastic Systems with Structural and Aerodynamic Variations.** Boris Moulin, *Technion-Israel Institute of Technology, Israel* (**43**, 12, p. 2503) Article based on AIAA Paper 2004-1675

**J05-277 Numerical Investigation of Low-Pressure Turbine Blade Separation Control.** Andreas Gross and Hermann F. Fasel, *The University of Arizona* (**43**, 12, p. 2514) Article based on AIAA Paper 2003-0614

**J05-278 Experimental Study on Aerodynamic Characteristics of Unsteady Wings Airfoils at Low Reynolds Number.** Masato Okamoto, *Wakayama Technical High School, Japan*; and Akira Azuma, *University of Tokyo, Japan* (**43**, 12, p. 2526) Article

**J05-279 Free Vibrations of Bonded Single Lap Joints in Composite Shallow Cylindrical Shell Panels.** Umut Yuceoglu, *METU, Turkey*; and Varlik O. Ozerciyas, *TAI, Turkey* (**43**, 12, p. 2537) Article

**J05-280 Analysis and Stabilization of Fluid-Structure Interaction Algorithm for Rigid-Body Motion.** Jan Vierendeels, Kris Dumont, Erik Dick, and Pascal Verdonck, *Ghent University, Belgium* (**43**, 12, p. 2549) Article based on AIAA Paper 2005-4703

**J05-281 Recommended Collision Integrals for Transport Property Computations Part 1: Air Species.** Michael J. Wright, Deepak Bose, Grant E. Palmer, and Eugene Levin, *NASA Ames Research Center* (**43**, 12, p. 2558) Article

**J05-282 Direct Simulation Monte Carlo Simulations of Hypersonic Flows with Shock Interactions.** James N. Moss, *NASA Langley*; and Graeme A. Bird, *G.A.B. Consulting Pty Ltd, Australia* (**43**, 12, p. 2565) Article based on AIAA Paper 2004-2585

**J05-283 Near Field Measurements in an Equilateral Triangular Turbulent Freejet.** Willie R. Quinn, *St. Francis Xavier University, Canada* (**43**, 12, p. 2574) Article

**J05-284 Two-Phase Oxidizing Flow in a Volatile Removal Assembly Reactor Under Microgravity Conditions.** Boyun Guo, *University of Louisiana at Lafayette*; Donald W. Holder, *NASA*; and John T. Tester, *Northern Arizona University* (**43**, 12, p. 2586) Article

**J05-285 New Model Correcting Method for Quadratic Eigenvalue Problems Using a Symmetric Eigenstructure Assignment.** Yuen-Cheng Kuo, *National Center for Theoretical Sciences Mathematics Division, Taiwan (ROC)*; Wen-Wei Lin, *National Tsinghua University, Taiwan (ROC)*; and Shu-Fang Xu, *Peking University, China (PRC)* (**43**, 12, p. 2593) Article

**J05-287 Thermal-Runaway Approximation for Ignition Times of Branched-Chain Explosions.** Gonzalo Del Alamo and Forman A. Williams, *University of California, San Diego* (**43**, 12, p. 2599) Article based on AIAA Paper 2005-1172

**J05-288 Electroelastic Analysis and Layer-by-Layer Modeling of a Smart Beam.** Comandur Venkatesan, Nazir A. Sheikh, and Chandrashekhar S. Upadhyay, *IIT Kanpur, India* (**43**, 12, p. 2606) Article based on AIAA Paper 2004-1649

**J05-289 Shear Lag Micromechanics Model for Effective Properties of Piezoelectric Composites.** Nilanjan Mallik, *ITBHU, India* (**43**, 12, p. 2617) Article

**J05-290 Cross-Sectional Analysis of Nonhomogeneous Anisotropic Active Slender Structures.** Rafael Palacios and Carlos E. Cesnik, *University of Michigan* (**43**, 12, p. 2624) Article

**J05-291 Approximate Solution for the Compression Buckling of Fully-Anisotropic Cylindrical Shells.** Kian Foh Wilson Wong, *Graduate Student, Great Britain*; and Paul M. Weaver, *Reader, Great Britain* (**43**, 12, p. 2639) Article based on AIAA Paper 2004-2052

**J05-292 Predictive Elastothermodynamic Damping in Finite Element Models Using a Perturbation Formulation.** Mark J. Silver and Lee D. Peterson, *University of Colorado*; and Richard S. Erwin, *U.S. Air Force Research Laboratory* (**43**, 12, p. 2646) Article based on AIAA Paper 2002-1729

**J05-293 Laser Doppler Measurements of a Highly Curved Flow.** Jorge M. Barata, *Universidade Beira Interior, Portugal*; and Diamantino F. Durão, *Universidade Lusíada, Portugal* (**43**, 12, p. 2652) Technical Note based on AIAA Paper 2005-0064