

Subject Index

Aircraft Technology, Conventional, STOL/VTOL

Aerodynamics

- New Approach to Finite-State Modeling of Unsteady Aerodynamics J86-347
- Transonic Vortex Flows Past Delta Wings: Integral Equation Approach J86-315
- Second-Order Thickness Terms in Unsteady Wing Theory J86-301
- Aerodynamics of Two-Dimensional Blade-Vortex Interaction J86-283
- Propeller Design by Optimization J86-275
- Computation of Sharp-Fin-Induced Shock Wave/Turbulent Boundary-Layer Interactions J86-256
- Vortex Panel Calculation of Wake Rollup Behind a Large Aspect Ratio Wing J86-254
- Cancellation Zone in Supersonic Lifting Wing Theory J86-239
- Computation of the Potential Flow over Airfoils with Cusped or Thin Trailing Edges J86-238
- Recent Developments in Rotary-Wing Aerodynamic Theory J86-217
- Trapping of a Free Vortex by Airfoils with Surface Suction J86-216
- Integration of Singular Functions Associated with Lifting Surface Theory J86-206
- Lifting-Line Solution for a Symmetrical Thin Wing in Ground Effect J86-205
- Computation of Transonic Flow About Helicopter Rotor Blades J86-128
- Unsteady Vortical Flow Around Three-Dimensional Lifting Surfaces J86-127
- Airfoil Computation at High Angles of Attack, Inviscid and Viscous Phenomena J86-126
- Simulation of Inviscid Vortex-Stretched Turbulent Shear-Layer Flow J86-115
- Dynamic Stall Inception Correlation for Airfoils Undergoing Constant Pitch Rate Motions J86-114
- Finite Element Solutions of Euler Equations for Lifting Airfoils J86-097
- Euler and Navier-Stokes Solutions for Flow over a Conical Delta Wing J86-096
- Aerodynamic Characteristics of a Flexible Membrane Wing J86-095
- Euler Calculations for Multielement Airfoils Using Cartesian Grids J86-060
- The Response of Airfoils to Periodic Disturbances--The Unsteady Kutta Condition J86-031

Aeroelasticity

- The Role of Damping on Supersonic Panel Flutter J85-295

Flight Displays

- Computation of Choked and Supersonic Turbomachinery Flows by a Modified Potential Method J85-034

Propeller and Rotor Systems

- Application of Time-Domain Unsteady Aerodynamics to Rotary-Wing Aeroelasticity J86-255

- Finite Element Navier-Stokes Calculation of Three-Dimensional Turbulent Flow Near a Propeller J86-253
- Measurements of Three-Dimensional Turbulent Flow Behind a Propeller in a Shear Flow J86-098

Fluid Dynamics

Aeroacoustics

- The Effect of Phase-Difference on the Spreading Rate of a Jet J86-353
- Phase Averaged Transverse Vorticity Measurements in an Excited, Two-Dimensional Mixing Layer J86-289
- Interactions of Coupled Acoustic and Vortical Instability J86-285
- Investigation of the Acoustic Boundary Layer in Porous-Walled Ducts with Flow J86-264
- Two-Dimensional Blade-Vortex Flow Visualization Investigation J86-263
- Turbulent Flow Around a Wing/Fuselage-Type Junction J86-260
- Observations on the Structure of an Edge-Tone Flowfield J86-243
- Effect of Blunt Trailing Edge on Rotor Broadband Noise J86-241
- Noise Control Characteristics of Synchrophasing, Part 2: Experimental Investigation J86-223
- An Iterative Finite Element-Integral Technique for Predicting Sound Radiation from Turbofan Inlets in Steady Flight J86-221
- Nonisentropic Propagation of Sound in Uniform Ducts Using Euler Equations J86-188
- Noise Control Characteristics of Synchrophasing, Part 1: Analytical Investigation J86-184
- Numerical Evaluation of Propeller Noise Including Nonlinear Effects J86-178
- The Influence of Source Location on the Structural-Acoustic Interaction of Cylinders J86-162
- Flight Effects on Noise from Coaxial Dual Flow, Part II: Heated Jets J86-160
- Fine Structure of Subsonic Jet Noise J86-144
- Flight Effects on Noise from Coaxial Dual Flow Part I: Unheated Jets J86-133
- Wave Envelope and Finite Element Approximations for Turbofan Noise Radiation in Flight J86-132
- Frequency Characteristics of Discrete Tones Generated in a High Subsonic Jet J86-122
- Turbulent Boundary-Layer Wall Pressure Fluctuations Downstream of a Tandem LEBU J86-120
- Prediction of Advanced Propeller Noise in the Time Domain J86-099
- Higher Order Parabolic Approximations for Sound Propagation in Stratified Moving Media J86-040
- Airfoil Tip Vortex Formation Noise J86-039
- Pressure Fluctuations on Hypersonic Vehicles Due to Boundary-Layer Instabilities J86-028

- Time-Dependent Wave Envelope Finite Difference Analysis of Sound Propagation J86-005
- Laser Velocimeter Measurements of Large-Scale Structures in a Tone-Excited Jet J86-004

Boundary Layers and Convective Heat Transfer-Laminar

- Boundary-Layer Flow Past a Cylinder with Massive Blowing J86-338
- Determination of the Separation Point in Laminar Boundary-Layer Flows J86-291
- Variational Solution of Blasius Flow for Skin Friction and Heat Transfer J86-259
- Navier-Stokes Solutions for Laminar Incompressible Flows in Forward-Facing Step Geometries J86-191
- Coupling Conditions for Integrating Boundary Layer and Rotational Inviscid Flow J86-173
- Forced Convection over Rotating Bodies with Blowing and Suction J86-147
- Calculation of Separation Bubbles Using Boundary-Layer-Type Equations J86-100
- Reversed Flow Above a Plate with Suction J86-052
- Subcooled Forced-Convection Film Boiling in the Presence of a Pressure Gradient J86-037
- Heat Transfer Due to Axial Turbulent Flow Along a Circular Rod J86-027
- Improved Series Solutions of Falkner-Skan Equation J85-162

Boundary Layers and Convective Heat Transfer-Turbulent

- Synthetically Generated Turbulent Boundary-Layer Development and Structure J86-359
- Compressible Separated Flows J86-357
- Turbulence Modeling for Complex Shear Flows J86-349
- Comparison of Pressure-Strain Correlation Models for the Flow Behind a Disk J86-336
- Separated Flow Treatment with a New Turbulence Model J86-306
- Inverse Mode Calculations of the Incompressible Turbulent Boundary Layer on an Ellipsoid J86-290
- Two-Dimensional Separating Turbulent Boundary Layers J86-288
- Turbulent Time Scale for Turbulent-Flow Calculations J86-287
- Investigation of Surface Roughness Effects on Adiabatic Wall Temperature J86-278
- Modification of the Karman-Vortex Street in the Freestream J86-276
- Turbulent Boundary-Layer Modification by Surface Riblets J86-242
- Airfoil Trailing-Edge Flow Measurements J86-218
- Shock/Turbulent Boundary-Layer Interaction with Wall Function Boundary Conditions J86-212
- Surface Renewal Model for Turbulent Boundary-Layer Flow J86-208

- The Effects of Cylindrical Surface Modifications on Turbulent Boundary Layers **J86-187**
- Triple-Velocity Products in a Channel with a Backward-Facing Step **J86-177**
- Pressure-Strain Correlations in Curved Wall Boundary Layers **J86-164**
- Viscous/Inviscid Analysis of Transonic Shock-Induced Separation Including Normal Pressure Gradients **J86-135**
- Modification of Vortex Interactions in a Reattaching Separated Flow **J86-106**
- Limitations of the Near-Wall κ - ϵ Turbulence Model **J86-105**
- Discrimination of Coherent Features in Turbulent Boundary Layers by the Entropy Method **J86-064**
- Application of Two-Dimensional Velocity Profile to Three-Dimensional Boundary-Layer Flow **J86-063**
- Effective Velocity of Transport in Curved Wall Boundary Layers **J86-062**
- Turbulence Models for Wall Boundary Layers **J86-061**
- A Study of Compressible Turbulent Reattaching Free Shear Layers **J86-041**
- Similarity of Quasiconical Shock Wave/Turbulent Boundary-Layer Interactions **J86-007**
- Conical Similarity of Shock/Boundary-Layer Interactions Generated by Swept and Unswept Fins **J85-179**
- Turbulence Modeling for Three-Dimensional Shear Flows over Curved Rotating Bodies **J84-295**

Boundary-Layer Stability and Transition

- Spacing of Streamwise Vortices on Concave Walls **J86-304**
- Modeling of Transition and Surface Roughness Effects in Boundary-Layer Flows **J86-292**
- Flow Induced at a Wall by a Vortex Pair **J86-286**
- Active Transition Fixing and Control of the Boundary Layer in Air **J86-284**
- Numerical Simulation of Boundary-Layer Excitation by Surface Heating/Cooling **J86-189**
- Experimental Studies of Spontaneous and Forced Transition on an Axisymmetric Body **J86-067**
- Effect of Suction and Weak Mass Injection on Boundary-Layer Transition **J86-065**
- Numerical-Perturbation Technique for Stability of Flat-Plate Boundary Layers with Suction **J86-034**
- Experiments on the Stability of the Flat-Plate Boundary Layer with Suction **J86-033**

Computational Methods

- Incremental Multigrid Strategy for the Fluid Dynamic Equations **J86-367**
- Artificial Dissipation Models for the Euler Equations **J86-352**
- Multigrid Solution of the Euler Equations Using Implicit Schemes **J86-316**
- Grid Size Dependence on Convergence for Computation of the Navier-Stokes Equations **J86-303**
- Influence of Trailing-Edge Meshes on Skin Friction in Navier-Stokes Calculations **J86-277**
- Comparison of Finite Volume Flux Vector Splittings for the Euler Equations **J86-261**
- Convergence Acceleration for a Three-Dimensional Euler/Navier-Stokes Zonal Approach **J86-257**

- Numerical Solution to Rarefaction or Shock Wave/Duct Area-Change Interaction **J86-245**
- Numerical Studies of Motion and Decay of Vortex Filaments **J86-226**
- Computations of the Contraction Coefficient of Unsymmetrical Bends **J86-225**
- Generation of Computational Grids Using Optimization **J86-185**
- An Accurate Spatial Differencing Scheme for a Three-Dimensional Full Potential Equation **J86-182**
- Three-Dimensional Adaptive Grid Method **J86-161**
- Direct and Inverse Problem in Supersonic Axisymmetric Flow **J86-146**
- Counterrotating Streamline Pattern in a Transitional Separation Bubble **J86-145**
- An Incremental Block-Line-Gauss-Seidel Method for the Navier-Stokes Equations **J86-134**
- An Implicit Form for the Osher Upwind Scheme **J86-130**
- Finite Volume Solution of the Two-Dimensional Euler Equations on a Regular Triangular Mesh **J86-104**
- Shock Waves in Transonic Channel Flows at Moderate Reynolds Numbers **J86-101**
- Local Cell Orientation Method **J86-089**
- A Perturbative Lambda Formulation **J86-069**
- Application of a Variational Method for Generating Adaptive Grids **J86-068**
- Numerical Simulation of Leading-Edge Vortex Flows **J86-038**
- Implicit Conservative Schemes for the Euler Equations **J86-035**
- An Implicit LU Scheme for the Euler Equations Applied to Arbitrary Cascades **J86-006**
- Vectorized Schemes for Conical Potential Flow Using the Artificial Density Method **J86-002**
- A Strongly Implicit Procedure for the Compressible Navier-Stokes Equations **J86-001**
- Computation of Choked and Supersonic Turbomachinery Flows by a Modified Potential Method **J85-034**
- Turbulence Modeling for Three-Dimensional Shear Flows over Curved Rotating Bodies **J84-295**

Hydrodynamics

- Algorithm for Energy-Derived Potential Flow Hydrodynamic Coefficients **J86-183**

Jets, Wakes, and Viscid-Inviscid Flow Interactions

- Turbulence Intensities in the Near-Wake of a Semielliptical Afterbody **J86-366**
- Transient Behavior of Liquid Jets Injected Normal to a High-Velocity Gas Stream **J86-358**
- Augmented Thrust and Mass Flow Associated with Two-Dimensional Jet Reattachment **J86-356**
- Control of Coherent Structures in Reattaching Laminar and Turbulent Shear Layers **J86-355**
- Large-Scale Effects on Local Small-Scale Chaotic Solutions to Burgers' Equation **J86-351**
- Interaction Between Two Compressible, Turbulent Free Shear Layers **J86-350**
- Reverse Flow Radius in Vortex Chambers **J86-337**
- Turbulent Mixing in Two-Dimensional Ducts with Transverse Jets **J86-335**

- Characteristics of Jet Impingement in a Side-Dump Combustor **J86-318**
- Wake Periodicity in Subsonic Bluff-Body Flows **J86-302**
- Planar Imaging of a Turbulent Methane Jet **J86-280**
- The Flame Structure and Vorticity Generated by a Chemically Reacting Transverse Jet **J86-268**
- Numerical Simulations of Active Stabilization of Laminar Boundary Layers **J86-267**
- Investigation of Flow Structures of a Basic Annular Jet **J86-266**
- Relative Efficiencies for Parallel and Perpendicular Entrainment Flow Paths **J86-258**
- Local Equilibrium Assumption for Round Jet Calculations **J86-244**
- Passive Control of Jets with Indeterminate Origins **J86-222**
- Parabolized Navier-Stokes Analysis of Three-Dimensional Supersonic and Subsonic Jet Mixing Problems **J86-219**
- Experimental Study of Surface Pressure in Three-Dimensional Turbulent Jet/Boundary Interaction **J86-209**
- Turbulent Flow in Square Ducts After an Expansion **J86-165**
- Behavior of Wall Jet in Laminar-to-Turbulent Transition **J86-159**
- Interaction of Two Nonequal Jets **J86-118**
- Visualization of a Forced Elliptic Jet **J86-117**
- Turbulent Boundary Layers with Vectored Mass Transfer **J86-088**
- An Analytical Model for the Vorticity Associated with a Transverse Jet **J86-072**
- Scaling of Impulsively Started, Incompressible, Laminar Round Jets and Pipe Flows **J86-071**
- Interaction of Multiple Supersonic Jets with a Transonic Flowfield **J86-070**
- Formation and Inflammation of a Turbulent Jet **J86-036**
- The Calculation of Turbulent Wakes **J86-032**
- Jet Penetration Height in Transonic Flow **J86-010**
- Conical Similarity of Shock/Boundary-Layer Interactions Generated by Swept and Unswept Fins **J85-179**
- Numerical Simulation of Cold Flow in an Axisymmetric Centerbody Combustor **J85-104**

Multiphase Flows

- Quasi-One-Dimensional Gas/Particle Nozzle Flows with Shock **J86-207**
- A Prediction of Particle Behavior via the Basset-Boussinesq-Oseen Equation **J85-288**

Nonsteady Aerodynamics

- Unsteady Wake Measurements of an Oscillating Flap at Transonic Speeds **J86-348**
- Acceleration-Dependent Fluid Forces **J86-339**
- Transient Induced Drag **J86-210**
- Numerical Simulation of Cold Flow in an Axisymmetric Centerbody Combustor **J85-104**

Nozzle and Channel Flow

- Injection-Induced Flows in Porous-Walled Ducts **J86-320**
- Theoretical and Experimental Description for a Radial Supersonic Flowfield **J86-319**

Formulas for Venting or Charging Gas from a Single Volume J86-305
 Nonuniform Nozzle Flow Effects on Base Pressure at Supersonic Flight Speeds J86-213

Transonic Potential Flow in Hyperbolic Nozzles J86-175
 In-Bore Velocity Measurements in the Wake of a Subsonic Projectile J86-174
 An Experimental Investigation of the Mixing of Coannular Swirling Flows J86-136
 Mach Reflection and Aerodynamic Choking in Two-Dimensional Ducted Flow J86-123
 Analysis of Transonic Flow with Shock in Slender Hyperbolic Nozzles J86-086
 Structure of Self-Excited Oscillations in Transonic Diffuser Flows J86-008

Plasmadynamics and MHD

An Experimental Investigation of Cusped Magnetic Field Discharge Chambers J86-003

Reactive Flows

Spectral Methods for Modeling Supersonic Chemically Reacting Flowfields J86-262
 N Atom Measurements in High-Temperature N₂ Dissociation Kinetics J86-190
 Direct Numerical Simulations of a Reacting Mixing Layer with Chemical Heat Release J86-163

Shock Waves and Detonations

Quasi-Conservative Lambda Formulation J86-224
 Experimental Investigation of Shock-Interface Interactions J86-220
 Navier-Stokes Analysis of Muzzle-Blast-Type Waves J86-138
 Quasilinear Form of Rankine-Hugoniot Jump Conditions J86-121
 Application of Steady Shock Polars to Unsteady Shock Wave Reflections J86-116
 Blast Wave Reflection Trajectories from a Height of Burst J86-103

Subsonic Flow

Wavy Wall Solutions of the Euler Equations J86-368
 Axisymmetric Shear Flow over Spheres and Spheroids J86-107
 Material Contravariant Components: Vorticity Transports and Vortex Theorems J86-087

Supersonic and Hypersonic Flow

Calculation of Supersonic Flows with Strong Viscous-Inviscid Interaction J86-354
 Constant-Density Approximation to Taylor-Maccoll Solution J86-279
 Experimental and Numerical Investigation of Supersonic Turbulent Flow Through a Square Duct J86-269
 Unified Supersonic/Hypersonic Similitude for Oscillating Wedges and Plane Ogives J86-211
 Experimental Study of Supersonic Turbulent Flow on a Blunted Axisymmetric Body J86-137
 Experimental and Computational Study of a Swept Compression Corner Interaction Flowfield J86-131
 A Method for the Design of Shock-Free Slender Bodies of Revolution J86-129
 Transonic, Turbulent Boundary-Layer Separation Generated on an Axisymmetric Flow Model J86-073

Conical Similarity of Shock/Boundary-Layer Interactions Generated by Swept and Unswept Fins J85-179

Transonic Flow

Navier-Stokes Computations of Transonic Flows with a Two-Equation Turbulence Model J86-317
 Transonic Airfoil Calculations Including Wind Tunnel Wall-Interference Effects J86-240
 Far-Field Boundary Conditions for Transonic Lifting Solutions to the Euler Equations J86-186
 Comparative Study Between Two Navier-Stokes Algorithms for Transonic Airfoils J86-102
 Computed and Measured Wall Interference in a Slotted Transonic Test Section J86-074
 A Three-Dimensional Incompressible Navier-Stokes Flow Solver Using Primitive Variables J86-066
 Computation of Choked and Supersonic Turbomachinery Flows by a Modified Potential Method J85-034

Viscous Nonboundary-Layer Flows

Numerical Experiments of Axisymmetric Flow in a Nonuniform Gravitational Field J86-265
 Numerical Solution of Steady Navier-Stokes Problems Using Integral Representations J86-228
 Development of an Iterative Boundary-Layer-Type Solver for Axisymmetric Separated Flows J86-227
 Vorticity with Variable Viscosity J86-176
 Inlet Vortex Formulation due to Ambient Vorticity Intensification J86-119
 Monte Carlo Turbulence Simulation Using Rational Approximations to von Kármán Spectra J86-009
 A Prediction of Particle Behavior via the Basset-Boussinesq-Oseen Equation J85-288

Interdisciplinary Topics

Aerospace Technology Utilization

Two-Dimensional Model of Laser-Sustained Plasmas in Axisymmetric Flowfields J86-231

Analytical and Numerical Methods

A Prediction of Particle Behavior via the Basset-Boussinesq-Oseen Equation J85-288

Lasers and Laser Applications

Theoretical Gain Optimization in CO₂-N₂-H₂ Gasdynamic Lasers with Two-Dimensional Wedge Nozzles J86-369
 Sidewall Muffler Design for Pulsed Exciplex Lasers J86-321
 Power Absorption in Laser-Sustained Argon Plasmas J86-295
 Continuous Wave Laser Gas Heating by Sustained Plasmas in Flowing Argon J86-294
 Laser-Induced Thickness Stretch Motion of a Transversely Constrained Irradiated Slab J86-293
 Convective and Free Surface Instabilities Provoked by Heating Below an Interface J86-230
 Mixing Enhancement in Chemical Lasers, Part I: Experiments J86-193

Performance of High-Power Gas-Flow Spark Gaps J86-192
 Cavity Flow Control for Supersonic Lasers J86-054

Research Facilities and Instrumentation

Migration of the Separation Point on a Deforming Cylinder J86-322
 Noninvasive Experimental Technique for the Measurement of Unsteady Velocity Fields J86-308
 Measurement of the Speed of Sound in Ice J86-307
 Modern Developments in Flow Visualization J86-229
 Mach Number Control of Ludwig Tubes J86-076
 Accuracy and Directional Sensitivity of the Single-Wire Technique J86-075
 Aerodynamic Design of Three-Dimensional Subsonic Wind Tunnel Inlets J86-042
 Resonant Holographic Detection of Hydroxyl Radicals in Reacting Flows J86-011

Propulsion

Airbreathing Propulsion

Rotor Wake Characteristics of a Transonic Axial-Flow Fan J86-325
 Calculating the Statistics of Forced Response of a Mistuned Bladed Disk Assembly J86-324
 Effect of Two Endwall Contours on the Performance of an Annular Nozzle Cascade J86-271
 Laser Anemometer Measurements in a Compressor Rotor Flowfield at Off-Design Conditions J86-232
 Laser Doppler Velocimeter Measurement in the Tip Region of a Compressor Rotor J86-139
 Measurements of Mean Velocity and Turbulent Intensities in a Free Isothermal Swirling Jet J86-047
 Unsteady Transonic Flow over Cascade Blades J86-046
 Aerodynamic Performance of an Annular Flat Plate Airfoil Cascade with Nonuniform Inlet Velocity J86-043
 Nonaxisymmetric Compressible Swirling Flow in Turbomachine Annuli J86-013
 Turbulence Modeling for Three-Dimensional Shear Flows over Curved Rotating Bodies J84-295

Combustion and Combustor Designs

Chemical Kinetic Modeling of Higher Hydrocarbon Fuels J86-361
 Two-Dimensional Shear-Layer Entrainment J86-323
 Multiple-Scale Turbulence Model in Confined Swirling Jet Predictions J86-309
 Rocket Motor Flow-Turning Losses J86-246
 Swirl Generator for Independent Variation of Swirl and Velocity Profile J86-214
 CARS Measurements in the Near-Wake Region of an Axisymmetric Bluff-Body Combustor J86-199
 Studies of Turbulent Flow-Flame Interaction J86-198
 Laser Scattering Measurements for Gas Densities in a Swirling Flow Combustor J86-195
 New Formulation for One-Dimensional Premixed Flames J86-194

Laser Measurements and Stochastic Simulations of Turbulent Reacting Flows

J86-158

Laser Measurements on Nonpremixed H_2 Air Flames for Assessment of Turbulent Combustion Models J86-157

Multidimensional Gas Turbine Combustion Modeling: Applications and Limitations

J86-156

Implications of Recent Experimental Results for Modeling Reactions in Turbulent Flows J86-155

The Two-Fluid Model of Turbulence Applied to Combustion Phenomena J86-154

Asymptotic Methods in Turbulent Combustion J86-153

Aluminum Combustion at 40 Atmospheres Using a Reflected Shock Wave J86-148

Theoretical and Experimental Studies on Vortex Chamber Flows J86-108

Calculation of Axisymmetric, Turbulent, Confined Diffusion Flames J86-077

Effects of Electric Fields on the Flame Propagation Velocity of Methane-Air Flame J86-029

Drop-Turbulence Interactions in a Diffusion Flame J86-014

Numerical Simulation of Cold Flow in an Axisymmetric Centerbody Combustor J85-104

Combustion Stability, Ignition, and Detonation

Ignition of a Fuel Spray by a Hot Surface J86-360

Coalescence/Dispersion Modeling of Turbulent Combustion in Jet-Stirred Reactor J86-327

Detonability of RDX Dust in Air/Oxygen Mixtures J86-326

Particle Radiative Feedback in Ammonium Perchlorate Deflagration J86-197

Flow Structure in Near-Nozzle Region of Gas Jet Flames J86-196

Intermittency and Conditional Averaging in a Turbulent Nonpremixed Flame by Raman Scattering J86-140

Experimental Verification of Temperature Fluctuations During Combustion Instability J86-055

The Viscous Wall-Layer Effect in Injected Porous Pipe Flow J86-045

The Deflagration-to-Detonation Transition Process for High-Energy Propellants--A Review J86-012

Electric and Advanced Space Propulsion

Calculation of Plasma Properties in Ion Sources J86-270

The Effect of Discharge Chamber Wall Temperature on Ion Thruster Performance J86-044

Fuels and Propellants, Properties of

Optical Constants of Propellant-Grade Ammonium Perchlorate J86-340

Solid and Hybrid Rocket Engines

Low-Pressure Burning of Catalyzed Composite Propellants J86-296

Spiral Vortices and Liquid Breakup J86-149

Spacecraft Technology

Dynamics and Control

Stiffness Matrix Adjustment Using Mode Data J85-252

Structural Mechanics and Materials

Aeroelasticity and Hydroelasticity

Application of Diverging Motions to Calculate Loads for Oscillating Motions J86-312

Role of Shocks in Transonic/Supersonic Compressor Rotor Flutter J86-203

Weight Minimization of Orthotropic Flat Panels Subjected to a Flutter Speed Constraint J86-167

An Iterative Procedure for Nonlinear Flutter Analysis J86-142

Computation of Second-Order Accurate Unsteady Aerodynamic Generalized Forces J86-082

Materials, Properties of

Bounding Solutions of Geometrically Nonlinear Viscoelastic Problems J86-331

Structural Composite Materials

Arbitrarily Laminated, Anisotropic Cylindrical Shell Under Internal Pressure J86-332

Nonlinear Finite Element Analysis of Thick Composite Plates Using Cubic Spline Functions J86-330

Importance of Anisotropy on Buckling of Compression-Loaded Symmetric Composite Plates J86-329

Experimental Investigation on Advanced Composite-Stiffened Structures Under Uniaxial Compression and Bending J86-328

Buckling of Composite Plates Using Shear Deformable Finite Elements J86-311

Large-Amplitude Dynamic Analysis of Composite Moderately Thick Elliptical Plates J86-300

Optimum Design of Composite Honeycomb Sandwich Panels Subjected to Uniaxial Compression J86-299

Nonlinear Theory for Plates and Shells Including the Effects of Transverse Shearing J86-273

Critical Shear Loading of Curved Sandwich Panels Faced with Fiber-Reinforced Plastic J86-272

Stress Analysis of a Mode I Edge Delamination Specimen for Composite Materials J86-200

Low-Velocity Impact Damage in Graphite-Epoxy Laminates Subjected to Tensile Initial Stresses J86-078

Eigenvalue Similarity Rules for Symmetric Cross-Ply Laminated Plates J86-021

Ultimate Axial Load Capacity of a Delaminated Beam-Plate J86-017

Compression Behavior of $\pm 45^\circ$ -Dominated Laminates with a Circular Hole or Impact Damage J86-016

Transient Thermal Behavior of Directional Reinforced Composites: Applicability Limits of Homogeneous Property Model J86-015

Buckling of Composite Plates with a Free Edge in Edgewise Bending and Compression J84-076

Transient Thermal Behavior of Directional Reinforced Composites: Applicability Limits of Homogeneous Property Model J86-015

Buckling of Composite Plates with a Free Edge in Edgewise Bending and Compression J84-076

Transient Thermal Behavior of Directional Reinforced Composites: Applicability Limits of Homogeneous Property Model J86-015

Buckling of Composite Plates with a Free Edge in Edgewise Bending and Compression J84-076

Transient Thermal Behavior of Directional Reinforced Composites: Applicability Limits of Homogeneous Property Model J86-015

Buckling of Composite Plates with a Free Edge in Edgewise Bending and Compression J84-076

Transient Thermal Behavior of Directional Reinforced Composites: Applicability Limits of Homogeneous Property Model J86-015

Buckling of Composite Plates with a Free Edge in Edgewise Bending and Compression J84-076

Transient Thermal Behavior of Directional Reinforced Composites: Applicability Limits of Homogeneous Property Model J86-015

Buckling of Composite Plates with a Free Edge in Edgewise Bending and Compression J84-076

Transient Thermal Behavior of Directional Reinforced Composites: Applicability Limits of Homogeneous Property Model J86-015

Buckling of Composite Plates with a Free Edge in Edgewise Bending and Compression J84-076

Hybrid Singular Element Design for the Bending Analysis of Bimaterial Thin Cracked Plates J86-248

Stress Analysis Method for a Clearance-Fit Bolt Under Bearing Loads J86-234

First- and Second-Order Sensitivity Analysis of Linear and Nonlinear Structures J86-204

Geometric Programming Strategies in Large-Scale Structural Synthesis J86-202

Design Derivatives of Eigenvalues and Eigenfunctions for Self-Adjoint Distributed Parameter Systems J86-201

Comparison Between the Variational and Implicit Differentiation Approaches to Shape Design Sensitivities J86-172

Computational Method for Optimization of Structural Shapes J86-169

Eigenvalue Reanalysis of Locally Modified Structures Using a Generalized Rayleigh's Method J86-166

Sensitivity Analysis of Discrete Structural Systems J86-141

Design-Oriented Identification of Critical Times in Transient Response J86-110

Finite Element Analysis of Elastoplastic Contact Problems with Friction J86-057

Structural Durability (including Fatigue and Fracture)

Fatigue Lifetime Estimation of Structures Subjected to Dynamic Loading J86-236

Structural Dynamics

Dynamic Analysis Using a Reduced Basis of Exact Modes and Ritz Vectors J86-364

Equilibrium Configurations and Energies of the Rotating Elastic Cable in Space J86-362

Identification of Structural Dynamic Systems with Nonproportional Damping J86-341

An Approach for Reducing Computational Requirements in Modal Identification J86-313

Free Vibration of Rectangular Plates with Two Symmetrically Distributed Clamps Along One Edge J86-298

Optimal Structural Modifications to Enhance the Active Vibration Control of Flexible Structures J86-237

Random Response of Beams and Plates with Slipping at Support Boundaries J86-235

Simplified Lattice Beam Elements for Geometrically Nonlinear Static, Dynamic, and Postbuckling Analysis J86-233

Vibration of a Large Space Beam Under Gravity Effect J86-215

Stationary Response to Second-Order Filtered White-Noise Excitation J86-181

Toward a Consistent Plate Theory J86-180

Constraints of the Structural Modal Synthesis J86-179

Component Mode Synthesis of a Vehicle Structural-Acoustic System Model J86-171

Large Amplitude Free Vibrations of Shells of Variable Thickness--A New Approach J86-168

Mean Square Response to Band-Limited White Noise Excitation J86-150

Step Relaxation Method for Modal Test Implemented with Frequency-Domain Preprocessing J86-111

Nonlinear Multimode Response of Clamped Rectangular Plates to Acoustic Loading J86-109

Vibrations of Infinitely Long Cylindrical Shells of Noncircular Cross Section J86-092

- A Generalization of Caughey's Normal Mode Approach to Nonlinear Random Vibration Problems **J86-090**
- Effects of Structural Modes on Vibratory Force Determination by the Pseudoinverse Technique **J86-084**
- Double Least Squares Approach for Use in Structural Modal Identification **J86-083**
- Free Vibration of Stiffened Rectangular Plates Using Green's Functions and Integral Equations **J86-081**
- Complex Modal Analysis of Random Vibrations **J86-056**
- Penalty Finite Element Models for Nonlinear Dynamic Analysis **J86-049**
- Natural Vibration and Buckling of General Periodic Lattice Structures **J86-023**
- Identification of Nonlinear Structural Elements by Force-State Mapping **J86-022**
- Modeling Global Structural Damping in Trusses Using Simple Continuum Models **J86-020**
- Stiffness Matrix Adjustment Using Mode Data **J85-252**

Structural Stability

- Postbuckling of Thick Circular Plates with Edges Restrained Against Rotation **J86-342**
- Analogy for Postbuckling Structural Resistance Capability **J86-310**
- Postbuckling Analysis Using a General-Purpose Code **J86-170**
- Buckling of Irregular Plates by Splined Finite Strips **J86-091**

- Nonlinear and Buckling Analysis of Continuous Bars Lying on Rigid Supports **J86-080**
- Formulation of an Imperfect Quadrilateral Doubly Curved Shell Element for Postbuckling Analysis **J86-048**
- Buckling of Quasisinusoidally Corrugated Plates in Shear **J86-019**
- Buckling of Composite Plates with a Free Edge in Edgewise Bending and Compression **J84-076**

Structural Statics

- Stress Analysis of Short Beams **J86-247**
- Generic Kármán-Rostovstev Plate Equations in an Affine Space **J86-079**
- The Variational Energy Formulation for the Integrated Force Method **J86-018**
- Stiffness Matrix Adjustment Using Mode Data **J85-252**

Thermal Stresses

- Transient Thermal Behavior of a Thermally and Elastically Orthotropic Medium **J86-112**

Thermophysics and Thermochemistry

Ablation, Pyrolysis, Thermal Decomposition and Degradation (including Refractories)

- Pyrolysis-Induced Fragmentation and Blow-off of Laser-Irradiated Surfaces **J86-334**
- Reaction of High-Velocity Atomic Oxygen with Carbon **J86-113**

Heat Conduction

- Contact Heat Transfer--The Last Decade **J86-085**
- Transient Conduction in a Cylinder in an Infinite Conductive Medium with Contact Resistance **J86-059**
- Transient Heat-Transfer Analysis of a Conical Cathode of an MPD Arcjet **J86-058**
- Green's Functions and Numbering System for Transient Heat Conduction **J86-051**
- Combined Function Specification-Regularization Procedure for Solution of Inverse Heat Conduction Problem **J86-026**

Radiation and Radiative Heat Transfer

- Evaluation of Emission Integrals for the Radiative Transport Equation **J86-371**
- Radiative Entropy Production **J86-333**

Thermal Modeling and Analysis

- Scaling Relations for Heating During Gliding Entry at Parabolic Speed **J86-370**
- Improved Forced Convective Heat-Transfer Correlations for Liquids in the Near-Critical Region **J86-365**
- Analytical and Numerical Solutions for Natural Convection in a Corner **J86-143**
- Thermophoretically Augmented Mass Transfer Rates to Solid Walls Across Laminar Boundary Layers **J86-025**
- Convection in Eccentric Annuli with Inner Cylinder Rotation **J86-024**

Thermophysical Properties of Matter

- A Method for Measuring Optical Properties of Semitransparent Materials at High Temperatures **J86-050**