1997 AIAA Journal Index

How to Use the Index

In the Subject Index, pages 1901–1909, each technical paper is listed under a maximum of three appropriate headings. Note the number in boldface type following each paper title, and use that number to locate the paper in the Chronological Index. The Author Index, pages 1909–1911, lists all authors associated with a given technical paper. The locating numbers are identical to those in the Subject Index. The Chronological Index, pages 1911–1920, lists all papers by their unique code numbers. This listing contains titles, authors and their affiliations, and volume, issue number, and page where the paper appeared. It also gives the AIAA paper number, if any, on which the article was based, as well as the "CP" or conference volume number if the paper was published in a bound collection of meetings papers. Comments, Replies, and Errata are listed directly beneath the paper to which they refer. If the paper to which they refer was published prior to 1997, that paper also will appear in the Chronological Index. Authors of Comments also are listed in the Author Index. The Book Review Index, page 1920, lists the books reviewed during 1997, the author, publisher, and reviewer, and the volume, issue number, and page on which the review appeared.

Subject Index

Aircraft Technology, Conventional, STOL/VTOL

Comment on "Counter-Rotating Structures over

Hover Testing of a Smart Rotor with Induced-

Aerodynamics

a Delta Wing"

Wing Element

Control of Vortex Pairing Sound

Blade Vortex Interaction

Novel Method for Calculating Two-Dimensional

Strain Actuation of Blade Twist Airfoil Boundary-Layer Development and Transition with Large Leading-Edge Roughness 197-010 Velocity Measurements over a Pitching Airfoil J97-016 Boundary-Layer Characterization on Moving Walls by an Embedded Laser Velocimetry Technique 197-032 Flight on the Horizon: The Pivotal Year of 1896 197-034 High-Lift Aerodynamic Computations with Oneand Two-Equation Turbulence Models Temperature Dependence of Pressure Sensitive J97-046 Subsonic/Supersonic Yawed Gust over an Air-197-060 Langley's Aeronautical Research: A Modern Critique and Reassessment 197-062 Diamond, Cropped, Delta, and Double-Delta Wing Vortex Breakdown During Dynamic J97-085 Vortex Breakdown over Unsteady Delta Wings and Its Control J97-087 Otto Lilienthal: "The Greatest of the Precursors" Evolution of Vortical Structure over Delta-Wing with Transient Along-Core Blowing J97-099 Quadratic-Reconstruction Finite Volume Scheme for Compressible Flows on Unstructured Adaptive Grids J97-101 Near-Field Experiments on Tip Vortices at Mach J97-121 Octave Chanute and the Indiana Glider Trials of 1896 197-124 Nd:YAG Laser-Based Dual-Line Rayleigh Scat-J97-125 tering System Incremental Potential Flow Based Membrane

J97-126

J97-129

J97-145

Parallel Adaptive Finite Element Euler Flow Solver for Rotary Wing Aerodynamics

Numerical Wave Propagation and Steady-State Solutions: Soft Wall and Outer Boundary Conditions J97-153

Octree-Advancing Front Method for Generation of Unstructured Surface and Volume Meshes

Explicit Kutta Condition for Unsteady Two-Dimensional High-Order Potential Boundary Element Method J97-167

Freestream Velocity Corrections for Two-Dimensional Testing with Splitter Plates J97-183

Design and Testing of a Subsonic All-Moving Adaptive Flight Control Surface J97-187

Motion of a Body Through Large-Scale Inhomo-

Motion of a Body Through Large-Scale Inhomogeneity in the Stratified Atmosphere

J97-190

Computations of Unsteady Separating Flows over an Oscillating Airfoil J97-195
Limiting Mach Number for Quantitative Pressure-Sensitive Paint Measurements J97-197
Comparison of Optimization Algorithms for Aerodynamic Shape Design J97-221
Computational Method for Describing Porous Wall Boundary Conditions Based on Experi-

Wall Boundary Conditions Based on Experimental Data J97-227
Viscous-Inviscid Interaction Using the Navier-Stokes Equations J97-228

Inverse and Direct Airfoil Design Using a Multiobjective Genetic Algorithm J97-233 Numerical Solution of the Full Potential Equation

Using a Chimera Grid Approach J97-240
Study of Adaptive Shape Airfoils at Low Rey-

nolds Number in Oscillatory Flows
Improvements to a Dual-Time-Stepping Method
for Computing Unsteady Flows

J97-242

Cascade Flow Calculations Using the k-ω Turbulence Model with Explicit-Implicit Solver 197-243

Mean and Turbulence Measurements in the Near Field of a Wingtip Vortex J97-246 Surface Reflective Visualizations of Shock-Wave/

Surface Reflective Visualizations of Shock-Wa
Vortex Interactions Above a Delta Wing

Instantaneous Three-Dimensional Vorticity Measurements in Vortical Flow over a Delta Wing

J97-253
Interference Between a Cylindrical Bow Shock and a Plane Oblique Shock

J97-269

Gurney Flap Scaling for Optimum Lift-to-Drag Ratio J97-298 Relationship Between Stagnation Point Deflection and Forebody Vortex Asymmetry J97-300

Aeroelasticity and Aeroservoelasticity

Conservative Load Projection and Tracking for Fluid-Structure Problems J97-108
Convergence of Methods for Nonlinear Eigenvalue Problems J97-169
Sound Transmission Through an Aeroelastic Plate into a Cavity J97-173
Study of Adaptive Shape Airfoils at Low Reynolds Number in Oscillatory Flows J97-241

Aerospace Plane

Interference Between a Cylindrical Bow Shock and a Plane Oblique Shock

J97-269

Configuration Design

Otto Lilienthal: "The Greatest of the Precursors" J97-096

Statistical Experimentation Methods for Achieving Affordable Concurrent Systems Design J97-143

Comparison of Optimization Algorithms for Aerodynamic Shape Design J97-221

Deceleration Systems

Using Controlled Unsteady Fluid Mass Addition to Enhance Jet Mixing J97-103

Flight Control Integration

Design and Testing of a Subsonic All-Moving Adaptive Flight Control Surface J97-187

General Aviation

Automatic Differentiation in Robust Optimization J97-166

Ground Effect Machines

Three-Dimensional Instability of a Pair of Trailing Vortices near the Ground J97-260

Noise

Hover Testing of a Smart Rotor with Induced-Strain Actuation of Blade Twist J97-001 Active Control of Fan-Generated Tone Noise

J97-002

sure-Sensitive Paint Measurements

Sensitive Paints

Application of Dual Sorption Theory to Pressure-

J97-197

J97-282

Plate into a Cavity

Rectangular Nozzles

Screech Tones of Supersonic Jets from Bevelled

J97-173

Airfoil Boundary-Layer Development and Tran-

sition with Large Leading-Edge Roughness

J97-010

Two-Dimensional Focusing of Sonic Boom	Vibration	Numerically Nonreflecting Boundary and Inter-
Noise Penetrating an Air-Water Interface J97-005	Criteria for Occurrence of Flutter Instability Be-	face Conditions for Compressible Flow and Aeroacoustic Computations J97-175
Numerical Algorithms for Acoustic Integrals with	fore Buckling in Nonconservative Dissipative	Interface Wavelength Between Confined Super-
Examples for Rotor Noise Prediction J97-100	Systems J97-075 Optimal Placement of Piezoelectric Actuators for	sonic Two-Dimensional Jets and Subsonic
Novel Method for Calculating Two-Dimensional	Active Noise Control J97-077	Streams J97-188
Blade Vortex Interaction J97-145 Vane Sweep Effects on Rotor/Stator Interaction	Free-Vibration Analysis of Turbine Blades Using Nonlinear Finite Element Method J97-095	Effect of Yaw on Pressure Oscillation Frequency Within Rectangular Cavity at Mach 2
Noise J97-150	Vibration Analysis of Arbitrary Quadrilateral	J97-194
Sound Transmission Through an Aeroelastic Plate into a Cavity J97-173	Unsymmetrically Laminated Thick Plates	Adaptive Finite Volume Upwind Approaches for Aeroacoustic Computations J97-205
Upwind Scheme for Acoustic Disturbances Gen-	J97-202	Upwind Scheme for Acoustic Disturbances Gen-
erated by Low-Speed Flows J97-226	Vibrations of Elastically Restrained Nonuniform Beams with Arbitrary Pretwist J97-264	erated by Low-Speed Flows J97-226
Mach Wave Elimination in Supersonic Jets	Double With Photology 110th 15th 15th 15th 15th 15th 15th 15th 15	Direct Computation of Mach Wave Radiation in
J97-252	Energy	an Axisymmetric Supersonic Jet J97-248 Mach Wave Elimination in Supersonic Jets
Propeller and Rotor Systems		J97-252
Computation of Unsteady Flowfield over a Hy-	Rotating Machinery	Subsonic and Supersonic Jet Noise Predictions
drofoil, Including Boundary Layer and Wake	Prediction of Active Contol of Subsonic Centrif-	from Statistical Source Models J97-265
J97-006	ugal Compressor Rotating Stall J97-290	Boundary Layers and Heat Transfer—Laminar
Rotorcraft	EL LID.	
Hover Testing of a Smart Rotor with Induced-	Fluid Dynamics	Self-Contained Automated Methodology for Op- timal Flow Control J97-131
Strain Actuation of Blade Twist J97-001	Aeroacoustics	Dynamics of the Vorticity Distribution in End-
Influence of Elastomeric Damper Modeling on	Active Control of Fan-Generated Tone Noise	wall Junctions J97-162
the Dynamic Response of Helicopter Rotors J97-053	Ј97-002	Boundary Layers and Heat Transfer—
Numerical Algorithms for Acoustic Integrals with	Low Flow-Noise Microphone for Active Noise	Turbulent
Examples for Rotor Noise Prediction J97-100	Control Applications J97-004 Two-Dimensional Focusing of Sonic Boom	Communication of December 1 areas Continued
Parallel Adaptive Finite Element Euler Flow	Noise Penetrating an Air-Water Interface	Supersonic Turbulent Boundary Layer Subjected to Step Changes in Wall Temperature
Solver for Rotary Wing Aerodynamics	J97-005	J97-007
J97-149 Finite Element Modeling of Open-Section Com-	Cartesian Boundary Treatment of Curved Walls	Coupling Between a Supersonic Turbulent Bound-
posite Beams with Warping Restraint Effects	for High-Order Computational Aeroacoustics Schemes J97-018	ary Layer and a Flexible Structure J97-008
J97-212	Versatile Kirchhoff Code for Aeroacoustic Pre-	Large Eddy Simulation of an Equilibrium Three- Dimensional Turbulent Boundary Layer
Upwind Scheme for Acoustic Disturbances Gen-	dictions J97-028	J97-009
erated by Low-Speed Flows J97-226 Measurements in Rollup Region of the Tip Vor-	Panel-Structure Response to Acoustic Forcing by	Prediction of Strongly Curved Turbulent Duct
tex from a Rectangular Wing J97-291	a Nearly Sonic Jet J97-035	Flows with Reynolds Stress Model J97-012
Safety	Low-Dispersion Finite Volume Scheme for Aeroacoustic Applications J97-039	Near-Wall Reynolds-Stress Three-Dimensional
	Computation of Acoustic Waves Through Slid-	Transonic Flow Computation J97-036 Modeling of the Reynolds Stress Transport
Behavior of Wake Vortices Near Ground J97-136	ing-Zone Interfaces J97-040	Equation J97-067
_	Nozzle Thrust Optimization While Reducing Jet	Algebraic Turbulence Modeling for Swept Shock-
Structural Design (Including Loads)	Noise J97-063 Multigrid Acceleration of a High-Resolution Com-	Wave/Turbulent Boundary-Layer Interactions
Octave Chanute and the Indiana Glider Trials of	putational Aeroacoustics Scheme J97-064	J97-068 New Methodology for the Measurement of Surface
1896 J97-124	Response of a Two-Dimensional Cascade to an	Shear Stress Vector Distributions J97-097
Convergence of Methods for Nonlinear Eigenvalue Problems J97-169	Upstream Disturbance J97-065 Vortex-Oscillation Model of Airfoil Side-Edge	Nonlinear Second Moment Closure Consistent
Torsional Instability of Moderately Thick Com-	Noise J97-066	with Shear and Strain Flows J97-132 Coupled Fluid-Structural Characteristics of Ac-
posite Cylindrical Shells by Various Shell	Numerical Algorithms for Acoustic Integrals with	tuators for Flow Control J97-133
Theories J97-199 Changes in Fraguencies of a Laminated Plate	Examples for Rotor Noise Prediction J97-100	Explicit Algebraic Scalar Flux Approximation
Changes in Frequencies of a Laminated Plate Caused by Embedded Piezoelectric Layers	Proposed Inflow/Outflow Boundary Condition for Direct Computation of Aerodynamic Sound	J97-155
J97-262	J97-116	High-Resolution Finite Volume Computation of
Piezoelectric Constitutive Equations for a Plate	Numerical Simulation of Receptivity Phenomena	Turbulent Transonic Flow Past Airfoils J97-176
Shape Sensor/Actuator J97-301	in Transitional Boundary-Layer Flows	k-ζ (Enstrophy) Compressible Turbulence Model
Structural Materials	J97-127 Active Control of Panel Oscillation Induced by	for Mixing Layers and Wall Bounded Walls
Vibration Analysis of Arbitrary Quadrilateral	Accelerating Boundary Layer and Sound	J97-189
Unsymmetrically Laminated Thick Plates	J97-128	Computations of Unsteady Separating Flows over an Oscillating Airfoil J97-195
J97-202	Control of Vortex Pairing Sound J97-129	Analysis of Streamline Curvature Effects on
Postbuckling Analysis of Pultruded Composite Bars and Simple Frames J97-297	Flap Side-Edge Noise: Acoustic Analysis of Sen's Model J97-130	Wall-Bounded Turbulent Flows J97-203
	Novel Method for Calculating Two-Dimensional	Suitability of Upwind-Biased Finite Difference
Testing, Flight and Ground	Blade Vortex Interaction J97-145	Schemes for Large-Eddy Simulation of Turbu- lent Flows J97-222
Otto Lilienthal: "The Greatest of the Precursors"	Box-Length Requirements for Simulation of	Computational Method for Describing Porous
J97-096 New Methodology for the Measurement of Surface	Sound from Large Structures in Jets J97-146 Vane Sweep Effects on Rotor/Stator Interaction	Wall Boundary Conditions Based on Experi-
New Methodology for the Measurement of Surface Shear Stress Vector Distributions J97-097	Vane Sweep Effects on Rotor/Stator Interaction Noise J97-150	mental Data J97-227
Simultaneous, Full-Surface Visualizations of Tran-	Flight Effects on the Far-Field Noise of a Heated	Experimental Study of Acoustic Velocity Effects on Simulated Solid Fuel Pyrolysis J97-232
sition and Separation Using Liquid Crystal	Supersonic Jet J97-151	on ominated dolld Fuel 1 ylolysis 197-232
Coatings J97-098 Freestreem Velocity Corrections for Two Dimen	Active Control of Turbomachine Discrete Fre-	Boundary-Layer Stability and Transition
Freestream Velocity Corrections for Two-Dimensional Testing with Splitter Plates J97-183	quency Noise Utilizing Oscillating Flaps and Pistons J97-172	NASA Langley Mach 6 Quiet Wind-Tunnel Per-
Limiting Mach Number for Quantitative Pres-	Sound Transmission Through an Aeroelastic	formance J97-003

Improvements to a Dual-Time-Stepping Method for Computing Unsteady Flows J97-242

Conservative Load Projection and Tracking for Fluid-Structure Problems J97-108

Automatic Control of Laminar Boundary-Layer

Transition J97-011	Fluid-Structure Problems J97-108	for Computing Unsteady Flows J97-242
Boundary-Layer Characterization on Moving	Proposed Inflow/Outflow Boundary Condition for	for Computing Unsteady Flows J97-242 Numerical Simulations of Three-Dimensional
Walls by an Embedded Laser Velocimetry	•	
•	Direct Computation of Aerodynamic Sound	Trailing Vortex Evolution J97-244
Technique J97-032	J97-116	Implicit Method for Incompressible Flow Calcu-
Comparative Study of Inflow Conditions for Spatially Evolving Simulation J97-041	Incremental Potential Flow Based Membrane	lations in Three-Dimensional Ducts and Cas-
. , .	Wing Element J97-126	cades J97-249
Effect of Angle of Attack on Hypersonic Bound-	Numerical Simulation of Receptivity Phenomena in	Subsonic and Supersonic Jet Noise Predictions
ary-Layer Stability J97-069	Transitional Boundary-Layer Flows J97-127	from Statistical Source Models J97-265
Numerical Simulation of Receptivity Phenomena in	Control of Vortex Pairing Sound J97-129	Monte Carlo Analysis of the Hysteresis Phenom-
Transitional Boundary-Layer Flows J97-127	Nonlinear Second Moment Closure Consistent	enon in Steady Shock Wave Reflections
Self-Contained Automated Methodology for Op-	with Shear and Strain Flows J97-132	J97-277
timal Flow Control J97-131 Linear Stability of Hypersonic Flow in Thermo-	Parallel Adaptive Finite Element Euler Flow	Momentum Variable Procedure for Solving
	Solver for Rotary Wing Aerodynamics	Compressible and Incompressible Flows
chemical Nonequilibrium J97-152	J97-149	J97-286
Computational Fluid Dynamics	Numerical Wave Propagation and Steady-State	Parallelization and Dynamic Load Balancing of
To Divisional Provider of Conta Provider	Solutions: Soft Wall and Outer Boundary Con- ditions J97-153	NPARC Codes J97-287
Two-Dimensional Focusing of Sonic Boom	_	Hydrodynamics
Noise Penetrating an Air-Water Interface	Octree-Advancing Front Method for Generation of Unstructured Surface and Volume Meshes	•
J97-005	J97-154	Dynamics of the Vorticity Distribution in End-
Computation of Unsteady Flowfield over a Hy-	Direct Numerical Simulations of Wake Vortices in	wall Junctions J97-162
drofoil, Including Boundary Layer and Wake	Intense Homogeneous Turbulence J97-161	Hypersonic Flow
J97-006 Prediction of Strongly Curved Turbulent Duct	Explicit Kutta Condition for Unsteady Two-Di-	••
3 ,	mensional High-Order Potential Boundary El-	Overlay Method for Calculating Excited State
Flows with Reynolds Stress Model J97-012	ement Method J97-167	Species Properties in Hypersonic Flows
Cartesian Boundary Treatment of Curved Walls	Aerodynamically Accurate Three-Dimensional	J97-044
for High-Order Computational Aeroacoustics Schemes J97-018	Navier–Stokes Method J97-171	Effect of Angle of Attack on Hypersonic Bound-
• • • • • • • • • • • • • • • • • • • •		ary-Layer Stability J97-069
Versatile Kirchhoff Code for Aeroacoustic Pre- dictions J97-028	Numerically Nonreflecting Boundary and Inter- face Conditions for Compressible Flow and	Linear Stability of Hypersonic Flow in Thermo-
• • • • • • • • • • • • • • • • • • • •		chemical Nonequilibrium J97-152
Discrete Probability Function Method for the	Aeroacoustic Computations J97-175 Calculations of Swirl Combustors Using Joint	Experimental Demonstration of Use of N ₂ 0 to In-
Calculation of Turbulent Particle Dispersion	Velocity—Scalar Probability Density Function	crease Shock Tunnel Test Time J97-163
J97-029	Method J97-177	Nonequilibrium Effects in Near-Wake Ionizing
Numerical Simulation of Vortex-Induced Oblique Shock-Wave Distortion J97-033	Motion of a Body Through Large-Scale Inhomo-	Flows J97-178
•	geneity in the Stratified Atmosphere J97-190	Motion of a Body Through Large-Scale Inhomo-
Near-Wall Reynolds-Stress Three-Dimensional Transonic Flow Computation J97-036	New Conservative Formulations of Full-Poten-	geneity in the Stratified Atmosphere J97-190
High-Lift Aerodynamic Computations with One-	tial Equation in Streamline-Aligned Coordi-	Finite Element Adaptive Method for Hypersonic
and Two-Equation Turbulence Models	nates J97-191	Thermochemical Nonequilibrium Flows
J97-037	Vorticity Jump in Surface Coordinates Across a	J97-206
Low-Dispersion Finite Volume Scheme for	Shock in Nonsteady Flow J97-192	Simulations of High Knudsen Number Flows in
Aeroacoustic Applications J97-039	Freestream Parameter Estimation Using Heat	a Channel-Wedge Configuration J97-231
Computation of Acoustic Waves Through Slid-	Flux Measurements J97-196	Flow Model for Predicting Normal Shock Wave
ing-Zone Interfaces J97-040	Resolution Effects in Chaotic Velocity Field Re-	Induced Vortex Breakdown J97-250
Comparative Study of Inflow Conditions for	construction from Passive Scalar Data	Experiments on Oblique Shock Interactions with
Spatially Evolving Simulation J97-041	J97-198	Planar Mixing Regions J97-276
Reynolds Stress Transport Equations in a Mo-	Analysis of Streamline Curvature Effects on	Inlet, Nozzle, Diffuser, and Channel Flows
mentumless Wake: Experiments and Models	Wall-Bounded Turbulent Flows J97-203	
J97-043	Space-Marching Method on Unstructured Grid	Prediction of Strongly Curved Turbulent Duct
Overlay Method for Calculating Excited State	for Supersonic Flows with Embedded Sub-	Flows with Reynolds Stress Model J97-012
Species Properties in Hypersonic Flows	sonic Regions J97-204	Bifurcation of Low Reynolds Number Flows in
J97-044	Adaptive Finite Volume Upwind Approaches for	Symmetric Channels J97-013
Nozzle Thrust Optimization While Reducing Jet	Aeroacoustic Computations J97-205	Influence of Film Cooling on the Secondary
Noise J97-063	Finite Element Adaptive Method for Hypersonic	Flow in a Turbine Nozzle J97-015
Multigrid Acceleration of a High-Resolution Com-	Thermochemical Nonequilibrium Flows	Comparative Study of Inflow Conditions for
putational Aeroacoustics Scheme J97-064	J97-206	Spatially Evolving Simulation J97-041
Response of a Two-Dimensional Cascade to an	Comparison of Optimization Algorithms for	Multigrid Acceleration of a High-Resolution Com-
Upstream Disturbance J97-065	Aerodynamic Shape Design J97-221	putational Aeroacoustics Scheme J97-064
Modeling of the Reynolds Stress Transport	Suitability of Upwind-Biased Finite Difference	Response of a Two-Dimensional Cascade to an
Equation J97-067	Schemes for Large-Eddy Simulation of Turbu-	Upstream Disturbance J97-065
Algebraic Turbulence Modeling for Swept Shock-	lent Flows J97-222	Mixing Processes in a Coaxial Geometry with a
Wave/Turbulent Boundary-Layer Interactions	Three-Dimensional Finite Difference Method for	Central Lobed Mixer-Nozzle J97-134 Serrech Topes of Supersonic lets from Revelled
J97-068	Rotordynamic Fluid Forces on Seals	Screech Tones of Supersonic Jets from Bevelled Rectangular Nozzles J97-174
Two-Dimensional Unsteady Navier-Stokes So-	J97-223	Effects of Coriolis Force on Flow in Rotating
lution Method with Moving Overset Grids	Computational Method for Describing Porous	Diffusers J97-179
J97-070	Wall Boundary Conditions Based on Experi-	
Discrete Vortex Method for Simulating Unsteady	mental Data J97-227 Viscous Inviscid Interaction Using the Newton	Interface Wavelength Between Confined Super- sonic Two-Dimensional Jets and Subsonic
Flow Around Pitching Airfoils J97-073 Simple High Order Rounded Convection Scheme	Viscous-Inviscid Interaction Using the Navier-	Streams J97-188
Simple High-Order Bounded Convection Scheme to Model Discontinuities 197-093	Stokes Equations J97-228 Application of Chimera/Unstructured Hybrid	New Conservative Formulations of Full-Poten-
to Model Discontinuities J97-083 Thin vs Full Navier-Stokes Computation for High-		tial Equation in Streamline-Aligned Coordi-
Thin vs Full Navier–Stokes Computation for High-	Grids for Conjugate Heat Transfer J97-229 Practical Three Dimensional Aerodynamic De	
Angle-of-Attack Aerodynamics J97-084 Dilation-Free Solutions for the Incompressible	Practical Three-Dimensional Aerodynamic De-	nates J97-191 Three-Dimensional Finite Difference Method for
Dilation-Free Solutions for the Incompressible Flow Equations on Nonstaggered Grids	sign and Optimization Using Unstructured Meshes J97-230	Rotordynamic Fluid Forces on Seals J97-223
J97-093	Simulations of High Knudsen Number Flows in	Implicit Method for Incompressible Flow Calcu-
Quadratic-Reconstruction Finite Volume Scheme	a Channel–Wedge Configuration J97-231	lations in Three-Dimensional Ducts and Cas-
for Compressible Flows on Unstructured Adap-	Numerical Solution of the Full Potential Equation	cades J97-249
tive Grids J97-101	Using a Chimera Grid Approach J97-240	Dependence of Steady Mach Reflections on the
Adaptive Remeshing for the k - ε Model of Turbu-	Study of Adaptive Shape Airfoils at Low Rey-	Reflecting-Wedge Trailing-Edge Angle
lence J97-102	nolds Number in Oscillatory Flows J97-241	J97-278
		U 7 - 270

Jets, Wakes, and Viscid-Inviscid Flow Interactions

Comment on "Computation of Turbulent Axisymmetric and Nonaxisymmetric Jet Flows Using the K- ε Model" J96-049 Influence of Film Cooling on the Secondary Flow in a Turbine Nozzle J97-015

Mean Velocity and Static Pressure Distributions of a Circular Jet J97-027

Trailing Vortex Wake Growth Characteristics of a High Aspect Ratio Rectangular Airfoil J97-042

Reynolds Stress Transport Equations in a Momentumless Wake: Experiments and Models 197-043

Nozzle Thrust Optimization While Reducing Jet Noise J97-063

Measurements of the Velocity and Turbulence Structure of a Rotor Tip Vortex ${\bf J97-071}$ Adaptive Remeshing for the k- ϵ Model of Turbu-

lence J97-102
Using Controlled Unsteady Fluid Mass Addition
to Enhance Jet Mixing J97-103
Impulsively-Started Turbulent Jets J97-104

Nd: YAG Laser-Based Dual-Line Rayleigh Scattering System J97-125

Coupled Fluid-Structural Characteristics of Actuators for Flow Control

J97-133

Mixing Processes in a Cooxiel Coometry with a

Mixing Processes in a Coaxial Geometry with a Central Lobed Mixer-Nozzle J97-134 Behavior of Wake Vortices Near Ground

J97-136

Flow Characteristics and Shear-Layer Vortex Shedding of Double Concentric Jets J97-142 Crossflow Vortices of a Jet Injected into a Super-

sonic Crossflow J97-147
Flight Effects on the Far-Field Noise of a Heated
Supersonic Jet J97-151

Supersonic Jet J97-151
Explicit Algebraic Scalar Flux Approximation

J97-155

Detailed Investigation of the Three-Dimensional Separation About a 6:1 Prolate Spheroid

J97-156
Experiments on Impulsively Started Jet Diffu-

sion Flames J97-158
Direct Numerical Simulations of Wake Vortices in
Intense Homogeneous Turbulence J97-161

Screech Tones of Supersonic Jets from Bevelled
Rectangular Nozzles
J97-174
Nonequilibrium Effects in Nort Webs Joning

Nonequilibrium Effects in Near-Wake Ionizing Flows J97-178

Natural Coherent Structure Dynamics in Near Field of Fully Turbulent Axisymmetric Jet J97-180

Quantitative Density Measurements by Rayleigh Scattering Behind a Plane Turbine Cascade

Scattering Behind a Plane Turbine Cascade

J97-207
Viscous–Inviscid Interaction Using the Navier–

Stokes Equations J97-228
Direct Computation of Mach Wave Radiation in an Axisymmetric Supersonic Jet J97-248

Scalar Transport in a Swirling Transverse Jet
J97-266

Experiments on Oblique Shock Interactions with Planar Mixing Regions J97-276

Measurements in Rollup Region of the Tip Vortex from a Rectangular Wing J97-291

Multiphase Flows

Discrete Probability Function Method for the Calculation of Turbulent Particle Dispersion

J97-029

Attenuation of Shock Waves in Gas-Particle Mixtures J97-089

Rarefied Flows

New Scattering Kernel for Gas-Surface Interaction J97-157 Simulations of High Knudsen Number Flows in a Channel-Wedge Configuration

Studies of Low-Density Freejets and Their Impingement Effects

J97-239

Reacting Flows and Combustion

Influence of Turbulence Modeling on Predictions of Turbulent Combustion J97-014

Overlay Method for Calculating Excited State Species Properties in Hypersonic Flows

197-044

Impulsively-Started Turbulent Jets J97-104
Diffusion Flame Adjacent to a Rotating Solid
Fuel Disk in Zero Gravity J97-117
Experiments on Impulsively Started Jet Diffusion Flames J97-158
Dusty Detonation Simulations with Adaptive

Unstructured Finite Elements J97-159
Finite Element Adaptive Method for Hypersonic
Thermochemical Nonequilibrium Flows

Numerical Simulation of Secondary Combustion of Hydrogen Injected from Preburner into Supersonic Airflow J97-225

Experimental Study of Acoustic Velocity Effects on Simulated Solid Fuel Pyrolysis J97-232

Instantaneous Three-Dimensional Vorticity Mea-

surements in Vortical Flow over a Delta Wing

J97-253

Stability and Emissions of Lean, Turbulent, Premixed Flames with Very Lean Coflow

J97-20

Analytical Study of the Oblique Reflection of Detonation Waves

J97-268

Stabilization of Supersonic Combustion by a Free Recirculating Bubble: A Numerical Study 197-279

Computational Investigation of Shock-Enhanced
Mixing and Combustion J97-288
Effects of Gravity on Combustion Synthesis in
Heterogeneous Gasless Systems J97-289

Separated Flows

Bifurcation of Low Reynolds Number Flows in Symmetric Channels J97-013

Measurements of Velocity and Vorticity Fields

Around a Pitching Swept Wing J97-031

Algebraic Turbulence Modeling for Swept Shock-

Wave/Turbulent Boundary-Layer Interactions

Simultaneous, Full-Surface Visualizations of Transition and Separation Using Liquid Crystal Coatings J97-098

Permissible Three-Dimensional Testing in a Two-Dimensional Adaptive Wall Wind Tunnel

J97-12

Flow Characteristics and Shear-Layer Vortex
Shedding of Double Concentric Jets J97-142
Suitability of Upwind-Biased Finite Difference
Schemes for Large-Eddy Simulation of Turbulent Flows J97-222

Surface Reflective Visualizations of Shock-Wave/ Vortex Interactions Above a Delta Wing

Wavelet Analysis of Wall-Pressure Fluctuations in a Supersonic Blunt-Fin Flow J97-251
Gurney Flap Scaling for Optimum Lift-to-Drag
Ratio J97-298

Shock Waves and Detonations

Simple High-Order Bounded Convection Scheme to Model Discontinuities J97-083
Attenuation of Shock Waves in Gas-Particle Mixtures J97-089
Experimental Demonstration of Use of N_20 to Increase Shock Tunnel Test Time J97-163
Vorticity Jump in Surface Coordinates Across a Shock in Nonsteady Flow J97-192

Analytical Study of the Oblique Reflection of Detonation Waves

J97-268
Interference Between a Cylindrical Bow Shock and a Plane Oblique Shock

Experiments on Oblique Shock Interactions with Planar Mixing Regions

J97-276
Monte Carlo Analysis of the Hysteresis Phenomenon in Steady Shock Wave Reflections

Dependence of Steady Mach Reflections on the Reflecting-Wedge Trailing-Edge Angle

.197-278

Subsonic Flow

Comment on "Computation of Turbulent Axisymmetric and Nonaxisymmetric Jet Flows Using the K- ε Model" J96-049 Influence of Turbulence Modeling on Predictions of Turbulent Combustion J97-014

Evolution of Vortical Structure over Delta-Wing with Transient Along-Core Blowing J97-099
Numerical Wave Propagation and Steady-State

Solutions: Soft Wall and Outer Boundary Conditions

J97-153

Natural Coherent Structure Dynamics in Near

Field of Fully Turbulent Axisymmetric Jet

J97-180

Mean and Turbulence Measurements in the Near
Field of a Wingtip Vortex

J97-246

Momentum Variable Procedure for Solving
Compressible and Incompressible Flows

J97-286

Prediction of Active Contol of Subsonic Centrifugal Compressor Rotating Stall J97-290 Relationship Between Stagnation Point Deflection and Forebody Vortex Asymmetry J97-300

Supersonic Flow

Comment on "Computation of Turbulent Axisymmetric and Nonaxisymmetric Jet Flows Using the K-\varepsilon Model" J96-049

NASA Langley Mach 6 Quiet Wind-Tunnel Performance J97-003

Supersonic Turbulent Boundary Layer Subjected

to Step Changes in Wall Temperature
Coupling Between a Supersonic Turbulent
Boundary Layer and a Flexible Structure

J97-008

Numerical Simulation of Vortex-Induced Oblique Shock-Wave Distortion J97-033

Near-Field Experiments on Tip Vortices at Mach
3.1 J97-121

Difficulties in Sensitivity Calculations for Flows with Discontinuities J97-135

Interface Wavelength Between Confined Supersonic Two-Dimensional Jets and Subsonic Streams J97-188

k-ζ (Enstrophy) Compressible Turbulence Model for Mixing Layers and Wall Bounded Walls .197-189

Generalized Vortex Lattice Method for Planar Supersonic Flow J97-193 Effect of Yaw on Pressure Oscillation Frequency

Within Rectangular Cavity at Mach 2

J97-19

Space-Marching Method on Unstructured Grid for Supersonic Flows with Embedded Subsonic Regions J97-204

Direct Computation of Mach Wave Radiation in an Axisymmetric Supersonic Jet J97-248

Flow Model for Predicting Normal Shock Wave Induced Vortex Breakdown J97-250

Wavelet Analysis of Wall-Pressure Fluctuations in a Supersonic Blunt-Fin Flow J97-251

Mach Wave Elimination in Supersonic Jets

J97-252
Subsonic and Supersonic Jet Noise Predictions
from Statistical Source Models

J97-265

Two-Component Planar Doppler Velocimetry in High Speed Flows J97-270

Monte Carlo Analysis of the Hysteresis Phenom- enon in Steady Shock Wave Reflections	Unsteady Transonic Flow: Flow About a Suddenly Deflected Wedge J97-181	Dynamics of the Vorticity Distribution in End- wall Junctions J97-162
Dependence of Steady Mach Reflections on the	Vorticity Jump in Surface Coordinates Across a Shock in Nonsteady Flow J97-192 Generalized Vortey Lettice Method for Planes	Natural Coherent Structure Dynamics in Near Field of Fully Turbulent Axisymmetric Jet
Reflecting-Wedge Trailing-Edge Angle J97-278	Generalized Vortex Lattice Method for Planar Supersonic Flow J97-193	J97-180 Numerical Simulations of Three-Dimensional
Momentum Variable Procedure for Solving Compressible and Incompressible Flows	Effect of Yaw on Pressure Oscillation Frequency Within Rectangular Cavity at Mach 2	Trailing Vortex Evolution J97-244 Mean and Turbulence Measurements in the Near
J97-286	J97-194	Field of a Wingtip Vortex J97-246
Transonic Flow	Computations of Unsteady Separating Flows over an Oscillating Airfoil J97-195	Surface Reflective Visualizations of Shock-Wave/ Vortex Interactions Above a Delta Wing
Near-Wall Reynolds-Stress Three-Dimensional Transonic Flow Computation J97-036	Resolution Effects in Chaotic Velocity Field Re-	J97-247
Unsteady Transonic Flow: Flow About a Sud-	construction from Passive Scalar Data J97-198	Flow Model for Predicting Normal Shock Wave Induced Vortex Breakdown J97-250
denly Deflected Wedge J97-181 New Conservative Formulations of Full-Potential Equation in Streamline-Aligned Coordi-	Three-Dimensional Finite Difference Method for Rotordynamic Fluid Forces on Seals	Instantaneous Three-Dimensional Vorticity Measurements in Vortical Flow over a Delta Wing
nates J97-191 Quantitative Density Measurements by Rayleigh	J97-223 Experimental Study of Acoustic Velocity Effects	J97-253 Three-Dimensional Instability of a Pair of Trail-
Scattering Behind a Plane Turbine Cascade	on Simulated Solid Fuel Pyrolysis J97-232 Improvements to a Dual-Time-Stepping Method	ing Vortices near the Ground J97-260 Measurements in Rollup Region of the Tip Vor-
J97-207 Inverse and Direct Airfoil Design Using a Multi-	for Computing Unsteady Flows J97-242	tex from a Rectangular Wing J97-291
objective Genetic Algorithm J97-233	Parallelization and Dynamic Load Balancing of NPARC Codes J97-287	Relationship Between Stagnation Point Deflection and Forebody Vortex Asymmetry J97-300
Numerical Solution of the Full Potential Equation Using a Chimera Grid Approach J97-240	Viscous Non-Boundary-Layer Flows	Wave Motion and Sloshing
Cascade Flow Calculations Using the k-\omega Turbu- lence Model with Explicit-Implicit Solver	Velocity Measurements over a Pitching Airfoil	Closed-Form Modeling of Fluid-Structure Inter-
J97-243	J97-016 Reynolds Stress Transport Equations in a Mo-	action with Nonlinear Sloshing: Potential Flow J97-235
Unsteady Flows	mentumless Wake: Experiments and Models	371-200
Coupling Between a Supersonic Turbulent Bound-	J97-043 Adaptive Remeshing for the k - ε Model of Turbu-	Guidance, Control, and Dynamics
ary Layer and a Flexible Structure J97-008 Influence of Film Cooling on the Secondary	lence J97-102	Technology
Flow in a Turbine Nozzle J97-015 Velocity Measurements over a Pitching Airfoil	Comparison of Explicit and Traditional Algebraic Stress Models of Turbulence J97-234	Aircraft Dynamics
J97-016 Measurements of Velocity and Vorticity Fields	Stabilization of Supersonic Combustion by a Free Recirculating Bubble: A Numerical Study	Flight on the Horizon: The Pivotal Year of 1896 J97-034
Around a Pitching Swept Wing J97-031	J97-279 Gurney Flap Scaling for Optimum Lift-to-Drag	Control System Design
Boundary-Layer Characterization on Moving Walls by an Embedded Laser Velocimetry	Ratio J97-298	Automatic Control of Laminar Boundary-Layer Transition J97-011
Technique J97-032 Stability of a Counter-Rotating Vortex Pair Im-	Vortices	Distributed Piezoelectric Segment Method for
mersed in Cross-Stream Shear Flow J97-045	Comment on "Counter-Rotating Structures over a Delta Wing" J96-307	Vibration Control of Smart Beams J97-092 Selective Modal Transducers for Anisotropic
Subsonic/Supersonic Yawed Gust over an Air- foil J97-060	Measurements of Velocity and Vorticity Fields	Rectangular Plates: Experimental Validation J97-254
Vortex-Oscillation Model of Airfoil Side-Edge Noise J97-066	Around a Pitching Swept Wing J97-031 Numerical Simulation of Vortex-Induced Ob-	Piezoelectric Constitutive Equations for a Plate
Two-Dimensional Unsteady Navier-Stokes So-	lique Shock-Wave Distortion J97-033	Shape Sensor/Actuator J97-301
lution Method with Moving Overset Grids J97-070	Trailing Vortex Wake Growth Characteristics of a High Aspect Ratio Rectangular Airfoil	Control Theory
Discrete Vortex Method for Simulating Unsteady Flow Around Pitching Airfoils J97-073	J97-042 Stability of a Counter-Rotating Vortex Pair Im-	Distributed Piezoelectric Segment Method for Vibration Control of Smart Beams J97-092
Flow Around Pitching Airfoils J97-073 Simple High-Order Bounded Convection Scheme	mersed in Cross-Stream Shear Flow J97-045	Self-Contained Automated Methodology for Op-
to Model Discontinuities J97-083 Thin vs Full Navier–Stokes Computation for High-	Vortex-Oscillation Model of Airfoil Side-Edge Noise J97-066	timal Flow Control J97-131 Dynamics
Angle-of-Attack Aerodynamics J97-084	Discrete Vortex Method for Simulating Unsteady	Forced Response of Coupled Substructures Us-
Diamond, Cropped, Delta, and Double-Delta Wing Vortex Breakdown During Dynamic	Flow Around Pitching Airfoils J97-073 Thin vs Full Navier–Stokes Computation for High-	ing Experimentally Based Component Mode
Pitching J97-085 Concentration Measurements in Experimental	Angle-of-Attack Aerodynamics J97-084 Concentration Measurements in Experimental	Synthesis J97-051 A Geometric Approach to the Nondestructive
Microbursts J97-086	Microbursts J97-086	Identification of Faults in Stochastic Structural
Vortex Breakdown over Unsteady Delta Wings and Its Control J97-087	Vortex Breakdown over Unsteady Delta Wings and Its Control J97-087	Systems J97-110 Consistent Methodology for the Modeling of Pi-
Using Controlled Unsteady Fluid Mass Addition	Evolution of Vortical Structure over Delta-Wing with Transient Along-Core Blowing	ezolaminated Shells J97-209 Partial Derivatives of Repeated Eigenvalues and
to Enhance Jet Mixing J97-103 Impulsively-Started Turbulent Jets J97-104	J97-099	Their Eigenvectors J97-215
Time-Resolved Wave Front Measurements Through a Compressible Free Shear Layer	Effects of Internal Nozzle Geometry on Com- pression-Ramp Mixing in Supersonic Flow	Application of Nonlinear Localization to the Op- timization of a Vibration Isolation System
J97-106	J97-105	J97-217 Closed-Form Modeling of Fluid–Structure Inter-
Active Control of Panel Oscillation Induced by Accelerating Boundary Layer and Sound	Near-Field Experiments on Tip Vortices at Mach 3.1 J97-121	action with Nonlinear Sloshing: Potential Flow
J97-128 Experiments on Impulsively Started Jet Diffu-	Numerical Simulation of the Interaction Between Leading-Edge Vortex and Vertical Tail	J97-235 Some Practical Complete Modal Spaces and
sion Flames J97-158	J97-123	Equivalence J97-280
Estimation of Aeroelastic Models in Structural Limit-Cycle Oscillations from Test Data	Behavior of Wake Vortices Near Ground J97-136	New Modal Synthesis Technique Using Mixed Modes J97-295
J97-160 Active Control of Turbomachine Discrete Fre-	Crossflow Vortices of a Jet Injected into a Super- sonic Crossflow J97-147	Flight Mechanics
quency Noise Utilizing Oscillating Flaps and	Direct Numerical Simulations of Wake Vortices in	Flight on the Horizon: The Pivotal Year of 1896
Pistons J97-172	Intense Homogeneous Turbulence J97-161	J97-034

0	ptimizatio	n T	`ech	niq	ues

Automatic Control of Laminar Boundary-Layer Transition J97-011

Neural Network Approximator with Novel Learning Scheme for Design Optimization with Variable Complexity Data

Inverse and Direct Airfoil Design Using a Multiobjective Genetic Algorithm J97-233

Signal Processing

Wavelet Analysis of Wall-Pressure Fluctuations in a Supersonic Blunt-Fin Flow

Structural Control

Optimal Placement of Piezoelectric Actuators for Active Noise Control

Closed-Form Modeling of Fluid-Structure Interaction with Nonlinear Sloshing: Potential Flow 197-235

Selective Modal Transducers for Anisotropic Rectangular Plates: Experimental Validation J97-254

Semiactive Vibration Suppression with Elec-J97-292 trorheological-Fluid Dampers

System Identification

Sensor Placement and Structural Damage Identification from Minimal Sensor Information

Finite Element Model Update via Bayesian Estimation and Minimization of Dynamic Residuals

Extraction of Normal Modes and Full Modal Damping from Complex Modal Parameters

J97-182

Modal Parameter Identification Using Simulated Evolution J97-185 Partial Derivatives of Repeated Eigenvalues and

Their Eigenvectors

Interdisciplinary Topics

Aerospace Management

Modeling Interactions in Multidisciplinary Design: A Game Theoretic Approach

Analytical and Numerical Methods

Penalized Weighted Residual Method for the Initial Value Problems 197-024 Execution of Multidisciplinary Design Optimiza-

tion Approaches on Common Test Problems

Raasch Challenge for Shell Elements J97-057 Analysis of Uncertain Structural Systems Using Interval Analysis J97-114

Neural Network Approximator with Novel Learning Scheme for Design Optimization with Variable Complexity Data J97-115

Approximation of System Reliabilities Using a Shooting Monte Carlo Approach J97-165 Automatic Differentiation in Robust Optimiza-

J97-166 Unsteady Transonic Flow: Flow About a Sud-

denly Deflected Wedge J97-181 Efficient Computation of Eigenvector Sensitivities for Structural Dynamics J97-274

Integrating Experimental Data and Mathematical Models in Simulation of Physical Systems

J97-281

Postbuckling Analysis of Pultruded Composite Bars and Simple Frames J97-297

Lasers and Laser Applications

Time-Resolved Wave Front Measurements Through a Compressible Free Shear Layer

J97-106 OH Planar Laser-Induced Flourescence Velocity

Measurements in a Supersonic Combustor J97-107 Nd:YAG Laser-Based Dual-Line Rayleigh Scattering System

Holographic Diffraction Image Velocimetry for Measurement of Three-Dimensional Velocity J97-184

Reliability, Maintainability, and Logistics Support

Adaptive Monte Carlo Simulation for Time-Variant Reliability Analysis of Brittle Struc-J97-049

Research Facilities and Instrumentation

Comment on "Counter-Rotating Structures over a Delta Wing" 196-307

NASA Langley Mach 6 Quiet Wind-Tunnel Per-J97-003 formance

Low Flow-Noise Microphone for Active Noise Control Applications 197-004

Planar Measurements of Droplet Velocities and Sizes Within a Simplex Atomizer J97-017

Temperature Dependence of Pressure Sensitive **Paints** J97-046

Laser-Based Multiparameter Measurements in a Jet Engine Burner 197-074

Concentration Measurements in Experimental Microbursts 197-086

Approximating Collisional Freestream Attenuation at Transitional Knudsen Numbers

197-088 New Methodology for the Measurement of Surface Shear Stress Vector Distributions 197-097

Simultaneous, Full-Surface Visualizations of Transition and Separation Using Liquid Crystal Coatings J97-098

Permissible Three-Dimensional Testing in a Two-Dimensional Adaptive Wall Wind Tunnel

Experimental Demonstration of Use of N20 to Increase Shock Tunnel Test Time J97-163 Freestream Velocity Corrections for Two-Dimensional Testing with Splitter Plates

Holographic Diffraction Image Velocimetry for Measurement of Three-Dimensional Velocity Fields 197-184

Freestream Parameter Estimation Using Heat Flux Measurements J97-196

Limiting Mach Number for Quantitative Pressure-Sensitive Paint Measurements 197-197 Resolution Effects in Chaotic Velocity Field Reconstruction from Passive Scalar Data

J97-198 Quantitative Density Measurements by Rayleigh Scattering Behind a Plane Turbine Cascade

Two-Component Planar Doppler Velocimetry in High Speed Flows

Integrating Experimental Data and Mathematical Models in Simulation of Physical Systems

J97-281 Application of Dual Sorption Theory to Pressure-Sensitive Paints J97-282

Sensor Systems

Holographic Diffraction Image Velocimetry for Measurement of Three-Dimensional Velocity Fields J97-184

Application of Dual Sorption Theory to Pressure-Sensitive Paints J97-282

Piezoelectric Constitutive Equations for a Plate Shape Sensor/Actuator J97-301

Launch Vehicle and Missile (LV/M) Technology

Configuration Design

Modeling Interactions in Multidisciplinary Design: A Game Theoretic Approach

Simulation

Adaptive Monte Carlo Simulation for Time-Variant Reliability Analysis of Brittle Struc-J97-049

Structural Design (Including Loads)

Criteria for Occurrence of Flutter Instability Before Buckling in Nonconservative Dissipative J97-075 Systems

Propulsion

Airbreathing Propulsion

Discrete Probability Function Method for the Calculation of Turbulent Particle Dispersion 197-029

Laser-Based Multiparameter Measurements in a Jet Engine Burner 197-074

Mixing Processes in a Coaxial Geometry with a Central Lobed Mixer-Nozzle J97-134

Active Control of Turbomachine Discrete Frequency Noise Utilizing Oscillating Flaps and Pistons 197-172

Numerical Simulation of Secondary Combustion of Hydrogen Injected from Preburner into Supersonic Airflow 197-225

Application of Chimera/Unstructured Hybrid Grids for Conjugate Heat Transfer 197-229

Prediction of Active Contol of Subsonic Centrifugal Compressor Rotating Stall J97-290

Combustion and Combustor Designs

Laser-Based Multiparameter Measurements in a Jet Engine Burner J97-074 Diffusion Flame Adjacent to a Rotating Solid J97-117

Fuel Disk in Zero Gravity Stability and Emissions of Lean, Turbulent, Premixed Flames with Very Lean Coflow

J97-267

Environmental Effects

Active Control of Fan-Generated Tone Noise J97-002

Vane Sweep Effects on Rotor/Stator Interaction J97-150 Noise

Ramjets and Scramjets

Effects of Internal Nozzle Geometry on Compression-Ramp Mixing in Supersonic Flow

OH Planar Laser-Induced Flourescence Velocity

Measurements in a Supersonic Combustor J97-107 **Numerical Simulation of Secondary Combustion** of Hydrogen Injected from Preburner into Su-

personic Airflow 197-225 Computational Investigation of Shock-Enhanced J97-288 Mixing and Combustion

Supersonic Combustion

Effects of Internal Nozzle Geometry on Compression-Ramp Mixing in Supersonic Flow

OH Planar Laser-Induced Flourescence Velocity Measurements in a Supersonic Combustor J97-107

Stabilization of Supersonic Combustion by a Free Recirculating Bubble: A Numerical Study J97-279

Computational Investigation of Shock-Enhanced Mixing and Combustion J97-288

Space Technology

Space Experiments

Diffusion Flame Adjacent to a Rotating Solid Fuel Disk in Zero Gravity J97-117 Effects of Gravity on Combustion Synthesis in Heterogeneous Gasless Systems J97-289

Spacecraft Structural Configuration, Design, and Analysis

Sensor Placement and Structural Damage Identification from Minimal Sensor Information J97-056

Structural Mechanics and Materials

Aeroelasticity and Control

Criteria for Occurrence of Flutter Instability Before Buckling in Nonconservative Dissipative Systems J97-075

Aeroelastic Sensitivity Analysis of Wings Using
Automatic Differentiation

J97-076
Consequential Load Projection and Tracking for

Conservative Load Projection and Tracking for Fluid-Structure Problems J97-108

Instability of Lightly Damped Linear Nonconservative Systems J97-144

Convergence of Methods for Nonlinear Eigenvalue Problems J97-169

Reduced-Order Aeroservoelastic Model with an Unsteady Aerodynamic Eigen Formulation

J97-170

Dynamic Model Analysis

Forced Response of Coupled Substructures Using Experimentally Based Component Mode Synthesis J97-051

Accelerated Iterative Procedure for Calculating Eigenvector Derivatives J97-052

Influence of Elastomeric Damper Modeling on the Dynamic Response of Helicopter Rotors

Method for Structural Model Update Using Dynamically Measured Static Flexibility Matrices 197-055

Improved Method for Determining Free-Free Modes Using Constrained Test Data J97-061 Model Order Reduction by Selective Sensitivity

Efficient Computation of Many Eigenvector Derivatives Using Dynamic Flexibility Method
197-112

Orthogonalization of Measured Modes—Revisited J97-118

Stiffness Matrix Adjustment Using Incomplete Measured Modes J97-148

Modal Parameter Identification Using Simulated Evolution J97-185

Extending Sensistivity-Based Updating to Lightly Damped Structures J97-216

Application of Nonlinear Localization to the Optimization of a Vibration Isolation System

J97-2

Dynamic Buckling of Imperfect Cylindrical Shells Under Axial Compression and Bending Moment J97-220

Selective Modal Transducers for Anisotropic Rectangular Plates: Experimental Validation

J97-254

Some Practical Complete Modal Spaces and Equivalence

Effective Mass Sensitivities for Systems with Repeated Eigenvalues

J97-284

Flexible and Active Structures

Optimal Placement of Piezoelectric Actuators for Active Noise Control J97-077 Thermopiezoelectric Control Design and Actua-

tor Placement J97-078

Incremental Potential Flow Based Membrane
Wing Element J97-126
Vibration Suppression Using Acceleration Feed-

back Control with Multiple Proof-Mass Actuators

J97-137

Position and Testing of a Subsenie All Maying

Design and Testing of a Subsonic All-Moving Adaptive Flight Control Surface J97-187 Control of Cantilever Vibration via Structural Tailoring and Adaptive Materials

J97-208

Consistent Methodology for the Modeling of Piezolaminated Shells

J97-209

Cable-Stiffened Pantographic Deployable Structures Part 2: Mesh Reflector J97-213

Deflection-Voltage Model and Experimental Results for Polymeric Piezoelectric C-Block Actuators

J97-245

Nonaxisymmetric Exact Piezothermoelastic Solution for Laminated Cylindrical Shell

J97-283

Modal Data Are Insufficient for Identification of Both Mass and Stiffness Matrices

J97-285

Semiactive Vibration Suppression with Electrorheological-Fluid Dampers J97-292

Materials Structural Properties

Predictions for Coefficients of Thermal Expansion of Three-Dimensional Braided Composites J97-019

Fracture Criterion for Notched Thin Composite Laminates J97-047

High Strain Rate Properties of Cycom 5920/1583 Cloth Glass/Epoxy Composites **J97-081**

Torsional Instability of Moderately Thick Composite Cylindrical Shells by Various Shell Theories J97-199

Time-Domain Finite Element Analysis of Viscoelastic Structures with Fractional Derivatives Constitutive Relations J97-255

Structural Composite Materials

Predictions for Coefficients of Thermal Expansion of Three-Dimensional Braided Composites J97-019

Effects of Longitudinal and Hoop Stiffeners on Damage Propagation in Pressurized Composite Cylinders J97-020

Buckling and Postbuckling Behavior of Stiffened Composite Panels Loaded in Compression

J97-030

Fracture Criterion for Notched Thin Composite
Laminates J97-047

Free Vibration of Pretwisted, Cantilevered Composite Shallow Conical Shells J97-050 Importance of Instability in Impact Response and

Damage Resistance of Composite Shells

J97-059

Optimum Design and Validation of Flat Composite Beams Subject to Frequency Constraints

J97-079

Evaluation of Data Reduction Methods for the Mixed Mode Bending Test J97-080

High Strain Rate Properties of Cycom 5920/1583
Cloth Glass/Epoxy Composites J97-081

Effect of Loading Parameters on Damage-Induced Shear-Extension Coupling in Laminate J97-090

Simplified Method for Predicting Onset of Open-Mode Free Edge Delamination J97-091 Improved Mindlin Plate Stress Analysis for Lam-

Improved Mindlin Plate Stress Analysis for Laminated Composites in Finite Element Method J97-094

Transient Analysis of Crack in Composite Layered Medium Subjected to Dynamic Loadings 197-111

Optimization for Buckling of Composite Sandwich Plates J97-138

Ballistic Impact of Thin-Walled Composite Structures J97-140 Constrained Warping of Thin-Walled Hollow

Composite Beams

Singularities in Polynomial Representations of Transverse Shear in Finite Elements

J97-201

J97-168

Control of Cantilever Vibration via Structural
Tailoring and Adaptive Materials

J97-208
Consistent Methodology for the Modeling of Pi-

Consistent Methodology for the Modeling of Piezolaminated Shells J97-209

Mixed Laminate Theory and Finite Element for Smart Piezoelectric Composite Shell Strucutres J97-210

General Theory for Cross-Ply Laminated Beams J97-211

Finite Element Modeling of Open-Section Composite Beams with Warping Restraint Effects J97-212

Geometrically Nonlinear Theory of Initially Imperfect Sandwich Curved Panels Incorporating Nonclassical Effects J97-219

Dynamic Buckling of Imperfect Cylindrical Shells Under Axial Compression and Bending Moment J97-220

Dynamic Contact Analysis of Laminated Composite Plates Under Low-Velocity Impact

Boundary Integral Formulation for Composite Laminates in Torsion J97-259

Scaling Laws of Cylindrical Shells Under Lateral Pressure J97-261

Bifurcation Buckling Analysis of Delaminated Composites Using Global–Local Approach J97-263

Quantitative Prediction of Thermomechanical Coupling Effect in Thermo–Elasto–Viscoplastic Composite Materials J97-272

Geometrically Nonlinear Theory of Multilayered
Plates with Interlayer Slips

J97-273

Nonaxisymmetric Exact Piezothermoelastic Solution for Laminated Cylindrical Shell

197-283

Probability Density Functions of Acoustically Induced Strains in Experiments with Composite Plates J97-293

Dispersion of Axisymmetric Elastic Waves in Thick-Walled Orthotropic Pipes J97-302

Structural Design

Comment on "Fuzzy Finite Element Approach for the Analysis of Imprecisely Defined Systems" J95-375

Effects of Longitudinal and Hoop Stiffeners on Damage Propagation in Pressurized Composite Cylinders J97-020

Eigenpair Derivative with Respect to Boundary Shape J97-023

Buckling and Postbuckling Behavior of Stiffened Composite Panels Loaded in Compression 197-030

Structural Reanalysis for General Layout Modifications J97-058

Aeroelastic Sensitivity Analysis of Wings Using Automatic Differentiation J97-076

Thermopiezoelectric Control Design and Actuator Placement J97-078

Optimization for Buckling of Composite Sandwich Plates J97-138

Ballistic Impact of Thin-Walled Composite Structures J97-140 General Theory for Cross-Ply Laminated Beams

J97-211

Cable-Stiffened Pantographic Deployable Structures Part 2: Mesh Reflector J97-213

Deflection-Voltage Model and Experimental Results for Polymeric Piezoelectric C-Block Actuators

J97-245

Design Diagrams for Reliable Layered Materials

J97-256

Adaptive Topology Optimization of Shell Structures J97-275

Relationships Between Classical and Shear Deformation Theories of Axisymmetric Circular Plates J97-294

Structural Durability (Including Fatigue, Fracture, and Environmental Degradation)	Sensor Placement and Structural Damage Identi- fication from Minimal Sensor Information	Numerical Modeling of Buckling of Ring-Stiff- ened Cylinders J97-026
Effects of Longitudinal and Hoop Stiffeners on	J97-056	Corrosion Pillowing Stresses in Fuselage Lap
Damage Propagation in Pressurized Compos-	Improved Method for Determining Free-Free	Joints J97-048
ite Cylinders J97-020	Modes Using Constrained Test Data J97-061	Raasch Challenge for Shell Elements J97-057
Structural Damage Identification Using As-	Evaluation of Data Reduction Methods for the	Aeroelastic Sensitivity Analysis of Wings Using
signed Partial Eigenstructure J97-021	Mixed Mode Bending Test J97-080	Automatic Differentiation J97-076
Fracture Criterion for Notched Thin Composite	Model Order Reduction by Selective Sensitivity	Improved Mindlin Plate Stress Analysis for Lam-
Laminates J97-047	J97-082 Distributed Piezoelectric Segment Method for	inated Composites in Finite Element Method J97-094
Corrosion Pillowing Stresses in Fuselage Lap	Vibration Control of Smart Beams J97-092	Analysis of Uncertain Structural Systems Using
Joints J97-048	Free-Vibration Analysis of Turbine Blades Using	Interval Analysis J97-114
Adaptive Monte Carlo Simulation for Time-	Nonlinear Finite Element Method J97-095	Flow Characteristics and Shear-Layer Vortex
Variant Reliability Analysis of Brittle Struc-	Improved Damage Location Accuracy Using	Shedding of Double Concentric Jets J97-142
tures J97-049	Strain Energy-Based Mode Selection Criteria	Mixed Laminate Theory and Finite Element for
Method for Structural Model Update Using Dy-	J97-109	Smart Piezoelectric Composite Shell Strucu-
namically Measured Static Flexibility Matrices J97-055	A Geometric Approach to the Nondestructive	tres J97-210
Importance of Instability in Impact Response and	Identification of Faults in Stochastic Structural	Finite Element Modeling of Open-Section Com-
Damage Resistance of Composite Shells	Systems J97-110	posite Beams with Warping Restraint Effects
J97-059	Transient Analysis of Crack in Composite Lay-	J97-212
High Strain Rate Properties of Cycom 5920/1583	ered Medium Subjected to Dynamic Loadings J97-111	Extending Sensistivity-Based Updating to Lightly Damped Structures J97-216
Cloth Glass/Epoxy Composites J97-081	Efficient Computation of Many Eigenvector De-	Dynamic Contact Analysis of Laminated Com-
Simplified Method for Predicting Onset of Open-	rivatives Using Dynamic Flexibility Method	posite Plates Under Low-Velocity Impact
Mode Free Edge Delamination J97-091	.197-112	J97-236
Improved Damage Location Accuracy Using	Orthogonalization of Measured Modes-Revis-	Studies of Low-Density Freejets and Their Im-
Strain Energy-Based Mode Selection Criteria	ited J97-118	pingement Effects J97-239
J97-109	Broadband Vibration Damping Using Highly	Time-Domain Finite Element Analysis of Vis-
A Geometric Approach to the Nondestructive	Distributed Tuned Mass Absorbers J97-122	coelastic Structures with Fractional Deriva-
Identification of Faults in Stochastic Structural Systems J97-110	Finite Element Model Update via Bayesian Esti-	tives Constitutive Relations J97-255
Transient Analysis of Crack in Composite Lay-	mation and Minimization of Dynamic Residu-	Bifurcation Buckling Analysis of Delaminated
ered Medium Subjected to Dynamic Loadings	als J97-141	Composites Using Global–Local Approach
J97-111	Instability of Lightly Damped Linear Nonconser- vative Systems J97-144	J97-263 Model Update Using Modal Contribution to
Balance Technique for Monitoring In Situ Struc-	Stiffness Matrix Adjustment Using Incomplete	Static Flexibility Error J97-271
tural Integrity of Prismatic Structures	Measured Modes J97-148	Static Collapse of Elastic Circular Arches
J97-139	Extraction of Normal Modes and Full Modal	J97-296
Ballistic Impact of Thin-Walled Composite Struc-	Damping from Complex Modal Parameters	
tures J97-140	. J97-182	Structural Modeling
Long-Term Strength and Damage Analysis of	Modal Parameter Identification Using Simulated	Predictions for Coefficients of Thermal Expan-
Laminated Composites J97-164 Approximation of System Polishilities Using a	Evolution J97-185	sion of Three-Dimensional Braided Compos-
Approximation of System Reliabilities Using a Shooting Monte Carlo Approach J97-165	Final Solution of Duffing Equation of Mixed Par-	ites J97-019
Shooting Monte Carlo Approach J97-165 Boundary Integral Equations for Notch Problems	ity J97-200	Numerical Modeling of Buckling of Ring-Stiff-
in Plane Thermoelasticity J97-224	Vibration Analysis of Arbitrary Quadrilateral Unsymmetrically Laminated Thick Plates	ened Cylinders J97-026
Dynamic Contact Analysis of Laminated Com-	J97-202	Free Vibration of Pretwisted, Cantilevered Com-
posite Plates Under Low-Velocity Impact	Fractional Integral Formulation of Constitutive	posite Shallow Conical Shells Raasch Challenge for Shell Elements J97-050 J97-057
J97-236	Equations of Viscoelasticity J97-214	Improved Method for Determining Free-Free
Dynamic Learning Rate Neural Network Train-	Partial Derivatives of Repeated Eigenvalues and	Modes Using Constrained Test Data
ing and Composite Structural Damage Detec-	Their Eigenvectors J97-215	J97-061
tion J97-237	Extending Sensistivity-Based Updating to Lightly	Improved Mindlin Plate Stress Analysis for Lam-
Composite Patch Repairs of Metal Structures:	Damped Structures J97-216	inated Composites in Finite Element Method
Adhesive Nonlinearity, Thermal Cycling, and	Vibration Mode Localization in One-Dimen-	J97-094
Debonding J97-238	sional Systems J97-257	Improved Damage Location Accuracy Using
Structural Dynamics and Characterization	Vibration Mode Localization in Two-Dimensional Systems J97-258	Strain Energy-Based Mode Selection Criteria
Comment on "Structural Damage Identification	sional Systems J97-258 Changes in Frequencies of a Laminated Plate	J97-109 Analysis of Uncertain Structural Systems Using
Using Assigned Partial Eigenstructure"	Caused by Embedded Piezoelectric Layers	Interval Analysis J97-114
J97-021	J97-262	Finite Element Model Update via Bayesian Esti-
Finite Element Method for Nonlinear Free Vibra-	Vibrations of Elastically Restrained Nonuniform	mation and Minimization of Dynamic Residu-
tions of Composite Plates J97-022	Beams with Arbitrary Pretwist J97-264	als J97-141
Eigenpair Derivative with Respect to Boundary	Model Update Using Modal Contribution to	Constrained Warping of Thin-Walled Hollow
Shape J97-023	Static Flexibility Error J97-271	Composite Beams J97-168
Penalized Weighted Residual Method for the Ini-	Efficient Computation of Eigenvector Sensitivi-	Extraction of Normal Modes and Full Modal
tial Value Problems J97-024	ties for Structural Dynamics J97-274	Damping from Complex Modal Parameters
Free Vibration of Pretwisted, Cantilevered Com-	Some Practical Complete Modal Spaces and	J97-182
posite Shallow Conical Shells J97-050 Forced Response of Coupled Substructures Us-	Equivalence J97-280 Effective Mass Sensitivities for Systems with	Singularities in Polynomial Representations of
ing Experimentally Based Component Mode	Repeated Eigenvalues J97-284	Transverse Shear in Finite Elements J97-201 Control of Cantilever Vibration via Structural
Synthesis J97-051	Semiactive Vibration Suppression with Elec-	Tailoring and Adaptive Materials J97-208
Accelerated Iterative Procedure for Calculating	trorheological-Fluid Dampers J97-292	Fractional Integral Formulation of Constitutive
Eigenvector Derivatives J97-052	New Modal Synthesis Technique Using Mixed	Equations of Viscoelasticity J97-214
Influence of Elastomeric Damper Modeling on	Modes J97-295	Geometrically Nonlinear Theory of Initially Im-
the Dynamia Pagnange of Halicanter Potors		
the Dynamic Response of Helicopter Rotors	Structural Finite Floments	perfect Sandwich Curved Panels Incorporating
J97-053	Structural Finite Elements	Nonclassical Effects J97-219
J97-053 Multiple Eigenvalues Arising from a Class of Re-	Comment on "Fuzzy Finite Element Approach	Nonclassical Effects J97-219 Boundary Integral Equations for Notch Problems
J97-053 Multiple Eigenvalues Arising from a Class of Repetitive Substructures J97-054	Comment on "Fuzzy Finite Element Approach for the Analysis of Imprecisely Defined Sys-	Nonclassical Effects J97-219 Boundary Integral Equations for Notch Problems in Plane Thermoelasticity J97-224
J97-053 Multiple Eigenvalues Arising from a Class of Repetitive Substructures J97-054 Method for Structural Model Update Using Dy-	Comment on "Fuzzy Finite Element Approach for the Analysis of Imprecisely Defined Sys- tems" J95-375	Nonclassical Effects J97-219 Boundary Integral Equations for Notch Problems in Plane Thermoelasticity J97-224 Deflection-Voltage Model and Experimental Re-
J97-053 Multiple Eigenvalues Arising from a Class of Repetitive Substructures J97-054	Comment on "Fuzzy Finite Element Approach for the Analysis of Imprecisely Defined Sys-	Nonclassical Effects J97-219 Boundary Integral Equations for Notch Problems in Plane Thermoelasticity J97-224

Time-Domain Finite Element Analysis of Viscoelastic Structures with Fractional Derivatives Constitutive Relations Boundary Integral Formulation for Composite Laminates in Torsion J97-259 Changes in Frequencies of a Laminated Plate Caused by Embedded Piezoelectric Layers Model Update Using Modal Contribution to Static Flexibility Error J97-271 Geometrically Nonlinear Theory of Multilayered Plates with Interlayer Slips Relationships Between Classical and Shear Deformation Theories of Axisymmetric Circular

197-294

J97-115

J97-138

J97-143

Structural Optimization

able Complexity Data

wich Plates

Eigenpair Derivative with Respect to Boundary Shape Execution of Multidisciplinary Design Optimization Approaches on Common Test Problems J97-025 Accelerated Iterative Procedure for Calculating Eigenvector Derivatives J97-052 Structural Reanalysis for General Layout Modifications J97-058 Optimum Design and Validation of Flat Composite Beams Subject to Frequency Constraints J97-079 Model Order Reduction by Selective Sensitivity J97-082 Efficient Computation of Many Eigenvector Derivatives Using Dynamic Flexibility Method J97-112 Neural Network Approximator with Novel Learning Scheme for Design Optimization with Vari-

Optimization for Buckling of Composite Sand-

Statistical Experimentation Methods for Achiev-

ing Affordable Concurrent Systems Design

Stiffness Matrix Adjustment Using Incomplete Measured Modes Approximation of System Reliabilities Using a Shooting Monte Carlo Approach J97-165 Automatic Differentiation in Robust Optimization J97-166 Sequentially Decomposed Programming J97-186 Application of Nonlinear Localization to the Optimization of a Vibration Isolation System Modeling Interactions in Multidisciplinary Design: A Game Theoretic Approach J97-218 Efficient Computation of Eigenvector Sensitivities for Structural Dynamics J97-274 Adaptive Topology Optimization of Shell Structures J97-275 Structural Stability Numerical Modeling of Buckling of Ring-Stiff-197-026 ened Cylinders

Buckling and Postbuckling Behavior of Stiffened Composite Panels Loaded in Compression Importance of Instability in Impact Response and Damage Resistance of Composite Shells Vibration Suppression Using Acceleration Feedback Control with Multiple Proof-Mass Actuators Instability of Lightly Damped Linear Nonconservative Systems Torsional Instability of Moderately Thick Composite Cylindrical Shells by Various Shell Theories Geometrically Nonlinear Theory of Initially Imperfect Sandwich Curved Panels Incorporating Nonclassical Effects Dynamic Buckling of Imperfect Cylindrical Shells Under Axial Compression and Bending Moment J97-220

Bifurcation Buckling Analysis of Delaminated Composites Using Global-Local Approach 197-263

Static Collapse of Elastic Circular Arches

197-296

Postbuckling Analysis of Pultruded Composite Bars and Simple Frames J97-297

Thermopiezoelectric Control Design and Actua-

Thermal Effects

tor Placement Free-Vibration Analysis of Turbine Blades Using Nonlinear Finite Element Method J97-095 Boundary Integral Equations for Notch Problems

in Plane Thermoelasticity J97-224

Nonaxisymmetric Exact Piezothermoelastic Solution for Laminated Cylindrical Shell

197-283

Thermophysics and Heat Transfer

Boiling/Condensation

Mixed Laminate Theory and Finite Element for Smart Piezoelectric Composite Shell Strucu-J97-210

Computational Heat Transfer

Explicit Algebraic Scalar Flux Approximation J97-155

Freestream Parameter Estimation Using Heat Flux Measurements J97-196

Application of Chimera/Unstructured Hybrid Grids for Conjugate Heat Transfer J97-229

Melting/Solidification

Effects of Gravity on Combustion Synthesis in Heterogeneous Gasless Systems J97-289

Author Index

Abdallah, S., J97-093 Abramovich, Haim, J97-209, J97-254 Ait-Ali-Yahia, Djaffar, J97-206 Akay, H. U., J97-287 Alahyari, Abbas A., J97-086 Alberts, Jessica, J97-026 Alekseev, A. K., J97-196 Alexopoulos, G. A., J97-189 Ali, M. A. T., J97-027 Allen, C. S., J97-151 Allen, Janet K., J97-143 Alvin, K. F., J97-141, 97-182, J97-274 Anand, M. S., J97-177 Anderson, John D., Jr., J97-062, J97-072, J97-231 Andreopoulos, J., J97-253 Andresen, P., J97-074 Andrews, Malcom J., J97-188 Antonia, R. A., J97-067 Appel, Justin R., J97-135 Arendt, C., J97-047 Atluri, Satya N., J97-238 Autric, J. M., J97-032 Avital, E. J., J97-146 Aydore, S., J97-180 Aver. Frédérique, J97-082 Bäck, Per, J97-169 Bailly, Christophe, J97-265 Balling, R. J., J97-025 Banerjee, J. R., J97-119 Bannink, W. J., J97-247 Barhorst, Alan A., J97-235 Barrett, R. M., J97-187 Baruch, Menahem, J97-021, J97-024, J97-118, J97-285

Batra, R. C., J97-262 Battaglia, Francine, J97-013 Baum, J., J97-159 Bayliss, A., J97-035 Bellinger, Nicholas C., J97-048 Belovich, V. M., J97-134 Ben-Dor, G., J97-268, J97-277, J97-278 Ben-Haim, Yakov, J97-082 Berke, L., J97-114 Beushausen, V., J97-074 Beutner, Thomas J., J97-227 Bhashyam, Srinivas, J97-080 Birch, Stanley F., J96-049 Blanchard, Alan E., J97-003 Bliss, Donald B., J97-038, J97-145 Bogdanoff, David W., J97-163 Borovoy, V. Ya., J97-269 Bottasso, Carlo L., J97-149 Bourque, S. M., J97-104 Bradshaw, Peter, J97-246 Bragg, M. B., J97-010 Brei, Diann, J97-245 Brentner, Kenneth S., J97-100 Breuer, Kenneth S., J97-133 Brockhinke, A., J97-074 Brown, Gregory W., J97-216 Brown, S. A., J97-165 Brozoski, F. T., J97-187 Brozowski, Laura, J97-223 Brundrett, Ewart, J97-120 Budiman, Haryanto T., J97-020 Butler, R., J97-079 Buttsworth, D. R., J97-276 Camarda, Charles J., J97-219

Candel, Sébastien, J97-265 Candler, Graham V., J97-044, 197-152 Carroll, B. F., J97-046, J97-282 Carron, W. S., J97-296 Caton, Jerald A., J97-188 Cebral, Juan Raúl, J97-108 Celik, Zeki Z., J97-227 Cercignani, C., J97-157 Cha, Soyoung S., J97-184 Chamberlain, Jeffrey D., J97-198 Champagne, F. H., J97-266 Chanetz, B., J97-269 Chao, C. K., J97-224 Chen, C. C., J97-202 Chen, H., J97-045 Chen, Peter C., J97-001 Chen, Su-Huan, J97-061 Chen, Wei, J97-143 Chen, Wei, J97-223 Cheng, Jiangang, J97-054 Chesnakas, Christopher J., J97-156 Chiang, Dar-Yun, J97-185 Chien, Y. P., J97-287 Chinilov, A. Yu., J97-269 Cho, Jin Yeon, J97-024 Cho, Maenghyo, J97-094, J97-263 Choi, Chang Ho, J97-243 Chokani, Ndaona, J97-069, J97-152 Chopra, Inderjit, J97-001 Chow, Jim S., J97-246 Chow, Wai Tuck, J97-238 Chpoun, A., J97-278 Chu, W. F., J97-129 Chung, Yong Mann, J97-041

Clancy, Pamela S., J97-270 Clark, Robert L., J97-173 Cobb, Richard G., J97-021, J97-056 Cogan, Scott, J97-082 Cole, Julian D., J97-181 Colket, M. B., J97-267 Collins, Robert J., J97-044 Colonius, Tim, J97-175 Cook, L. Pamela, J97-181 Corjon, Alexandre, J97-136, J97-161 Coyne, Alan J., J97-071 Crouch, Tom D., J97-124 Crowder, James P., J97-098 Culick, F. E. C., J97-034 Damodaran, M., J97-176 Darbandi, M., J97-286 Darden, L. A., J97-300 Das, H. K., J97-089 Davì, G., J97-167, J97-211, J97-259 Davidson, Barry D., J97-080 De Chant, Lawrence J., J97-188 Debiève, Jean-François, J97-007 Deependran, B., J97-239 Degani, D., J97-084 Delanaye, M., J97-101 Délery, J., J97-269 Delisi, Donald P., J97-244 Denoyer, Keith K., J97-055, J97-271 DeRango, S., J97-242 Desabrais, K. J., J97-158 Deshaies, Bruno, J97-279 Dey, Animesh, J97-049 Dhar, D., J97-095 Di Sciuva, Marco, J97-273

Disimile, P. J., J97-180, J97-194

Djenidi, L., J97-067 Doebling, Scott W., J97-109 Doggett, Glen P., J97-069 Donohoe, S. R., J97-247 Dumas, Guy, J97-298 Dumir, P. C., J97-283 Dupont, Pierre, J97-007 Durbin, P. A., **J97-155** Dutta, P., J97-029 Dutton, J. Craig, J97-147 Dzenis, Y. A., J97-090, J97-164 Eastland, Anthony, J97-223 Ecer, A., J97-287 Eifert, Claus, J97-132 Ekaterinaris, John A., J97-226 Elishakoff, I., J95-375 Elliott, Jonathan, J97-230 Elperin, T., J97-277, J97-278 Emaci, Edward, J97-217 Enelund, Mikael, J97-214, J97-255 Epstein, B., J97-171 Epstein, Ronald J., J97-038, J97-145 Erlebacher, Gordon, J97-131 Ertesvåg, Ivar S., J97-014 Essers, J. A., J97-101 Farhat, Charbel, J97-109, J97-216 Farina, Dino J., J97-097 Fassois, S. D., J97-110 Faure, Thierry M., J97-043 Favier, D., J97-032 Fenander, Åsa, J97-214 Fenno, C. C., Jr., J97-035 Fiedler, K., J97-207 Figueira da Silva, Luís Fernando, J97-279 Filippone, A., J97-228 Fleeter, S., J97-172, 97-290 Floros, Matthew W., J97-212 Frampton, Kenneth D., J97-173 Frendi, Abdelkader, J97-008 Freund, J. B., J97-116 Friswell, Michael I., J97-215 Gallimore, Alec D., J97-088 Gartenberg, Ehud, J97-105 Gauba, G., J97-107 Georghiades, G. A., J97-119 Gerhold, Carl H., J97-002 Gerolymos, G. A., J97-036 Giannakoglou, K. C., J97-249 Giguère, Philippe, J97-183, J97-298 Gilinsky, M. M., J97-063 Gillan, M. A., J97-299 Godin, P., J97-037 Golshtein, E., J97-277 Goo, Nam Seo, J97-236 Gopalaswamy, N., J97-287 Gore, J. P., J97-029 Gran, Inge R., J97-014 Grasso, F., J97-178 Greer, James M., Jr., J97-201 Grönig, H., J97-268 Gross, R. S., J97-187 Grünefeld, G., J97-074 Gunzburger, Max D., J97-131, J97-135 Guo, Yu-Guang, J97-061 Gupta, Vijay, J96-130 Gursul, I., J97-087, J96-307 Gurumoorthy, Ram, J97-115 Gusev, V. N., J97-269 Habashi, Wagdi G., J97-206 Haimovitch, Yaacov, J97-105 Hall, Ian W., J97-081 Han, Wan-Zhi, J97-061 Han, Yong Oun, J97-071 Hanagud, S., J97-237 Hardin, Jay C., J97-130 Hassan, H. A., J97-189 Hause, Terry, J97-219 Havener, George, J97-106 Hayashibara, Shigeo, J97-085

Hayes, J. A., J97-151

Hemez, François M., J97-109, J97-216 Henault, Kerry F., J97-020 Hermanson, J. C., J97-158, J97-267 Herpfer, Derik C., J97-017 Ho, Y.-H., J97-006 Holcomb, Joe M., J97-117 Holst, Terry L., **J97-240** Hong, C. S., J97-030 Honkan, A., J97-253 Hsu, A. T., J97-177 Hu, Hai-Chang, J97-023 Huang, R. F., J97-142 Huang, Si-Tsong, J97-185 Huang, Wenhao, J97-301 Hubbard, Robert F., J97-081 Hubner, J. P., J96-307 Hubner, J. P., J97-282 Hudson, Mary L., J97-152 Hugo, Ronald J., J97-106 Hulbert, Gregory M., J97-051 Hussaini, M. Yousuff, J97-131 Huyan, Xiaozhi, J97-220 Hwang, C. J., J97-205 Hwu, Chyanbin, J97-138 Ilinca, F., J97-102 Ing, Yi-Shyong, J97-111 Islam, M. T., J97-027 Issac, Jason Cherian, J97-076 Jacob, Jamey, J97-042 Jacobs, A., J97-171 Jacobs, J. W., J97-266 Jaeger, S. M., J97-151 Jagoda, J. I., J97-232 Jakab, Peter L., **J97-096** Jakiel, C., J97-207 Janicka, Johannes, J97-132 Jeng, San-Mou, J97-017 Jenkins, Andrew, J97-289 Jenkins, David A., J97-241 Jeung, In-Seuck, J97-288 Jiang, Y. T., J97-176 Johari, H., J97-104, J97-158 Jones, T. V., J97-276 Josefson, B. Lennart, J97-255 Joshi, S. P., J97-090, J97-164 Joslin, Ronald D., J97-131 Ju, Yiguang, J97-225 Jumper, Eric J., J97-106 Kalkhoran, I. M., J97-250 Kallinderis, Yannis, J97-154 Kao, Kai-Hsiung, J97-229 Kapania, Rakesh K., J97-076, J97-113 Kapuria, Santosh, J97-283 Karunasena, W., J97-202 Kerho, M. F., J97-010 Kim, C. G., J97-030 Kim, Cheol, J97-168 Kim, J., J97-125 Kim, Jaehwan, J97-077 Kim, Jun-Sik, J97-094, J97-263 Kim, Seung Jo, J97-024, J97-236, J97-272 Kim, Taehyoun, J97-170 Kim, Youdan, J97-170 King, Lyon B., J97-088 Kirsch, Uri, J97-058 Kitipornchai, S., J97-050, J97-202 Klavuhn, K. G., J97-107 Knight, N. F., Jr., J97-057, J97-296 Ko, N. W. M., J97-129 Ko, Sungho, J97-195 Kodiyalam, Srinivas, J97-115 Komerath, N. M., J96-307, J97-300 Komorowski, Jerzy P., J97-048 Kornev, N. V., J97-260 Korotkevitch, Svetlana, J97-046 Kounadis, A. N., J97-075, J97-297 Koyama, Hide S., J97-179 Krauss, R. H., J97-107 Krothapalli, A., J97-151 Kudlička, Ján, J97-302 Kulkarni, Anil K., J97-013

Kunz, Donald L., J97-053 Kuo, Cheng-Hsiung, J97-099 Kuo, J. Y., J97-205 Kuo, Shyh-Rong, J97-144 Kurbatskii, Konstantin A., J97-018 Kurian, J., J97-089, J97-239 Lachowicz, Jason T., J97-003 Lafon, Philippe, J97-265 Lagace, Paul A., J97-020, J97-059 Lakshminarayana, B., J97-006, J97-012, J97-203 Lallement, Gérard, J97-082 Lampis, M., J97-157 Lan, C. Edward, J97-160 Langowsky, C., J97-015 Latypov, Azat M., J97-191 Lauchle, G. C., J97-004 Lawless, P. B., J97-290 Lee, Boon-Kiat, J97-085 Lee, I. C., J97-030 Lee, K. H., J97-176 Lee, Raymond Y. Y., J97-022 Lee, Sang-Hyeon, J97-288 Leishman, J. Gordon, J97-071 Lele, Sanjiva K., J97-248 Lemay, Jean, J97-298 Lesieutre, G. A., J97-122 Leung, R. C. K., J97-129 Levin, Deborah A., J97-044 Lewis, Kemper, J97-218 Li, H., J97-268, J97-278 Liang, X. Q., J97-262 Librescu, L., J97-208, J97-219 Liebst, Brad S., J97-021, J97-056 Liepmann, Dorian, J97-042 Liew, K. M., J97-050, J97-202 Lim, C. W., J97-050 Lin, C. A., J97-083, J97-142 Lin, Chung-Hsiung, J97-083 Lin, Da-Chi, J97-099 Lin, Hequan, J97-073 Lin, Shueei Muh, J97-264 Liou, Meng-Sing, J97-229 Liu, Shenghu, J97-058 Liu, Zhong-Sheng, J97-023 Löhner, Rainald, J97-108 Long, Lyle N., J97-064 Longmire, Ellen K., J97-086 Loth, E., J97-159 Lu, Ni-Yu, J97-099 Luo, H., J97-237 Luo, Jiang, J97-012, J97-203 Lyrintzis, Anastasios, J97-028 Ma, Chien-Ching, J97-111 Maestrello, L., J97-035, J97-128 Magnussen, Bjørn F., J97-014 Mahadevan, Sankaran, J97-049 Manno, Vincent P., J97-127 Marcus, S. W., J97-084 Maresca, C., J97-032 Marretta, Rosario M. A., J97-167 Marshall, J. S., J97-045 Martin, James E., J97-130 Matta, L. M., J97-232 Matunaga, Saburo, J97-137 Maute, Kurt, J97-275 Mayer, David W., **J97-065** Mazaheri, K., J97-153 McCroskey, W. J., J97-195 McD. Galbraith, R. A., J97-073 McDaniel, J. C., J97-107 McDonough, J. M., J97-198 McGuinn, R. S., J97-004 McMorris, Harlan, J97-154 Meade, Andrew J., Jr., J97-281 Mei, Chuh, J97-022 Meirovitch, L., J97-208 Mendoza, Donald R., J97-197 Merkle, Charles L., J97-013 Milazzo, A., J97-167, 97-259 Miller, L. Scott, J97-085 Miller, Scott E., J97-254 Minesugi, Kenji, J97-292 Minter, Jason A., J97-172

Mistree, Farrokh, J97-143, J97-218 Mitchell, Brian E., J97-248 Mitchell, R. D., J97-299 Mittal, Rajat, J97-222 Moh, Jau-Sung, J97-138 Mohajerjasbi, Soheil, J97-019 Moin, Parviz, J97-222, J97-248 Morgan, Jeffrey A., J97-051 Morgan, R. G., J97-276 Morris, Martin J., J97-046 Moskalik, Andrew J., J97-245 Mukasyan, Alexander, J97-289 Myose, Roy Y., J97-085 Na, S. S., **J97-208** Nabiev, Vilen U., **J97-190** Nachson, A., J97-171 Nakahashi, Kazuhiro, J97-204 Nam, Changho, J97-170 Nance, Douglas V., J97-039 Nataraja, H. R., J97-200 Nayfeh, Tariq A., J97-217 Nelson, P. A., J97-011 Nelson, Sigurd A., II, J97-186 Nelson, T. E., J97-037 Nguyen, Thuong X., J97-231 Nicolaides, Roy A., J97-131 Niederhaus, C. E., J97-266 Nigim, Hani H., J97-179 Niioka, Takashi, J97-225 Northam, G. Burton, J97-105 Obayashi, Shigeru, J97-221 Oh, Choong K., J97-231 Oh, Hyun-Ung, J97-292 Ohkami, Yoshiaki, J97-137 Olsson, Peter, J97-214 Onoda, Junjiro, J97-292 Oran, Elaine S., J97-072, J97-231 Orkwis, Paul D., J97-194 Ortiz, José L., J97-235 Oshima, H., J97-016 Oshman, Yaakov, J97-254 Ötügen, M. V., J97-125 Özcan, Oktay, J96-130 Özyörük, Yusuf, J97-064 Palazotto, Anthony N., J97-201 Panaras, Argyris G., J97-068 Paolozzi, Antonio, J97-284 Papailiou, K. D., J97-249 Papalambros, Panos Y., J97-186 Papamoschou, Dimitri, J97-252 Park, K. C., J97-182 Park, Sungho, J97-113 Pascazio, M., J97-032 Patnaik, Gopal, J97-072 Paynter, Gerald C., J97-065 Pelekh, Aleksey, J97-289 Pellegrino, S., J97-213 Pelletier, D., **J97-102** Peraire, Jaume, J97-230 Pesek, Ludek, J97-284 Peters, Kara J., J97-139 Peterson, L. D., J97-055, J97-109, J97-182, J97-271 Pfuderer, Dirk G., J97-132 Pierre, Christophe, J97-051 Pirozzoli, S., J97-178 Pletner, Baruch, J97-209 Poggie, Jonathan, J97-251 Poinsot, Thierry, J97-136 Politis, E. S., J97-249 Pope, S. B., J97-177 Popović, S., J97-125 Powers, Brian M., **J97-081** Prells, Uwe, J97-215 Qiu, Ji-Bao, J97-295 Quagliarella, Domenico, J97-233 Raftoyiannis, I. G., J97-297 Raghunathan, S. R., J97-299 Raman, Ganesh, J97-103, J97-174 Ramaprian, B. R., J97-016, J97-031, J97-291 Ramm, Ekkehard, J97-275 Rao, B. Nagaeswara, J97-200 Rao, S. S., J95-375, J97-078, J97-114 Rathnasingham, Ruben, J97-133 Reda, Daniel C., J97-097, J97-098 Reddy, J. N., J97-294 Reichert, G., J97-260 Reitsma, Scott H., J97-127 Ren, Gexue, J97-054 Renaud, J. E., J97-166 Resende, Hugo B., J97-060, J97-193 Ringertz, Ulf, J97-169 Rioual, J.-L., J97-011 Risso, Frédéric, J97-161 Rizzetta, Donald P., J97-033, J97-123 Roberts, A. Sidney, Jr., J97-105 Roberts, Leonard, J97-227 Robins, Robert E., J97-244 Rochat, Judith L., J97-005 Rockwell, D., J97-162 Roe, P. L., J97-153 Rogachev, Alexander, J97-289 Rose, M. J., J97-104 Rule, John A., J97-145 Rumsey, Christopher L., J97-040 Russell, P. A., J97-093 Rymarz, P. B., J97-031 Sabel'nikov, Vladimir, J97-279 Sadeghi, M. H., J97-110 Saitoh, Eiji, J97-204 Samimy, M., J97-134, J97-270 Sandham, N. D., J97-146 Sangiovanni, J. J., J97-267 Sankar, L. N., J97-039 Santiago, Juan Gabriel, J97-147 Saravanos, Dimitris A., J97-210 Sarma, M. S., J97-200 Savaş, Ömer, J97-042 Sawyer, J. P., J95-375 Schanze, Kirk S., J97-046 Schleiniger, Gilberto, J97-181 Schneider, G. E., J97-286 Schrage, Daniel P., J97-143 Schulten, Johan B. H. M., J97-150 Seal, C. V., J97-162 Seiner, J. M., J97-063

Selig, Michael S., J97-183 Sen, R., J97-066 Sengupta, S., J97-283 Sepulveda, A. E., J97-165 Sforza, Pasquale M., J97-121 Shabany, Y., J97-155 Sharan, A. M., J97-095 Shen, Hao, J97-174 Shephard, Mark S., J97-149 Shi, Yucheng, J97-022 Shin, Eui-Sup, J97-272 Shyy, Wei, J97-126, J97-241 Sieber, O., J97-207 Simitses, G. J., J97-199, J97-220, J97-261 Simpson, Roger L., J97-156 Sinkovits, Robert S., J97-231 Sivathanu, Y. R., J97-029 Sivier, S., J97-159 Slepicka, James S., J97-184 Smart, M. K., J97-250 Smith, C. R., J97-162 Smith, Douglas R., J97-007 Smith, Edward C., J97-212 Smith, Richard W., J97-126, J97-241 Smits, Alexander J., J97-007, J97-251 Soderman, P. T., J97-151 Sørenson, J. N., J97-228 Soviero, Paulo A. O., J97-060, J97-193 Sparrow, Victor W., J97-005 Spearing, S. Mark, J97-256 Speziale, Charles G., J97-234 Squires, Kyle D., J97-009 Sridharan, Srinivasan, J97-026 Steinwolf, Alexander, J97-293 Stepanek, Chip, J97-106 Stoessel, Alain, J97-161 Struminskaya, I. V., J97-269 Su, J., J97-166 Sujith, R. I., J97-239 Sumner, David, J97-120

Sun, C. T., J97-047, J97-091

Sun, Dongchang, J97-092 Sun, J., J97-261 Sunar, M., J97-078 Sung, Hyung Jin, J97-041 Sussman, Myles A., J97-163 Swanson, D. C., J97-004 T'ien, James S., J97-117 Tabejamaat, Sadegh, J97-225 Tabiei, A., J97-199, J97-261 Tam, Christopher K. W., J96-049, J97-018, J97-174 Tan, Szu-Ying, J97-160 Tang, S. K., J97-129 Tao, J. X., J97-091 Tavener, Simon J., J97-013 Taylor, J. M., J97-079 Thies, Andrew T., J96-049 Tsukahara, Takanori, J97-221 Tuncer, Ismail H., J97-070 Tureaud, Thomas F., J97-127 Uchikawa, Kuniharu, J97-179 Utyuzhnikov, Sergey V., J97-190 Vaidya, Rajesh S., J97-047 Vakakis, Alexander F., J97-217 Vallet, I., J97-036 Varadan, Vasundara V., J97-077 Varadan, Vijay K., J97-077 Varma, Arvind, J97-289 Vasiliev, E., J97-278 Verma, S. B., J96-130 Vezza, Marco, J97-073 Vicini, Alessandro, J97-233 Victor, K. G., J97-107 Vinson, Jack R., J97-081, J97-140 Viswanathan, K., J97-039 Vogel, D. T., J97-015 Walker, Jeffrey M., J97-140 Wang, C. M., J97-294 Wang, Dajun, J97-092 Wang, Frank Y., J97-121 Wang, Xing, J97-257, J97-258 Wardle, Brian L., J97-059 Warsi, Z. U. A., J97-192 Washabaugh, Peter D., J97-139

Weber, James W., Jr., J97-072 Wei, Fu-Shang, J97-112, J97-280 White, Robert G., J97-293 White, Scott R., J97-168 Whitehurst, R. B., III, J97-107 Wilder, Michael C., J97-097, J97-098 Wilkinson, C. A., J97-025 Wilkinson, Stephen P., J97-003, Williams, Morgan, J97-223 Wilson, Gregory J., J97-163 Wright, M. C. M., J97-011 Wu, Xiaohua, J97-009 Xie, Wei-Chau, J97-257, J97-258 Xu, Z. L., J97-092 Xue, Yu, J97-028 Yam, L. H., J97-295 Yang, H., J97-087 Yang, Shengyuan, J97-301 Yang, Yeong-Bin, J97-144 Yau, Jong-Dar, J97-144 Ying, Zu-Guang, J97-295 Yoo, Jung Yul, J97-243 Yoon, Youngbin, J97-288 You, Z., J97-213 Yu, Yimei, J97-137 Yüceil, K. Bülent, J96-130 Zapfe, J. A., J97-122 Zeitoun, D., J97-278 Zeldin, Boris A., J97-281 Zerva, Aspasia, J97-052, J97-148 Zhang, De-Wen, J97-112, J97-148, J97-280 Zhang, Ouqi, J97-052, J97-148 Zhang, Q., J97-104 Zheng, Youxin, J97-291 Zheng, Zhaochang, J97-054 Zilliac, Greg, J97-097, J97-246 Zingg, D. W., J97-037, J97-242 Zinn, B. T., J97-232

Chronological Index

J95-375 Fuzzy Finite Element Approach for the Analysis of Imprecisely Defined Systems. S. S. Rao and James P. Sawyer, *Purdue University* (33, 12, p. 2364) Article

Technical Comment by I. Elishakoff, Florida Atlantic University (35, 2, p. 403)

Reply (35, 2, p. 403)

J96-049 Computation of Turbulent Axisymmetric and Non-axisymmetric Jet Flows Using the K- ε Model. Andrew T. Thies and Christopher K. W. Tam, *Florida State University* (34, 2, p. 309) Article

Technical Comment by Stanley F. Birch, *Boeing Commercial Airplane Group* (35, 4, p. 760)

Reply (35, 4, p. 761)

J96-130 Supersonic Separation with Obstructions. S. B. Verma and Vijay Gupta, *Indian Institute of Technology* (**34**, 4, p. 849) Technical Note

Technical Comment by Oktay Özcan and K. Bülent Yüceil, Istanbul Technical University, Turkey (35, 8, p. 1423) Reply (35, 8, p. 1424)

J96-307 Counter-Rotating Structures over a Delta Wing. J. P. Hubner and N. M. Komerath, *Georgia Institute of Technology* (34, 9, p. 1958) Technical Note

Technical Comment by Ismet Gursul, *University of Cincinnati* (35, 4, p. 758)

Reply (35, 4, p. 759)

J97-001 Hover Testing of a Smart Rotor with Induced-Strain Actuation of Blade Twist. Peter C. Chen and Inderjit Chopra, *University of Maryland* (35, 1, p. 6) Article based on AIAA Paper 95-1097 CP952

J97-002 Active Control of Fan-Generated Tone Noise. Carl H. Gerhold, *NASA Langley Research Center* (35, 1, p. 17) Article

J97-003 NASA Langley Mach 6 Quiet Wind-Tunnel Performance. Alan E. Blanchard, *Old Dominion University*; Jason T. Lachowicz, *North Carolina State University*; and Stephen P. Wilkinson, *NASA Langley Research Center* (35, 1, p. 23) Article based on AIAA Paper 96-0441

J97-004 Low Flow-Noise Microphone for Active Noise Control Applications. R. S. McGuinn, G. C. Lauchle, and D. C. Swanson, *Pennsylvania State University* (35, 1, p. 29) Article based on AIAA Paper 96-1784

J97-005 Two-Dimensional Focusing of Sonic Boom Noise Penetrating an Air-Water Interface. Judith L. Rochat and Victor W. Sparrow, *Pennsylvania State University* (35, 1, p. 35) Article based on AIAA Paper 96-1751

J97-006 Computation of Unsteady Flowfield over a Hydrofoil, Including Boundary Layer and Wake. Y.-H. Ho and B. Lakshminarayana, *Pennsylvania State University* (35, 1, p. 40) Article

J97-007 Supersonic Turbulent Boundary Layer Subjected to Step Changes in Wall Temperature. Jean-François Debiève, Pierre Dupont, Douglas R. Smith, and Alexander J. Smits, Centre National de la Recherche Scientifique, France (35, 1, p. 51) Article

J97-008 Coupling Between a Supersonic Turbulent Boundary Layer and a Flexible Structure. Abdelkader Frendi, *Analytical Services and Materials, Inc.* (35, 1, p. 58) Article based on AIAA Paper 96-0433

J97-009 Large Eddy Simulation of an Equilibrium Three-Dimensional Turbulent Boundary Layer, Xiaohua Wu and Kyle D.

- Squires, University of Vermont (35, 1, p. 67) Article
- J97-010 Airfoil Boundary-Layer Development and Transition with Large Leading-Edge Roughness. Michael F. Kerho and Michael B. Bragg, University of Illinois at Urbana-Champaign (35, 1, p. 75) Article
- J97-011 Automatic Control of Laminar Boundary-Layer Transition. P. A. Nelson, M. C. M. Wright, and J.-L. Rioual, *University of Southampton, England, UK* (35, 1, p. 85) Article
- J97-012 Prediction of Strongly Curved Turbulent Duct Flows with Reynolds Stress Model. Jiang Luo and Budugar Lakshminarayana, *Pennsylvania State University* (35, 1, p. 91) Article based on AIAA Paper 95-2241
- J97-013 Bifurcation of Low Reynolds Number Flows in Symmetric Channels. Francine Battaglia, Simon J. Tavener, Anil K. Kulkarni, and Charles L. Merkle, *Pennsylvania State University* (35, 1, p. 99) Article
- J97-014 Influence of Turbulence Modeling on Predictions of Turbulent Combustion. Inge R. Gran, Ivar S. Ertesvåg, and Bjørn F. Magnussen, Norwegian University of Science and Technology (35, 1, p. 106) Article
- J97-015 Influence of Film Cooling on the Secondary Flow in a Turbine Nozzle. C. Langowsky and D. T. Vogel, *DLR*, *German Aerospace Research Establishment* (35, 1, p. 111) Article
- **J97-016** Velocity Measurements over a Pitching Airfoil. H. Oshima and B. R. Ramaprian, *Washington State University* (35, 1, p. 119) Article
- J97-017 Planar Measurements of Droplet Velocities and Sizes Within a Simplex Atomizer. Derik C. Herpfer, Allison Engine Company; and San-Mou Jeng, University of Cincinnati (35, 1, p. 127) Article based on AIAA Paper 96-0463
- J97-018 Cartesian Boundary Treatment of Curved Walls for High-Order Computational Aeroacoustics Schemes. Konstantin A. Kurbatskii and Christopher K. W. Tam, *Florida State University* (35, 1, p. 133) Article
- J97-019 Predictions for Coefficients of Thermal Expansion of Three-Dimensional Braided Composites. Soheil Mohajerjasbi, Boeing Defense & Space Group (35, 1, p. 141) Article
- J97-020 Effects of Longitudinal and Hoop Stiffeners on Damage Propagation in Pressurized Composite Cylinders. Haryanto T. Budiman, Kerry F. Henault, and Paul A. Lagace, *Massachusetts Institute of Technology* (35, 1, p. 145) Article
- J97-021 Structural Damage Identification Using Assigned Partial Eigenstructure. Richard G. Cobb and Brad S. Liebst, U.S. Air Force Institute of Technology (35, 1, p. 152) Article
- Technical Comment by Menahem Baruch, *Technion—Israel Institute of Technology* (35, 9, p. 1559) Reply (35, 9, p. 1559)
- J97-022 Finite Element Method for Nonlinear Free Vibrations of Composite Plates. Yucheng Shi, Raymond Y. Y. Lee, and Chuh Mei, *Old Dominion University* (35, 1, p. 159) Article
- J97-023 Eigenpair Derivative with Respect to Boundary Shape. Zhong-Sheng Liu, Jilin University of Technology, PRC; and Hai-Chang Hu, Chinese Academy of Space Technology, PRC (35, 1, p. 167) Article
- J97-024 Penalized Weighted Residual Method for the Initial Value Problems. Seung Jo Kim and Jin Yeon Cho, Seoul National University, Korea (35, 1, p. 172) Article
- Technical Comment by Menahem Baruch, *Technion—Israel Institute of Technology* (35, 10, p. 1677) Reply (35, 10, p. 1677)
- J97-025 Execution of Multidisciplinary Design Optimization Approaches on Common Test Problems. R. J. Balling and C. A. Wilkinson, *Brigham Young University* (35, 1, p. 178) Article based on AIAA Paper 96-4033 CP9613

- J97-026 Numerical Modeling of Buckling of Ring-Stiffened Cylinders. Srinivasan Sridharan and Jessica Alberts, Washington University (35, 1, p. 187) Article
- J97-027 Mean Velocity and Static Pressure Distributions of a Circular Jet. M. T. Islam, Bangladesh Institute of Technology; and M. A. T. Ali, Bangladesh University of Engineering and Technology (35, 1, p. 196) Technical Note
- J97-028 Versatile Kirchhoff Code for Aeroacoustic Predictions. Anastasios Lyrintzis, *Purdue University*; and Yu Xue, *Advanced Rotorcraft Technology, Inc.* (35, 1, p. 198) Technical Note based on AIAA Paper 96-1710
- J97-029 Discrete Probability Function Method for the Calculation of Turbulent Particle Dispersion. P. Dutta, Y. R. Sivathanu, and J. P. Gore, *Purdue University* (35, 1, p. 200) Technical Note
- J97-030 Buckling and Postbuckling Behavior of Stiffened Composite Panels Loaded in Compression. I. C. Lee, C. G. Kim, and C. S. Hong, Korea Advanced Institute of Science and Technology (35, 1, p. 202) Technical Note
- J97-031 Measurements of Velocity and Vorticity Fields Around a Pitching Swept Wing. P. B. Rymarz, ESCO Corporation; and B. R. Ramaprian, Washington State University (35, 1, p. 205) Technical Note based on AIAA Paper 95-2161 CP952
- J97-032 Boundary-Layer Characterization on Moving Walls by an Embedded Laser Velocimetry Technique. M. Pascazio, J. M. Autric, D. Favier, and C. Maresca, *Universités d'Aix-Marseille 1 et 2, France* (35, 1, p. 207) Technical Note based on AIAA Paper 96-0035
- J97-033 Numerical Simulation of Vortex-Induced Oblique Shock-Wave Distortion. Donald P. Rizzetta, U.S. Air Force Wright Laboratory (35, 1, p. 209) Technical Note based on AIAA Paper 96-0039
- J97-034 Flight on the Horizon: The Pivotal Year of 1896. F. E. C. Culick, California Institute of Technology (35, 2, p. 217) Article
- J97-035 Panel-Structure Response to Acoustic Forcing by a Nearly Sonic Jet. C. C. Fenno Jr., National Research Council, A. Bayliss, Northwestern University; and L. Maestrello, NASA Langley Research Center (35, 2, p. 219) Article
- J97-036 Near-Wall Reynolds-Stress Three-Dimensional Transonic Flow Computation. G. A. Gerolymos and I. Vallet, *Université Pierre-et-Marie-Curie, France* (35, 2, p. 228) Article
- J97-037 High-Lift Aerodynamic Computations with One- and Two-Equation Turbulence Models. P. Godin and D. W. Zingg, University of Toronto, Canada; and T. E. Nelson, de Havilland Inc., Canada (35, 2, p. 237) Article based on AIAA Paper 96-0567
- J97-038 Aeroacoustic Boundary Element Method Using Analytical/Numerical Matching. Ronald J. Epstein and Donald B. Bliss, *Duke University* (35, 2, p. 244) Article
- J97-039 Low-Dispersion Finite Volume Scheme for Aeroacoustic Applications. Douglas V. Nance, U.S. Air Force Wright Laboratory; K. Viswanathan, Dynacs Engineering Company, Inc.; and L. N. Sankar, Georgia Institute of Technology (35, 2, p. 255) Article based on AIAA Paper 96-0278
- J97-040 Computation of Acoustic Waves Through Sliding-Zone Interfaces. Christopher L. Rumsey, NASA Langley Research Center (35, 2, p. 263) Article based on AIAA Paper 96-1752
- J97-041 Comparative Study of Inflow Conditions for Spatially Evolving Simulation. Yong Mann Chung and Hyung Jin Sung, Korea Advanced Institute of Science and Technology (35, 2, p. 269) Article
- J97-042 Trailing Vortex Wake Growth Characteristics of a High Aspect Ratio Rectangular Airfoil. Jamey Jacob, Ömer Savaş, and Dorian Liepmann, *University of California, Berkeley* (35, 2, p. 275) Article based on AIAA Paper 95-1841 CP955

- J97-043 Reynolds Stress Transport Equations in a Momentumless Wake: Experiments and Models. Thierry M. Faure, École Centrale de Lyon, France (35, 2, p. 281) Article based on AIAA Paper 96-2037 CP964
- J97-044 Overlay Method for Calculating Excited State Species Properties in Hypersonic Flows. Deborah A. Levin, *Institute for Defense Analyses*; and Graham V. Candler and Robert J. Collins, *University of Minnesota* (35, 2, p. 288) Article
- J97-045 Stability of a Counter-Rotating Vortex Pair Immersed in Cross-Stream Shear Flow. J. S. Marshall and H. Chen, *University of Iowa* (35, 2, p. 295) Article
- **J97-046** Temperature Dependence of Pressure Sensitive Paints. Kirk S. Schanze, Bruce F. Carroll, and Svetlana Korotkevitch, *University of Florida*; and Martin J. Morris, *McDonnell Douglas Corporation* (35, 2, p. 306) Article
- J97-047 Fracture Criterion for Notched Thin Composite Laminates. Rajesh S. Vaidya and C. T. Sun, *Purdue University* (35, 2, p. 311) Article based on AIAA Paper 96-1354 CP962
- **J97-048** Corrosion Pillowing Stresses in Fuselage Lap Joints. Nicholas C. Bellinger and Jerzy P. Komorowski, *National Research Council, Canada* (35, 2, p. 317) Article
- J97-049 Adaptive Monte Carlo Simulation for Time-Variant Reliability Analysis of Brittle Structures. Sankaran Mahadevan and Animesh Dey, *Vanderbilt University* (35, 2, p. 321) Article
- J97-050 Free Vibration of Pretwisted, Cantilevered Composite Shallow Conical Shells. C. W. Lim, University of Queensland, Australia; K. M. Liew, Nanyang Technological University, Singapore; and S. Kitipornchai, University of Queensland, Australia (35, 2, p. 327) Article
- J97-051 Forced Response of Coupled Substructures Using Experimentally Based Component Mode Synthesis. Jeffrey A. Morgan, General Motors Corporation; and Christophe Pierre and Gregory M. Hulbert, University of Michigan (35, 2, p. 334) Article
- J97-052 Accelerated Iterative Procedure for Calculating Eigenvector Derivatives. Ouqi Zhang and Aspasia Zerva, *Drexel University* (35, 2, p. 340) Article
- J97-053 Influence of Elastomeric Damper Modeling on the Dynamic Response of Helicopter Rotors. Donald L. Kunz, McDonnell Douglas Helicopter Company (35, 2, p. 349) Article
- J97-054 Multiple Eigenvalues Arising from a Class of Repetitive Substructures. Gexue Ren, Zhaochang Zheng, and Jiangang Cheng, Tsinghua University, PRC (35, 2, p. 355) Article
- J97-055 Method for Structural Model Update Using Dynamically Measured Static Flexibility Matrices. Keith K. Denoyer, U.S. Air Force Phillips Laboratory; and Lee D. Peterson, University of Colorado (35, 2, p. 362) Article based on AIAA Paper 96-1281
- J97-056 Sensor Placement and Structural Damage Identification from Minimal Sensor Information. Richard G. Cobb and Brad S. Liebst, U.S. Air Force Institute of Technology (35, 2, p. 369) Article
- **J97-057** Raasch Challenge for Shell Elements. N. F. Knight Jr., *Old Dominion University* (35, 2, p. 375) Article based on AIAA Paper 96-1369 CP962
- J97-058 Structural Reanalysis for General Layout Modifications. Uri Kirsch and Shenghu Liu, *Technion—Israel Institute of Technology* (35, 2, p. 382) Article
- J97-059 Importance of Instability in Impact Response and Damage Resistance of Composite Shells. Brian L. Wardle and Paul A. Lagace, Massachusetts Institute of Technology (35, 2, p. 389) Article
- J97-060 Subsonic/Supersonic Yawed Gust over an Airfoil. Paulo A. O. Soviero, *Instituto Tecnológico de Aeronáutica, Brazil*; and Hugo B. Resende, *Empresa Brasileira de Aeronáutica S.A.*,

- Brazil (35, 2, p. 397) Technical Note
- J97-061 Improved Method for Determining Free-Free Modes Using Constrained Test Data. Wan-Zhi Han, Su-Huan Chen, and Yu-Guang Guo, *Jilin University of Technology, PRC* (35, 2, p. 400) Technical Note
- J97-062 Langley's Aeronautical Research: A Modern Critique and Reassessment. John D. Anderson Jr., *University of Maryland* (35, 3, p. 409) Article
- J97-063 Nozzle Thrust Optimization While Reducing Jet Noise. J. M. Seiner, NASA Langley Research Center; and M. M. Gilinsky, Hampton University (35, 3, p. 420) Article
- J97-064 Multigrid Acceleration of a High-Resolution Computational Aeroacoustics Scheme. Yusuf Özyörük and Lyle N. Long, *Pennsylvania State University* (35, 3, p. 428) Article
- J97-065 Response of a Two-Dimensional Cascade to an Upstream Disturbance. Gerald C. Paynter, *The Boeing Company* (35, 3, p. 434) Article
- J97-066 Vortex-Oscillation Model of Airfoil Side-Edge Noise. R. Sen, *The Boeing Company* (35, 3, p. 441) Article
- J97-067 Modeling of the Reynolds Stress Transport Equation. L. Djenidi and R. A. Antonia, *University of Newcastle, Australia* (35, 3, p. 450) Article
- J97-068 Algebraic Turbulence Modeling for Swept Shock-Wave/Turbulent Boundary-Layer Interactions. Argyris G. Panaras, *DLR, German Aerospace Research Establishment* (35, 3, p. 456) Article
- J97-069 Effect of Angle of Attack on Hypersonic Boundary-Layer Stability. Glen P. Doggett and Ndaona Chokani, North Carolina State University; and Stephen P. Wilkinson, NASA Langley Research Center (35, 3, p. 464) Article
- J97-070 Two-Dimensional Unsteady Navier–Stokes Solution Method with Moving Overset Grids. Ismail H. Tuncer, U.S. Naval Postgraduate School (35, 3, p. 471) Article based on AIAA Paper 96-0822
- J97-071 Measurements of the Velocity and Turbulence Structure of a Rotor Tip Vortex. Yong Oun Han, Yeungnam University, Korea; and J. Gordon Leishman and Alan J. Coyne, University of Maryland (35, 3, p. 477) Article
- J97-072 Load Balancing and Performance Issues for Data Parallel Simulation of Stiff Chemical Nonequilibrium Flows. James W. Weber Jr., U.S. Air Force Wright Laboratory; Elaine S. Oran, U.S. Naval Research Laboratory; Gopal Patnaik, Berkeley Research Associates; and John D. Anderson Jr., University of Maryland (35, 3, p. 486) Article based on AIAA Paper 95-0570
- J97-073 Discrete Vortex Method for Simulating Unsteady Flow Around Pitching Airfoils. Hequan Lin, Marco Vezza, and R. A. McD. Galbraith, *University of Glasgow, Scotland, UK* (35, 3, p. 494) Article
- J97-074 Laser-Based Multiparameter Measurements in a Jet Engine Burner. G. Grünefeld, University of Bielefeld, Germany; V. Beushausen, Laser-Laboratorium Göttingen, Germany; and A. Brockhinke and P. Andresen, University of Bielefeld, Germany (35, 3, p. 500) Article
- J97-075 Criteria for Occurrence of Flutter Instability Before Buckling in Nonconservative Dissipative Systems. A. N. Kounadis, National Technical University of Athens, Greece (35, 3, p. 509) Article
- J97-076 Aeroelastic Sensitivity Analysis of Wings Using Automatic Differentiation. Jason Cherian Issac and Rakesh K. Kapania, Virginia Polytechnic Institute and State University (35, 3, p. 519) Article
- J97-077 Optimal Placement of Piezoelectric Actuators for Active Noise Control. Vasundara V. Varadan, Jaehwan Kim, and Vijay K. Varadan, *Pennsylvania State University* (35, 3, p. 526) Arti-

cle

- J97-078 Thermopiezoelectric Control Design and Actuator Placement. M. Sunar, King Fahd University of Petroleum and Minerals, Saudi Arabia; and S. S. Rao, Purdue University (35, 3, p. 534) Article
- J97-079 Optimum Design and Validation of Flat Composite Beams Subject to Frequency Constraints. J. M. Taylor and R. Butler, *University of Bath, England, UK* (35, 3, p. 540) Article
- J97-080 Evaluation of Data Reduction Methods for the Mixed Mode Bending Test. Srinivas Bhashyam and Barry D. Davidson, Syracuse University (35, 3, p. 546) Article
- J97-081 High Strain Rate Properties of Cycom 5920/1583 Cloth Glass/Epoxy Composites. Brian M. Powers, Jack R. Vinson, and Ian W. Hall, *University of Delaware*; and Robert F. Hubbard, *General Dynamics* (35, 3, p. 553) Article
- J97-082 Model Order Reduction by Selective Sensitivity. Scott Cogan, Gérard Lallement, and Frédérique Ayer, *University of Franche-Comté, France*; and Yakov Ben-Haim, *Technion—Israel Institute of Technology* (35, 3, p. 557) Article
- J97-083 Simple High-Order Bounded Convection Scheme to Model Discontinuities. Chung-Hsiung Lin and C. A. Lin, *National Tsing Hua University, Taiwan, ROC* (35, 3, p. 563) Technical Note based on AIAA Paper 96-0023
- J97-084 Thin vs Full Navier-Stokes Computation for High-Angle-of-Attack Aerodynamics. D. Degani and S. W. Marcus, Technion—Israel Institute of Technology (35, 3, p. 565) Technical Note
- J97-085 Diamond, Cropped, Delta, and Double-Delta Wing Vortex Breakdown During Dynamic Pitching. Roy Y. Myose, Boon-Kiat Lee, Shigeo Hayashibara, and L. Scott Miller, Wichita State University (35, 3, p. 567) Technical Note
- J97-086 Concentration Measurements in Experimental Microbursts. Abbas A. Alahyari and Ellen K. Longmire, *University of Minnesota* (35, 3, p. 569) Technical Note
- J97-087 Vortex Breakdown over Unsteady Delta Wings and Its Control. H. Yang and I. Gursul, *University of Cincinnati* (35, 3, p. 571) Technical Note
- J97-088 Approximating Collisional Freestream Attenuation at Transitional Knudsen Numbers. Lyon B. King and Alec D. Gallimore, *University of Michigan* (35, 3, p. 574) Technical Note
- J97-089 Attenuation of Shock Waves in Gas-Particle Mixtures. H. K. Das and J. Kurian, *Indian Institute of Technology* (35, 3, p. 576) Technical Note
- J97-090 Effect of Loading Parameters on Damage-Induced Shear-Extension Coupling in Laminate. Y. A. Dzenis, *University of Nebraska*; and S. P. Joshi, *University of Texas at Arlington* (35, 3, p. 578) Technical Note
- J97-091 Simplified Method for Predicting Onset of Open-Mode Free Edge Delamination. J. X. Tao and C. T. Sun, *Purdue University* (35, 3, p. 580) Technical Note
- J97-092 Distributed Piezoelectric Segment Method for Vibration Control of Smart Beams. Dongchang Sun and Dajun Wang, Peking University, PRC; and Z. L. Xu, University of Texas at Brownsville (35, 3, p. 583) Technical Note
- J97-093 Dilation-Free Solutions for the Incompressible Flow Equations on Nonstaggered Grids. P. A. Russell and S. Abdallah, University of Cincinnati (35, 3, p. 585) Technical Note
- J97-094 Improved Mindlin Plate Stress Analysis for Laminated Composites in Finite Element Method. Maenghyo Cho and Jun-Sik Kim, *Inha University, Korea* (35, 3, p. 587) Technical Note
- J97-095 Free-Vibration Analysis of Turbine Blades Using Nonlinear Finite Element Method. D. Dhar and A. M. Sharan,

- Memorial University of Newfoundland, Canada (35, 3, p. 590) Technical Note
- J97-096 Otto Lilienthal: "The Greatest of the Precursors." Peter L. Jakab, National Air and Space Museum, Smithsonian Institution (35, 4, p. 601) Article
- J97-097 New Methodology for the Measurement of Surface Shear Stress Vector Distributions. Daniel C. Reda, Michael C. Wilder, Dino J. Farina, and Greg Zilliac, NASA Ames Research Center (35, 4, p. 608) Article based on AIAA Paper 96-0420
- J97-098 Simultaneous, Full-Surface Visualizations of Transition and Separation Using Liquid Crystal Coatings. Daniel C. Reda and Michael C. Wilder, NASA Ames Research Center; and James P. Crowder, Boeing Commercial Airplane Group (35, 4, p. 615) Technical Note based on AIAA Paper 96-2182
- J97-099 Evolution of Vortical Structure over Delta-Wing with Transient Along-Core Blowing. Cheng-Hsiung Kuo, Ni-Yu Lu, and Da-Chi Lin, *National Chung Hsing University, Taiwan, ROC* (35, 4, p. 617) Article
- J97-100 Numerical Algorithms for Acoustic Integrals with Examples for Rotor Noise Prediction. Kenneth S. Brentner, NASA Langley Research Center (35, 4, p. 625) Article based on AIAA Paper 96-1706
- J97-101 Quadratic-Reconstruction Finite Volume Scheme for Compressible Flows on Unstructured Adaptive Grids. M. Delanaye and J. A. Essers, *University of Liège, Belgium* (35, 4, p. 631) Article
- J97-102 Adaptive Remeshing for the k-ε Model of Turbulence. D. Pelletier and F. Ilinca, École Polytechnique de Montréal, Canada (35, 4, p. 640) Article
- J97-103 Using Controlled Unsteady Fluid Mass Addition to Enhance Jet Mixing. Ganesh Raman, NYMA Inc. (35, 4, p. 647) Article
- **J97-104** Impulsively Started Turbulent Jets. H. Johari, Q. Zhang, M. J. Rose, and S. M. Bourque, Worcester Polytechnic Institute (35, 4, p. 657) Article
- J97-105 Effects of Internal Nozzle Geometry on Compression-Ramp Mixing in Supersonic Flow. Yaacov Haimovitch, Ehud Gartenberg, and A. Sidney Roberts Jr., Old Dominion University; and G. Burton Northam, NASA Langley Résearch Center (35, 4, p. 663) Article based on AIAA Paper 94-2940
- J97-106 Time-Resolved Wave Front Measurements Through a Compressible Free Shear Layer. Ronald J. Hugo and Eric J. Jumper, *University of Notre Dame*; and George Havener and Chip Stepanek, *Arnold Engineering Development Center* (35, 4, p. 671) Article based on AIAA Paper 95-1979
- J97-107 OH Planar Laser-Induced Flourescence Velocity Measurements in a Supersonic Combustor. G. Gauba, K. G. Klavuhn, J. C. McDaniel, K. G. Victor, R. H. Krauss, and R. B. Whitehurst III, *University of Virginia* (35, 4, p. 678) Article
- J97-108 Conservative Load Projection and Tracking for Fluid-Structure Problems. Juan Raúl Cebral and Rainald Löhner, George Mason University (35, 4, p. 687) Article
- J97-109 Improved Damage Location Accuracy Using Strain Energy-Based Mode Selection Criteria. Scott W. Doebling, Los Alamos National Laboratory; Francois M. Hemez, École Centrale Paris, France; and Lee D. Peterson and Charbel Farhat, University of Colorado (35, 4, p. 693) Article based on AIAA Paper 93-1481 CP931
- J97-110 Geometric Approach to Nondestructive Identification of Faults in Stochastic Structural Systems. M. H. Sadeghi, *University of Tabriz, Iran*; and S. D. Fassois, *University of Patras, Greece* (35, 4, p. 700) Article
- J97-111 Transient Analysis of Crack in Composite Layered Medium Subjected to Dynamic Loadings. Chien-Ching Ma and

- Yi-Shyong Ing, National Taiwan University, Taiwan, ROC (35, 4, p. 706) Article
- J97-112 Efficient Computation of Many Eigenvector Derivatives Using Dynamic Flexibility Method. De-Wen Zhang, Beijing Institute of Structure and Environment, PRC; and Fu-Shang Wei, Kaman Aerospace Corporation (35, 4, p. 712) Article
- J97-113 Parametric Identification of Nonlinear Structural Dynamic Systems Using Time Finite Element Method. Rakesh K. Kapania and Sungho Park, Virginia Polytechnic Institute and State University (35, 4, p. 719) Article based on AIAA Paper 96-1393 CP962
- J97-114 Analysis of Uncertain Structural Systems Using Interval Analysis. S. S. Rao, *Purdue University*; and L. Berke, *NASA Lewis Research Center* (35, 4, p. 727) Article
- J97-115 Neural Network Approximator with Novel Learning Scheme for Design Optimization with Variable Complexity Data. Srinivas Kodiyalam, Lockheed Martin Advanced Technology Center; and Ram Gurumoorthy, General Electric Corporate R&D Center (35, 4, p. 736) Article based on AIAA Paper 96-1339 CP962
- J97-116 Proposed Inflow/Outflow Boundary Condition for Direct Computation of Aerodynamic Sound. J. B. Freund, Stanford University (35, 4, p. 740) Technical Note
- J97-117 Diffusion Flame Adjacent to a Rotating Solid Fuel Disk in Zero Gravity. Joe M. Holcomb, NYMA Inc.; and James S. T'ien, Case Western Reserve University (35, 4, p. 742) Technical Note
- J97-118 Orthogonalization of Measured Modes—Revisited. Menahem Baruch, *Technion—Israel Institute of Technology* (35, 4, p. 744) Technical Note
- J97-119 Flutter Prediction for Composite Wings Using Parametric Studies. G. A. Georghiades and J. R. Banerjee, *City University, England, UK* (35, 4, p. 746) Technical Note based on AIAA Paper 96-1351 CP962
- J97-120 Permissible Three-Dimensional Testing in a Two-Dimensional Adaptive Wall Wind Tunnel. David Sumner and Ewart Brundrett, *University of Waterloo*, *Canada* (35, 4, p. 749) Technical Note
- J97-121 Near-Field Experiments on Tip Vortices at Mach 3.1. Frank Y. Wang and Pasquale M. Sforza, *Polytechnic University* (35, 4, p. 750) Technical Note
- J97-122 Broadband Vibration Damping Using Highly Distributed Tuned Mass Absorbers. J. A. Zapfe, *Kinetic Systems, Inc.*; and G. A. Lesieutre, *Pennsylvania State University* (35, 4, p. 753) Technical Note based on AIAA Paper 96-1595 CP962
- J97-123 Numerical Simulation of the Interaction Between Leading-Edge Vortex and Vertical Tail. Donald P. Rizzetta, U.S. Air Force Wright Laboratory (35, 4, p. 756) Technical Note based on AIAA Paper 96-2012
- **J97-124** Octave Chanute and the Indiana Glider Trials of **1896.** Tom D. Crouch, *National Air and Space Museum* (**35**, 5, p. 769) Article
- J97-125 Nd:YAG Laser-Based Dual-Line Rayleigh Scattering System. M. V. Ötügen, J. Kim, and S. Popović, *Polytechnic University* (35, 5, p. 776) Article
- **J97-126** Incremental Potential Flow Based Membrane Wing Element. Rick Smith and Wei Shyy, *University of Florida* (35, 5, p. 782) Article
- J97-127 Numerical Simulation of Receptivity Phenomena in Transitional Boundary-Layer Flows. Scott H. Reitsma and Vincent P. Manno, *Tufts University*; and Thomas F. Tureaud, *Charles Stark Draper Laboratory, Inc.* (35, 5, p. 789) Article
- J97-128 Active Control of Panel Oscillation Induced by Accelerating Boundary Layer and Sound. L. Maestrello, NASA Lan-

- gley Research Center (35, 5, p. 796) Article
- **J97-129** Control of Vortex Pairing Sound. R. C. K. Leung and W. F. Chu, *University of Hong Kong*; S. K. Tang, *Hong Kong Polytechnic University*; and N. W. M. Ko, *University of Hong Kong* (35, 5, p. 802) Article
- J97-130 Flap Side-Edge Noise: Acoustic Analysis of Sen's Model. Jay C. Hardin, NASA Langley Research Center, and James E. Martin, Christopher Newport University (35, 5, p. 810) Article based on AIAA Paper 96-1674
- J97-131 Self-Contained Automated Methodology for Optimal Flow Control. Ronald D. Joslin, Max D. Gunzburger, and Roy A. Nicolaides, NASA Langley Research Center; and Gordon Erlebacher and M. Yousuff Hussaini, Florida State University (35, 5, p. 816) Article
- J97-132 Nonlinear Second Moment Closure Consistent with Shear and Strain Flows. Dirk G. Pfuderer, Claus Eifert, and Johannes Janicka, *Technische Hochschule Darmstadt, Germany* (35, 5, p. 825) Article
- J97-133 Coupled Fluid-Structural Characteristics of Actuators for Flow Control. Ruben Rathnasingham and Kenneth S. Breuer, *Massachusetts Institute of Technology* (35, 5, p. 832) Article
- J97-134 Mixing Processes in a Coaxial Geometry with a Central Lobed Mixer-Nozzle. V. M. Belovich and M. Samimy, *Ohio State University* (35, 5, p. 838) Article based on AIAA Paper 96-0118
- J97-135 Difficulties in Sensitivity Calculations for Flows with Discontinuities. Justin R. Appel, Virginia Polytechnic Institute and State University; and Max D. Gunzburger, Iowa State University (35, 5, p. 842) Article
- J97-136 Behavior of Wake Vortices Near Ground. Alexandre Corjon, Centre Européen de Recherche et Formation Avancée en Calcul Scientifique, France; and Thierry Poinsot, Institut de Mécanique des Fluides de Toulouse, France (35, 5, p. 849) Article
- J97-137 Vibration Suppression Using Acceleration Feedback Control with Multiple Proof-Mass Actuators. Saburo Matunaga, Yimei Yu, and Yoshiaki Ohkami, *Tokyo Institute of Technology, Japan* (35, 5, p. 856) Article
- J97-138 Optimization for Buckling of Composite Sandwich Plates. Jau-Sung Moh and Chyanbin Hwu, *National Cheng Kung University, Taiwan, ROC* (35, 5, p. 863) Article
- J97-139 Balance Technique for Monitoring In Situ Structural Integrity of Prismatic Structures. Kara J. Peters and Peter D. Washabaugh, *University of Michigan* (35, 5, p. 869) Article
- J97-140 Ballistic Impact of Thin-Walled Composite Structures. Jack R. Vinson and Jeffrey M. Walker, *University of Delaware* (35, 5, p. 875) Article based on AIAA Paper 95-1388 CP952
- J97-141 Finite Element Model Update via Bayesian Estimation and Minimization of Dynamic Residuals. Kenneth F. Alvin, Sandia National Laboratories (35, 5, p. 879) Article
- J97-142 Flow Characteristics and Shear-Layer Vortex Shedding of Double Concentric Jets. R. F. Huang and C. L. Lin, National Taiwan Institute of Technology, Taiwan, ROC (35, 5, p. 887) Article
- J97-143 Statistical Experimentation Methods for Achieving Affordable Concurrent Systems Design. Wei Chen, Clemson University; and Janet K. Allen, Daniel P. Schrage, and Farrokh Mistree, Georgia Institute of Technology (35, 5, p. 893) Article based on AIAA Paper 96-4085 CP9611
- J97-144 Instability of Lightly Damped Linear Nonconservative Systems. Yeong-Bin Yang, National Taiwan University, Taiwan, ROC; Shyh-Rong Kuo, National Taiwan Ocean University, Taiwan, ROC; and Jong-Dar Yau, National Taiwan University, Taiwan, ROC (35, 5, p. 901) Article

- J97-145 Novel Method for Calculating Two-Dimensional Blade Vortex Interaction. Ronald J. Epstein, John A. Rule, and Donald B. Bliss, *Duke University* (35, 5, p. 909) Technical Note
- J97-146 Box-Length Requirements for Simulation of Sound from Large Structures in Jets. E. J. Avital and N. D. Sandham, Queen Mary and Westfield College, England, UK (35, 5, p. 912) Technical Note
- J97-147 Crossflow Vortices of a Jet Injected into a Supersonic Crossflow. Juan Gabriel Santiago and J. Craig Dutton, *University of Illinois at Urbana–Champaign* (35, 5, p. 915) Technical Note
- J97-148 Stiffness Matrix Adjustment Using Incomplete Measured Modes. Ouqi Zhang and Aspasia Zerva, Drexel University; and De-Wen Zhang, Beijing Institute of Structure and Environment, PRC (35, 5, p. 917) Technical Note
- J97-149 Parallel Adaptive Finite Element Euler Flow Solver for Rotary Wing Aerodynamics. Carlo L. Bottasso and Mark S. Shephard, Rensselaer Polytechnic Institute (35, 6, p. 937) Article based on AIAA Paper 96-1661
- J97-150 Vane Sweep Effects on Rotor/Stator Interaction Noise. Johan B. H. M. Schulten, *National Aerospace Laboratory, The Netherlands* (35, 6, p. 945) Article
- J97-151 Flight Effects on the Far-Field Noise of a Heated Supersonic Jet. A. Krothapalli, P. T. Soderman, C. S. Allen, J. A. Hayes, and S. M. Jaeger, NASA Ames Research Center (35, 6, p. 952) Article based on AIAA Paper 96-1720
- J97-152 Linear Stability of Hypersonic Flow in Thermochemical Nonequilibrium. Mary L. Hudson and Ndaona Chokani, North Carolina State University; and Graham V. Candler, University of Minnesota (35, 6, p. 958) Article based on AIAA Paper 96-0671
- J97-153 Numerical Wave Propagation and Steady-State Solutions: Soft Wall and Outer Boundary Conditions. K. Mazaheri and P. L. Roe, *University of Michigan* (35, 6, p. 965) Article
- J97-154 Octree-Advancing Front Method for Generation of Unstructured Surface and Volume Meshes. Harlan McMorris and Yannis Kallinderis, *University of Texas at Austin* (35, 6, p. 976) Article
- **J97-155** Explicit Algebraic Scalar Flux Approximation. Y. Shabany and P. A. Durbin, *Stanford University* (35, 6, p. 985) Article
- J97-156 Detailed Investigation of the Three-Dimensional Separation About a 6:1 Prolate Spheroid. Christopher J. Chesnakas, David Taylor Model Basin, U.S. Naval Surface Warfare Center, and Roger L. Simpson, Virginia Polytechnic Institute and State University (35, 6, p. 990) Article
- **J97-157** New Scattering Kernel for Gas-Surface Interaction. C. Cercignani and M. Lampis, *Politecnico di Milano, Italy* (35, 6, p. 1000) Article
- J97-158 Experiments on Impulsively Started Jet Diffusion Flames. H. Johari, K. J. Desabrais, and J. C. Hermanson, Worcester Polytechnic Institute (35, 6, p. 1012) Article
- J97-159 Dusty Detonation Simulations with Adaptive Unstructured Finite Elements. E. Loth and S. Sivier, *University of Illinois at Urbana—Champaign*; and J. Baum, *Science Applications International Corporation* (35, 6, p. 1018) Article
- J97-160 Estimation of Aeroelastic Models in Structural Limit-Cycle Oscillations from Test Data. Szu-Ying Tan, Aeronautical Research Laboratory, Taiwan, ROC; and C. Edward Lan, University of Kansas (35, 6, p. 1025) Article
- J97-161 Direct Numerical Simulations of Wake Vortices in Intense Homogeneous Turbulence. Frédéric Risso and Alexandre Corjon, Centre Européen de Recherche et Formation Avancée en Calcul Scientifique, France; and Alain Stoessel, Institut Français du Pétrole, France (35, 6, p. 1030) Article based on AIAA Paper

- 96-0802
- J97-162 Dynamics of the Vorticity Distribution in Endwall Junctions. C. V. Seal, C. R. Smith, and D. Rockwell, *Lehigh University* (35, 6, p. 1041) Article based on AIAA Paper 95-2238
- J97-163 Experimental Demonstration of Use of N₂0 to Increase Shock Tunnel Test Time. David W. Bogdanoff, NASA Ames Research Center; Gregory J. Wilson, Semitool; and Myles A. Sussman, Parametric Technology Corporation (35, 6, p. 1048) Article
- J97-164 Long-Term Strength and Damage Analysis of Laminated Composites. Yuris A. Dzenis, *University of Nebrasksa at Lincoln*; and Shiv P. Joshi, *University of Texas at Arlington* (35, 6, p. 1057) Article
- J97-165 Approximation of System Reliabilities Using a Shooting Monte Carlo Approach. S. A. Brown, Northrop Grumman Corporation; and A. E. Sepulveda, University of California, Los Angeles (35, 6, p. 1064) Article based on AIAA Paper 94-4310 CP9413
- J97-166 Automatic Differentiation in Robust Optimization. J. Su and J. E. Renaud, *University of Notre Dame* (35, 6, p. 1072) Article.
- J97-167 Explicit Kutta Condition for Unsteady Two-Dimensional High-Order Potential Boundary Element Method. Giuseppe Davì, Rosario M. A. Marretta, and Alberto Milazzo, *Università di Palermo, Italy* (35, 6, p. 1080) Technical Note
- J97-168 Constrained Warping of Thin-Walled Hollow Composite Beams. Cheol Kim and Scott R. White, *University of Illinois at Urbana–Champaign* (35, 6, p. 1082) Technical Note
- J97-169 Convergence of Methods for Nonlinear Eigenvalue Problems. Per Bäck and Ulf Ringertz, Royal Institute of Technology, Sweden (35, 6, p. 1084) Technical Note
- J97-170 Reduced-Order Aeroservoelastic Model with an Unsteady Aerodynamic Eigen Formulation. Taehyoun Kim, Georgia Institute of Technology; Changho Nam, Hankuk Aviation University, Korea; and Youdan Kim, Seoul National University, Korea (35, 6, p. 1087) Technical Note
- J97-171 Aerodynamically Accurate Three-Dimensional Navier-Stokes Method. B. Epstein, A. Jacobs, and A. Nachson, Israel Aircraft Industries (35, 6, p. 1089) Technical Note
- J97-172 Active Control of Turbomachine Discrete Frequency Noise Utilizing Oscillating Flaps and Pistons. Jason A. Minter and Sanford Fleeter, *Purdue University* (35, 7, p. 1105) Article
- J97-173 Sound Transmission Through an Aeroelastic Plate into a Cavity. Kenneth D. Frampton and Robert L. Clark, *Duke University* (35, 7, p. 1113) Article
- J97-174 Screech Tones of Supersonic Jets from Bevelled Rectangular Nozzles. Christopher K. W. Tam and Hao Shen, *Florida State University*; and Ganesh Raman, *NYMA Inc.* (35, 7, p. 1119) Article based on AIAA Paper 97-0143
- J97-175 Numerically Nonreflecting Boundary and Interface Conditions for Compressible Flow and Aeroacoustic Computations. Tim Colonius, *California Institute of Technology* (35, 7, p. 1126) Article
- J97-176 High-Resolution Finite Volume Computation of Turbulent Transonic Flow Past Airfoils. Y. T. Jiang and M. Damodaran, Nanyang Technological University; and K. H. Lee, Singapore Technologies Aerospace Ltd. (35, 7, p. 1134) Article based on AIAA Paper 96-2377 CP965
- J97-177 Calculations of Swirl Combustors Using Joint Velocity-Scalar Probability Density Function Method. M. S. Anand and A. T. Hsu, *Allison Engine Company*; and S. B. Pope, *Cornell University* (35, 7, p. 1143) Article based on AIAA Paper 96-0522
- J97-178 Nonequilibrium Effects in Near-Wake Ionizing Flows. F. Grasso and S. Pirozzoli, *University of Rome "La Sapienza," Italy*

- (35, 7, p. 1151) Article
- J97-179 Effects of Coriolis Force on Flow in Rotating Diffusers. Hide S. Koyama and Kuniharu Uchikawa, *Tokyo Denki University, Japan*; and Hani H. Nigim, *Birzeit University, Palestine* (35, 7, p. 1164) Article
- J97-180 Natural Coherent Structure Dynamics in Near Field of Fully Turbulent Axisymmetric Jet. S. Aydore, Istanbul Technical University, Turkey; and P. J. Disimile, University of Cincinnati (35, 7, p. 1171) Article
- J97-181 Unsteady Transonic Flow: Flow About a Suddenly Deflected Wedge. Julian D. Cole, Rensselaer Polytechnic Institute; and L. Pamela Cook and Gilberto Schleiniger, University of Delaware (35, 7, p. 1179) Article
- J97-182 Extraction of Normal Modes and Full Modal Damping from Complex Modal Parameters. K. F. Alvin, Sandia National Laboratories; and L. D. Peterson and K. C. Park, University of Colorado (35, 7, p. 1187) Article
- **J97-183** Freestream Velocity Corrections for Two-Dimensional Testing with Splitter Plates. Philippe Giguère and Michael S. Selig, *University of Illinois at Urbana–Champaign* (35, 7, p. 1195) Article
- J97-184 Holographic Diffraction Image Velocimetry for Measurement of Three-Dimensional Velocity Fields. James S. Slepicka and Soyoung S. Cha, *University of Illinois at Chicago* (35, 7, p. 1201) Article based on AIAA Paper 96-2265
- J97-185 Modal Parameter Identification Using Simulated Evolution. Dar-Yun Chiang and Si-Tsong Huang, National Cheng Kung University, Taiwan, ROC (35, 7, p. 1204) Article
- **J97-186** Sequentially Decomposed Programming. Sigurd A. Nelson II and Panos Y. Papalambros, *University of Michigan* (35, 7, p. 1209) Article
- J97-187 Design and Testing of a Subsonic All-Moving Adaptive Flight Control Surface. R. M. Barrett, R. S. Gross, and F. T. Brozoski, *Auburn University* (35, 7, p. 1217) Technical Note
- J97-188 Interface Wavelength Between Confined Supersonic Two-Dimensional Jets and Subsonic Streams. Lawrence J. De Chant, Jerald A. Caton, and Malcom J. Andrews, *Texas A&M University* (35, 7, p. 1219) Technical Note
- J97-189 k-ζ (Enstrophy) Compressible Turbulence Model for Mixing Layers and Wall Bounded Walls. G. A. Alexopoulos and H. A. Hassan, North Carolina State University (35, 7, p. 1221) Technical Note based on AIAA Paper 96-2039 CP964
- J97-190 Motion of a Body Through Large-Scale Inhomogeneity in the Stratified Atmosphere. Vilen U. Nabiev and Sergey V. Utyuzhnikov, Moscow Institute of Physics and Technology, Russia (35, 7, p. 1224) Technical Note
- J97-191 New Conservative Formulations of Full-Potential Equation in Streamline-Aligned Coordinates. Azat M. Latypov, University of Windsor, Canada (35, 7, p. 1226) Technical Note
- J97-192 Vorticity Jump in Surface Coordinates Across a Shock in Nonsteady Flow. Z. U. A. Warsi, *Mississippi State University* (35, 7, p. 1228) Technical Note
- J97-193 Generalized Vortex Lattice Method for Planar Supersonic Flow. Paulo A. O. Soviero, *Instituto Tecnológico de Aeronáutica, Brazil*; and Hugo B. Resende, *Empresa Brasileira de Aeronáutica S.A., Brazil* (35, 7, p. 1230) Technical Note based on AIAA Paper 96-2491 CP965
- J97-194 Effect of Yaw on Pressure Oscillation Frequency Within Rectangular Cavity at Mach 2. Peter J. Disimile and Paul D. Orkwis, *University of Cincinnati* (35, 7, p. 1233) Technical Note
- J97-195 Computations of Unsteady Separating Flows over an Oscillating Airfoil. Sungho Ko and W. J. McCroskey, NASA Ames Research Center, Korea (35, 7, p. 1235) Technical Note based on AIAA Paper 95-0312

- J97-196 Freestream Parameter Estimation Using Heat Flux Measurements. A. K. Alekseev, RSC ENERGIA, Russia (35, 7, p. 1238) Technical Note
- J97-197 Limiting Mach Number for Quantitative Pressure-Sensitive Paint Measurements. Donald R. Mendoza, *University* of California, Berkeley (35, 7, p. 1240) Technical Note
- J97-198 Resolution Effects in Chaotic Velocity Field Reconstruction from Passive Scalar Data. Jeffrey D. Chamberlain, University of California, Los Angeles; and J. M. McDonough, University of Kentucky (35, 7, p. 1241) Technical Note
- **J97-199** Torsional Instability of Moderately Thick Composite Cylindrical Shells by Various Shell Theories. Ala Tabiei and George Simitses, *University of Cincinnati* (35, 7, p. 1243) Technical Note
- J97-200 Final Solution of Duffing Equation of Mixed Parity. M. S. Sarma and B. Nagaeswara Rao, Vikram Sarabhai Space Center, India; and H. R. Nataraja, Gas Turbine Research Establishment, India (35, 7, p. 1246) Technical Note
- J97-201 Singularities in Polynomial Representations of Transverse Shear in Finite Elements. James M. Greer Jr., U.S. Air Force Wright Laboratory; and Anthony N. Palazotto, U.S. Air Force Institute of Technology (35, 7, p. 1248) Technical Note
- J97-202 Vibration Analysis of Arbitrary Quadrilateral Unsymmetrically Laminated Thick Plates. K. M. Liew, Nanyang Technological University, Singapore; W. Karunasena, James Cook University, Australia; and S. Kitipornchai and C. C. Chen, University of Queensland, Australia (35, 7, p. 1251) Technical Note
- J97-203 Analysis of Streamline Curvature Effects on Wall-Bounded Turbulent Flows. Jiang Luo and Budugar Lakshminarayana, *Pennsylvania State University* (35, 8, p. 1273) Article
- J97-204 Space-Marching Method on Unstructured Grid for Supersonic Flows with Embedded Subsonic Regions. Kazuhiro Nakahashi and Eiji Saitoh, *Tohoku University, Japan* (35, 8, p. 1280) Article based on AIAA Paper 96-0418
- J97-205 Adaptive Finite Volume Upwind Approaches for Aeroacoustic Computations. C. J. Hwang and J. Y. Kuo, *National Cheng Kung University, Taiwan, ROC* (35, 8, p. 1286) Article
- J97-206 Finite Element Adaptive Method for Hypersonic Thermochemical Nonequilibrium Flows. Djaffar Ait-Ali-Yahia and Wagdi G. Habashi, *Concordia University, Canada* (35, 8, p. 1294) Article
- J97-207 Quantitative Density Measurements by Rayleigh Scattering Behind a Plane Turbine Cascade. K. Fiedler, O. Sieber, and C. Jakiel, *Universität der Bundeswehr Hamburg, Germany* (35, 8, p. 1303) Article
- J97-208 Control of Cantilever Vibration via Structural Tailoring and Adaptive Materials. L. Librescu, L. Meirovitch, and S. S. Na, Virginia Polytechnic Institute and State University (35, 8, p. 1309) Article
- J97-209 Consistent Methodology for the Modeling of Piezolaminated Shells. Baruch Pletner and Haim Abramovich, Technion—Israel Institute of Technology (35, 8, p. 1316) Article
- J97-210 Mixed Laminate Theory and Finite Element for Smart Piezoelectric Composite Shell Strucutres. Dimitris A. Saravanos, *Ohio Aerospace Institute* (35, 8, p. 1327) Article
- J97-211 General Theory for Cross-Ply Laminated Beams. G. Davì, *Università di Palermo, Italy* (35, 8, p. 1334) Article
- J97-212 Finite Element Modeling of Open-Section Composite Beams with Warping Restraint Effects. Matthew W. Floros and Edward C. Smith, *Pennsylvania State University* (35, 8, p. 1341) Article
- J97-213 Cable-Stiffened Pantographic Deployable Structures Part 2: Mesh Reflector. Z. You and S. Pellegrino, *University of Cambridge, England, UK* (35, 8, p. 1348) Article

- J97-214 Fractional Integral Formulation of Constitutive Equations of Viscoelasticity. Mikael Enelund, Åsa Fenander, and Peter Olsson, Chalmers University of Technology, Sweden (35, 8, p. 1356) Article
- J97-215 Partial Derivatives of Repeated Eigenvalues and Their Eigenvectors. Uwe Prells and Michael I. Friswell, *University of Wales, Swansea, Wales, UK* (35, 8, p. 1363) Article
- J97-216 Extending Sensistivity-Based Updating to Lightly Damped Structures. Gregory W. Brown and Charbel Farhat, *University of Colorado*; and François M. Hemez, *École Centrale Paris, France* (35, 8, p. 1369) Article
- J97-217 Application of Nonlinear Localization to the Optimization of a Vibration Isolation System. Tariq A. Nayfeh, Edward Emaci, and Alexander F. Vakakis, *University of Illinois at Urbana-Champaign* (35, 8, p. 1378) Article
- J97-218 Modeling Interactions in Multidisciplinary Design: A Game Theoretic Approach. Kemper Lewis, State University of New York at Buffalo; and Farrokh Mistree, Georgia Institute of Technology (35, 8, p. 1387) Article
- J97-219 Geometrically Nonlinear Theory of Initially Imperfect Sandwich Curved Panels Incorporating Nonclassical Effects. Liviu Librescu and Terry Hause, Virginia Polytechnic Institute and State University; and Charles J. Camarda, NASA Langley Research Center (35, 8, p. 1393) Article based on AIAA Paper 96-1350 CP962
- J97-220 Dynamic Buckling of Imperfect Cylindrical Shells Under Axial Compression and Bending Moment. Xiaozhi Huyan and George J. Simitses, *University of Cincinnati* (35, 8, p. 1404) Article
- J97-221 Comparison of Optimization Algorithms for Aerodynamic Shape Design. Shigeru Obayashi and Takanori Tsukahara, *Tohoku University, Japan* (35, 8, p. 1413) Technical Note based on AIAA Paper 96-2394 CP965
- J97-222 Suitability of Upwind-Biased Finite Difference Schemes for Large-Eddy Simulation of Turbulent Flows. Rajat Mittal and Parviz Moin, *Stanford University* (35, 8, p. 1415) Technical Note
- J97-223 Three-Dimensional Finite Difference Method for Rotordynamic Fluid Forces on Seals. Morgan Williams, Wei Chen, Laura Brozowski, and Anthony Eastland, *The Boeing Company* (35, 8, p. 1417) Technical Note based on AIAA Paper 96-2738
- J97-224 Boundary Integral Equations for Notch Problems in Plane Thermoelasticity. C. K. Chao, *National Taiwan Institute of Technology, Taiwan, ROC* (35, 8, p. 1420) Technical Note
- J97-225 Numerical Simulation of Secondary Combustion of Hydrogen Injected from Preburner into Supersonic Airflow. Sadegh Tabejamaat, Yiguang Ju, and Takashi Niioka, *Tohoku University, Japan* (35, 9, p. 1441) Article
- J97-226 Upwind Scheme for Acoustic Disturbances Generated by Low-Speed Flows. John A. Ekaterinaris, *RISOE National Laboratory* (35, 9, p. 1448) Article based on AIAA Paper 97-0022
- J97-227 Computational Method for Describing Porous Wall Boundary Conditions Based on Experimental Data. Thomas J. Beutner, Air Force Research Laboratory; Zeki Z. Celik, LSI Logic; and Leonard Roberts, Stanford University (35, 9, p. 1456) Article
- J97-228 Viscous-Inviscid Interaction Using the Navier-Stokes Equations. A. Filippone and J. N. Sørenson, *Technical University of Denmark* (35, 9, p. 1464) Article
- J97-229 Application of Chimera/Unstructured Hybrid Grids for Conjugate Heat Transfer. Kai-Hsiung Kao and Meng-Sing Liou, NASA Lewis Research Center (35, 9, p. 1472) Article
- J97-230 Practical Three-Dimensional Aerodynamic Design and Optimization Using Unstructured Meshes. Jonathan Elliott and Jaume Peraire, Massachusetts Institute of Technology (35, 9, p.

- 1479) Article
- J97-231 Simulations of High Knudsen Number Flows in a Channel-Wedge Configuration. Thuong X. Nguyen, Choong K. Oh, and Robert S. Sinkovits, *Naval Research Laboratory*; John D. Anderson Jr., *University of Maryland*; and Elaine S. Oran, *Naval Research Laboratory* (35, 9, p. 1486) Article
- J97-232 Experimental Study of Acoustic Velocity Effects on Simulated Solid Fuel Pyrolysis. L. M. Matta, B. T. Zinn, and J. I. Jagoda, Georgia Institute of Technology (35, 9, p. 1493) Article
- J97-233 Inverse and Direct Airfoil Design Using a Multiobjective Genetic Algorithm. Alessandro Vicini and Domenico Quagliarella, *Centro Italiano Ricerche Aerospaziali, Italy* (35, 9, p. 1499) Article
- J97-234 Comparison of Explicit and Traditional Algebraic Stress Models of Turbulence. Charles G. Speziale, *Boston University* (35, 9, p. 1506) Article
- J97-235 Closed-Form Modeling of Fluid-Structure Interaction with Nonlinear Sloshing: Potential Flow. José L. Ortiz and Alan A. Barhorst, *Texas Tech University* (35, 9, p. 1510) Article
- J97-236 Dynamic Contact Analysis of Laminated Composite Plates Under Low-Velocity Impact. Nam Seo Goo and Seung Jo Kim, Seoul National University, Korea (35, 9, p. 1518) Article
- J97-237 Dynamic Learning Rate Neural Network Training and Composite Structural Damage Detection. H. Luo and S. Hanagud, Georgia Institute of Technology (35, 9, p. 1522) Article
- J97-238 Composite Patch Repairs of Metal Structures: Adhesive Nonlinearity, Thermal Cycling, and Debonding. Wai Tuck Chow and Satya N. Atluri, *Georgia Institute of Technology* (35, 9, p. 1528) Article
- J97-239 Studies of Low-Density Freejets and Their Impingement Effects. B. Deependran, R. I. Sujith, and Job Kurian, *Indian Institute of Technology* (35, 9, p. 1536) Article
- J97-240 Numerical Solution of the Full Potential Equation Using a Chimera Grid Approach. Terry L. Holst, NASA Ames Research Center (35, 9, p. 1543) Technical Note
- J97-241 Study of Adaptive Shape Airfoils at Low Reynolds Number in Oscillatory Flows. Wei Shyy, David A. Jenkins, and Richard W. Smith, *University of Florida* (35, 9, p. 1545) Technical Nate
- J97-242 Improvements to a Dual-Time-Stepping Method for Computing Unsteady Flows. S. DeRango and D. W. Zingg, *University of Toronto, Canada* (35, 9, p. 1548) Technical Note based on AIAA Paper 96-2088
- J97-243 Cascade Flow Calculations Using the $k-\omega$ Turbulence Model with Explicit–Implicit Solver. Chang Ho Choi and Jung Yul Yoo, Seoul National University, Korea (35, 9, p. 1551) Technical Note
- J97-244 Numerical Simulations of Three-Dimensional Trailing Vortex Evolution. Robert E. Robins and Donald P. Delisi, NorthWest Research Associates, Inc. (35, 9, p. 1552) Technical Note
- J97-245 Deflection-Voltage Model and Experimental Results for Polymeric Piezoelectric C-Block Actuators. Andrew J. Moskalik and Diann Brei, *University of Michigan* (35, 9, p. 1556) Technical Note
- J97-246 Mean and Turbulence Measurements in the Near Field of a Wingtip Vortex. Jim S. Chow, *Institute for Defense Analyses*; Gregory G. Zilliac, *NASA Ames Research Center*; and Peter Bradshaw, *Stanford University* (35, 10, p. 1561) Article
- J97-247 Surface Reflective Visualizations of Shock-Wave/Vortex Interactions Above a Delta Wing. S. R. Donohoe and W. J. Bannink, *Delft University of Technology, The Netherlands* (35, 10, p. 1568) Article
- J97-248 Direct Computation of Mach Wave Radiation in an

- Axisymmetric Supersonic Jet. Brian E. Mitchell, Sanjiva K. Lele, and Parviz Moin, *Stanford University* (35, 10, p. 1574) Article
- J97-249 Implicit Method for Incompressible Flow Calculations in Three-Dimensional Ducts and Cascades. E. S. Politis, K. C. Giannakoglou, and K. D. Papailiou, *National Technical University of Athens, Greece* (35, 10, p. 1581) Article
- J97-250 Flow Model for Predicting Normal Shock Wave Induced Vortex Breakdown. M. K. Smart, NASA Langley Research Center; and I. M. Kalkhoran, Polytechnic University (35, 10, p. 1589) Article
- J97-251 Wavelet Analysis of Wall-Pressure Fluctuations in a Supersonic Blunt-Fin Flow. Jonathan Poggie, U.S. Air Force Research Laboratory; and Alexander J. Smits, Princeton University (35, 10, p. 1597) Article
- **J97-252** Mach Wave Elimination in Supersonic Jets. Dimitri Papamoschou, *University of California, Irvine* (35, 10, p. 1604) Article
- J97-253 Instantaneous Three-Dimensional Vorticity Measurements in Vortical Flow over a Delta Wing. A. Honkan and J. Andreopoulos, *City College of the City University of New York* (35, 10, p. 1612) Article
- J97-254 Selective Modal Transducers for Anisotropic Rectangular Plates: Experimental Validation. Scott E. Miller, Hughes Space and Communications Company; and Haim Abramovich and Yaakov Oshman, Technion—Israel Institute of Technology (35, 10, p. 1621) Article
- J97-255 Time-Domain Finite Element Analysis of Viscoelastic Structures with Fractional Derivatives Constitutive Relations. Mikael Enelund and B. Lennart Josefson, *Chalmers University of Technology, Sweden* (35, 10, p. 1630) Article based on AIAA Paper 96-1394 CP962
- **J97-256** Design Diagrams for Reliable Layered Materials. S. Mark Spearing, *Massachusetts Institute of Technology* (35, 10, p. 1638) Article
- J97-257 Vibration Mode Localization in One-Dimensional Systems. Wei-Chau Xie and Xing Wang, *University of Waterloo, Canada* (35, 10, p. 1645) Article
- J97-258 Vibration Mode Localization in Two-Dimensional Systems. Wei-Chau Xie and Xing Wang, *University of Waterloo, Canada* (35, 10, p. 1653) Article
- J97-259 Boundary Integral Formulation for Composite Laminates in Torsion. G. Davì and A. Milazzo, *University of Palermo, Italy* (35, 10, p. 1660) Article
- J97-260 Three-Dimensional Instability of a Pair of Trailing Vortices near the Ground. N. V. Kornev and G. Reichert, *Technical University of Brunswick, Germany* (35, 10, p. 1667) Technical Note
- J97-261 Scaling Laws of Cylindrical Shells Under Lateral Pressure. A. Tabiei, J. Sun, and G. J. Simitses, *University of Cincinnati* (35, 10, p. 1669) Technical Note
- J97-262 Changes in Frequencies of a Laminated Plate Caused by Embedded Piezoelectric Layers. X. Q. Liang and R. C. Batra, Virginia Polytechnic Institute and State University (35, 10, p. 1672) Technical Note
- J97-263 Bifurcation Buckling Analysis of Delaminated Composites Using Global-Local Approach. Maenghyo Cho and Jun-Sik Kim, *Inha University, Korea* (35, 10, p. 1673) Technical Note
- J97-264 Vibrations of Elastically Restrained Nonuniform Beams with Arbitrary Pretwist. Shueei Muh Lin, Kung Shan Institute of Technology, Taiwan, ROC (35, 11, p. 1681) Article
- J97-265 Subsonic and Supersonic Jet Noise Predictions from Statistical Source Models. Christophe Bailly, École Centrale de Lyon, France; Philippe Lafon, Électricité de France; and Sébastien Candel, École Centrale Paris, France (35, 11, p. 1688) Article

- **J97-266** Scalar Transport in a Swirling Transverse Jet. C. E. Niederhaus, F. H. Champagne, and J. W. Jacobs, *University of Arizona* (35, 11, p. 1697) Article
- J97-267 Stability and Emissions of Lean, Turbulent, Premixed Flames with Very Lean Coflow. J. C. Hermanson, Worcester Polytechnic Institute; and M. B. Colket and J. J. Sangiovanni, United Technologies Research Center (35, 11, p. 1705) Article
- **J97-268** Analytical Study of the Oblique Reflection of Detonation Waves. H. Li and G. Ben-Dor, *Ben-Gurion University of the Negev, Israel*; and H. Grönig, *RWTH*, *Germany* (35, 11, p. 1712) Article
- J97-269 Interference Between a Cylindrical Bow Shock and a Plane Oblique Shock. V. Ya. Borovoy, A. Yu. Chinilov, V. N. Gusev, and I. V. Struminskaya, *Central Aerohydrodynamics Institute, Russia*; and J. Délery and B. Chanetz, *ONERA, France* (35, 11, p. 1721) Article based on AIAA Paper 96-2046
- J97-270 Two-Component Planar Doppler Velocimetry in High Speed Flows. Pamela S. Clancy and Mo Samimy, *The Ohio State* University (35, 11, p. 1729) Article
- J97-271 Model Update Using Modal Contribution to Static Flexibility Error. Keith K. Denoyer, U.S. Air Force Phillips Laboratory; and Lee D. Peterson, University of Colorado (35, 11, p. 1739) Article
- J97-272 Quantitative Prediction of Thermomechanical Coupling Effect in Thermo-Elasto-Viscoplastic Composite Materials. Eui-Sup Shin and Seung-Jo Kim, *Seoul National University, Korea* (35, 11, p. 1746) Article
- J97-273 Geometrically Nonlinear Theory of Multilayered Plates with Interlayer Slips. Marco Di Sciuva, *Politecnico di Torino, Italy* (35, 11, p. 1753) Article
- J97-274 Efficient Computation of Eigenvector Sensitivities for Structural Dynamics. Kenneth F. Alvin, Sandia National Laboratories (35, 11, p. 1760) Article
- J97-275 Adaptive Topology Optimization of Shell Structures. Kurt Maute and Ekkehard Ramm, *University of Stuttgart, Germany* (35, 11, p. 1767) Article
- J97-276 Experiments on Oblique Shock Interactions with Planar Mixing Regions. D. R. Buttsworth and R. G. Morgan, *University of Queensland, Australia*; and T. V. Jones, *University of Oxford, England, UK* (35, 11, p. 1774) Technical Note
- J97-277 Monte Carlo Analysis of the Hysteresis Phenomenon in Steady Shock Wave Reflections. G. Ben-Dor, T. Elperin, and E. Golshtein, *Ben-Gurion University of the Negev, Israel* (35, 11, p. 1777) Technical Note
- J97-278 Dependence of Steady Mach Reflections on the Reflecting-Wedge Trailing-Edge Angle. G. Ben-Dor, T. Elperin, H. Li, and E. Vasiliev, Ben-Gurion University of the Negev, Israel, A. Chpoun, Centre National de la Recherche Scientifique, France, and D. Zeitoun, University of Provence, France (35, 11, p. 1780) Technical Note
- J97-279 Stabilization of Supersonic Combustion by a Free Recirculating Bubble: A Numerical Study. Luís Fernando Figueira da Silva, Centre National de la Recherche Scientifique, France, Vladimir Sabel'nikov, Central Aero-Hydrodynamical Institute, Russia; and Bruno Deshaies, Centre National de la Recherche Scientifique, France (35, 11, p. 1782) Technical Note
- J97-280 Some Practical Complete Modal Spaces and Equivalence. De-Wen Zhang, Beijing Institute of Structure and Environment Engineering, PRC; and Fu-Shang Wei, Kaman Aerospace Corporation (35, 11, p. 1784) Technical Note
- J97-281 Integrating Experimental Data and Mathematical Models in Simulation of Physical Systems. Boris A. Zeldin and Andrew J. Meade Jr., *Rice University* (35, 11, p. 1787) Technical Note

- J97-282 Application of Dual Sorption Theory to Pressure-Sensitive Paints. J. P. Hubner and B. F. Carroll, *University of Florida* (35, 11, p. 1790) Technical Note
- J97-283 Nonaxisymmetric Exact Piezothermoelastic Solution for Laminated Cylindrical Shell. Santosh Kapuria, Engineers India Ltd.; P. C. Dumir, Indian Institute of Technology; and S. Sengupta, Engineers India Ltd. (35, 11, p. 1792) Technical Note
- J97-284 Effective Mass Sensitivities for Systems with Repeated Eigenvalues. Antonio Paolozzi, *University of Rome "La Sapienza," Italy*; and Ludek Pesek, *Academy of Sciences of Czech Republic* (35, 11, p. 1795) Technical Note
- J97-285 Modal Data Are Insufficient for Identification of Both Mass and Stiffness Matrices. Menahem Baruch, *Technion—Israel Institute of Technology* (35, 11, p. 1797) Technical Note
- J97-286 Momentum Variable Procedure for Solving Compressible and Incompressible Flows. M. Darbandi and G. E. Schneider, *University of Waterloo, Canada* (35, 12, p. 1801) Article based on AIAA Paper 96-0605
- J97-287 Parallelization and Dynamic Load Balancing of NPARC Codes. N. Gopalaswamy, H. U. Akay, A. Ecer, and Y. P. Chien, *Indiana University—Purdue University at Indianapolis* (35, 12, p. 1806) Article based on AIAA Paper 96-3302
- J97-288 Computational Investigation of Shock-Enhanced Mixing and Combustion. Sang-Hyeon Lee, In-Seuck Jeung, and Youngbin Yoon, Seoul National University, Korea (35, 12, p. 1813) Article
- J97-289 Effects of Gravity on Combustion Synthesis in Heterogeneous Gasless Systems. Alexander Mukasyan, Aleksey Pelekh, Arvind Varma, and Alexander Rogachev, *University of Notre Dame*; and Andrew Jenkins, *NASA Lewis Research Center* (35, 12, p. 1821) Article
- J97-290 Prediction of Active Contol of Subsonic Centrifugal Compressor Rotating Stall. P. B. Lawless and S. Fleeter, *Purdue University* (35, 12, p. 1829) Article
- J97-291 Measurements in Rollup Region of the Tip Vortex from a Rectangular Wing. B. R. Ramaprian and Youxin Zheng, Washington State University (35, 12, p. 1837) Article
- J97-292 Semiactive Vibration Suppression with Electrorheological-Fluid Dampers. Junjiro Onoda, Institute of Space and Astronautical Science, Japan; Hyun-Ung Oh, University of Tokyo, Japan; and Kenji Minesugi, Institute of Space and Astronautical Science, Japan (35, 12, p. 1844) Article

- J97-293 Probability Density Functions of Acoustically Induced Strains in Experiments with Composite Plates. Alexander Steinwolf and Robert G. White, *University of Southampton, England, UK* (35, 12, p. 1853) Article
- J97-294 Relationships Between Classical and Shear Deformation Theories of Axisymmetric Circular Plates. J. N. Reddy, Texas A&M University; and C. M. Wang, National University of Singapore (35, 12, p. 1862) Article
- J97-295 New Modal Synthesis Technique Using Mixed Modes. Ji-Bao Qiu, Beijing Institute of Structure and Environment Engineering, PRC; Zu-Guang Ying, Zhejiang University, PRC; and L. H. Yam, Hong Kong Polytechnic University, Hong Kong, PRC (35, 12, p. 1869) Article
- J97-296 Static Collapse of Elastic Circular Arches. N. F. Knight Jr. and W. S. Carron, *Old Dominion University* (35, 12, p. 1876) Article
- J97-297 Postbuckling Analysis of Pultruded Composite Bars and Simple Frames. I. G. Raftoyiannis and A. N. Kounadis, *National Technical University of Athens, Greece* (35, 12, p. 1881) Article
- J97-298 Gurney Flap Scaling for Optimum Lift-to-Drag Ratio. Philippe Giguère, Guy Dumas, and Jean Lemay, *Université Laval, Canada* (35, 12, p. 1888) Technical Note
- J97-299 Studies on Alleviation of Buffet in Periodic Transonic Flow. S. R. Raghunathan, M. A. Gillan, and R. D. Mitchell, *The Queen's University of Belfast, Northern Ireland, UK* (35, 12, p. 1890) Technical Note
- J97-300 Relationship Between Stagnation Point Deflection and Forebody Vortex Asymmetry. L. A. Darden and N. M. Komerath, *Georgia Institute of Technology* (35, 12, p. 1892) Technical Note based on AIAA Paper 95-1775 CP955
- J97-301 Piezoelectric Constitutive Equations for a Plate Shape Sensor/Actuator. Shengyuan Yang and Wenhao Huang, *University of Science and Technology of China*, *PRC* (35, 12, p. 1894) Technical Note
- J97-302 Dispersion of Axisymmetric Elastic Waves in Thick-Walled Orthotropic Pipes. Ján Kudlička, Slovak Academy of Sciences, Slovak Republic (35, 12, p. 1895) Technical Note

Books Reviewed During 1997

Numerical Simulation of Viscous Shock Layer Flows, by Yuri P. Golovachov, *Kluwer Academic Publishers* (35, 1, p. 212); reviewed by Peter A. Gnoffo and Roop N. Gupta.

Fractals and Disordered Systems, edited by A. Bunde and S. Havlin, *Springer-Verlag* (35, 2, p. 404); reviewed by Hassan Aref.

A Modern Course in Aeroelasticity, Third Revised Edition, by E. H. Dowell (Editor), E. F. Crawley, H. C. Curtiss Jr., D. A. Peters, R. H. Scanlan, and F. Sisto, *Kluwer Academic Publishers* (35, 3, p. 592); reviewed by Prabhat Hajela.

Fluid Mechanics Measurements, Second Edition, edited by R. J. Goldstein, *Taylor and Francis* (35, 4, p. 762); reviewed by Alexander J. Smits.

Unsteady Combustion, edited by F. Culick, M. V. Heitor, and J. H. Whitelaw, *Kluwer Academic Publishers* (35, 5, p. 920); reviewed by K. Kailasanath.

Waves and Nonlinear Processes in Hydrodynamics, edited by J. Grue, B. Gjevik, and J. E. Weber, *Kluwer Academic Publishers* (35, 6, p. 1091); reviewed by Turgut Sarpkaya.

Research Trends in Fluid Dynamics, edited by J. L. Lumley, A. Acrivos, L. G. Leal, and S. Leibovich, *American Institute of Physics* (35, 7, p. 1254); reviewed by Richard Seebass.

Dynamics of Exothermicity, edited by J. Ray Bowen, *Gordon and Breach* (35, 8, p. 1425); reviewed by Moshe Matalon.

Advances in Turbulence VI, edited by S. Gavrilakis, L. Machiels, and P. A. Monkewitz, *Kluwer Academic Publishers* (35, 8, p. 1426); reviewed by John Foss.

Flow Simulation with High-Performance Computers II, edited by Ernst H. Hirschel, *Verlag Vieweg* (35, 9, p. 1560); reviewed by P. L. Roe.

Laminar Flow Theory, by P. A. Lagerstrom, *Princeton University Press* (35, 10, p. 1680); reviewed by Ronald L. Panton.

Turbulence and Transition Modeling, edited by M. Hallback, D. S. Henningson, A. V. Johansson, and P. H. Alfredsson, *Kluwer Academic Publishers* (35, 11, p. 1799); reviewed by Thomas J. Coakley.

Introduction to Turbulence, by Paul A. Libby, *Taylor & Francis* (35, 12, p. 1899); reviewed by V. C. Patel.