

2009 Journal of Propulsion and Power Index

How to Use the Index

In the Subject Index, pages 1363–1368, each technical paper is listed under a maximum of three appropriate headings. Note the locating number in boldface type preceding each paper title, and use that number to find the paper in the Chronological Index. The Author Index, pages 1369–1370, lists all authors associated with a given technical paper. The locating numbers are identical to those in the Subject Index. The Chronological Index, pages 1371–1376, also lists all papers by their locating 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. 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 2009, that paper also will appear in both the Subject and Chronological Indexes. Authors of Comments also are listed in the Author Index.

Subject Index

AIRCRAFT TECHNOLOGY, CONVENTIONAL, STOL/VTOL

Aerodynamics

- B09-118** Comparison of Several Optimization Strategies for Robust Turbine Blade Design
B09-068 Experimental Investigations of Pressure Distortions on the High-Pressure Compressor Operating Behavior
B09-067 Development and Application of an Arbitrary Lagrangian Eulerian Solver for Turbomachinery Aeromechanics
B09-023 Reduced-Order Model for Combustion Instability in a Two-Dimensional Duct with a Flameholder
B09-071 Experimental and Numerical Study of Jet Mixing from a Shock-Containing Nozzle
B09-099 Effect of Tabs on Rectangular Jet Plume Development

Aeroelasticity and Aeroservoelasticity

- B09-031** New Simulation Strategy for an Oscillating Cascade in Turbomachinery Using Immersed-Boundary Method

Aerospace Plane

- B09-134** Air-Hydrogen Heat Exchangers for Advanced Space Launchers

Air Transportation

- B09-121** Chemical Properties of Aircraft Engine Particulate Exhaust Emissions

Airframe-Propulsion Integration

- B09-019** Experimental Investigation of Embedded Crossflow Fan for Airfoil Propulsion/Circulation Control

Flow Control

- B09-019** Experimental Investigation of Embedded Crossflow Fan for Airfoil Propulsion/Circulation Control
B09-070 Flow Characteristics of Tip Injection on Compressor Rotating Spike via Time-Accurate Simulation
B09-099 Effect of Tabs on Rectangular Jet Plume Development

Fuels and Fuel Systems

- B09-111** Thermophysical Properties Measurements of Rocket Propellants RP-1 and RP-2

Noise

- B09-074** Design of Quiet Propeller for an Electric Mini Unmanned Air Vehicle
B09-021 Time Delay Analysis of Turbofan Engine Direct and Indirect Combustion Noise Sources
B09-037 Combustion-Noise Characterization of a Turbofan Engine with a Spectral Estimation Method

Performance

- B09-027** Probabilistic Aspects of Scramjet Design
B09-068 Experimental Investigations of Pressure Distortions on the High-Pressure Compressor Operating Behavior

Powerplant Integration

- B09-148** Optimum Design of Turboprop Engines Using Genetic Algorithm

Propeller and Rotor Systems

- B09-022** Shroud and Ejector Augmenters for Subsonic Propulsion and Power Systems
B09-074 Design of Quiet Propeller for an Electric Mini Unmanned Air Vehicle

Simulation

- B09-023** Reduced-Order Model for Combustion Instability in a Two-Dimensional Duct with a Flameholder
B09-106 Bayesian Framework for Calibration of Gas Turbine Simulator
 Testing, Flight and Ground
B09-037 Combustion-Noise Characterization of a Turbofan Engine with a Spectral Estimation Method

Uninhabited and Unmanned Air Vehicles

- B09-019** Experimental Investigation of Embedded Crossflow Fan for Airfoil Propulsion/Circulation Control

ENERGY

Alternate Fuels

- B09-111** Thermophysical Properties Measurements of Rocket Propellants RP-1 and RP-2

Hydrogen and Unique Fuels

- B09-147** Hardware-in-the-Loop Testing of a Fuel Cell Aircraft Powerplant

Laser Integration/Systems

- B09-122** Comparative Study of Plastics as Propellants for Laser Ablation Plasma Thrusters

Magnetohydrodynamic Power Generation

- B09-008** Feasibility of an Onboard Surface Hall Magnetohydrodynamic Power Generator in Reentry Flight

Microwaves

- B09-104** System-Level Feasibility Assessment of Microwave Power Beaming for Small Satellites

Rotating Machinery

- B09-017** Aerothermal Analysis of a Partially Shrouded Axial Turbine

Wind Power

- B09-022** Shroud and Ejector Augmenters for Subsonic Propulsion and Power Systems

FLUID DYNAMICS

Aeroacoustics

- B09-082** Passive Control of Pressure Oscillations in Solid Rocket Motors: Cold-Flow Experiments
B09-020 Computational Analyses of Offset-Stream Nozzles for Noise Reduction
B09-021 Time Delay Analysis of Turbofan Engine Direct and Indirect Combustion Noise Sources

Boundary Layers and Heat Transfer-Turbulent

- B09-139** Computational Simulation of Cylindrical Film Hole with Jet Pulsation on Flat Plates
B09-116 Mitigation of Graphite Nozzle Erosion by Boundary-Layer Control in Solid Propellant Rocket Motors

Computational Fluid Dynamics

- B09-137** Simulation of Supersonic Combustion in Three Dimensional Configurations
B09-080 Computational Analysis of the Oxidizer Preflow in an Upper-Stage Rocket Engine
B09-020 Computational Analyses of Offset-Stream Nozzles for Noise Reduction
B09-061 Mixing and Combustion Characteristics of Kerosene in a Model Supersonic Combustor
B09-040 Numerical Study of Plasma Behavior in a Magnetoplasmadynamic Thruster Around Critical Current
B09-005 Large Eddy Simulation of Flow Development in Chamber with Surface Mass Injection
B09-004 Chemical Erosion of Refractory-Metal Nozzle Inserts in Solid-Propellant Rocket Motors
B09-070 Flow Characteristics of Tip Injection on Compressor Rotating Spike via Time-Accurate Simulation

Hydrodynamics

- B09-018** Effects of Floating-Ring Seal Clearance on the Pump Performance for Turbopumps
B09-002 Effect of Recess in High-Pressure Liquid Oxygen/Methane Coaxial Injection and Combustion
B09-096 Effect of Chamber Backpressure on Swirl Injector Fluid Mechanics

Inlet, Nozzle, Diffuser, and Channel Flows

- B09-144** Numerical Investigation of Roll Torque Induced by Solid Rocket Motor Internal Flow
B09-030 Influence of Heat Capacity Ratio on Pressure and Nozzle Flow of a Scramjets
B09-026 Measurement of Flow Properties and Thrust on Scramjet Nozzle Using Pressure-Sensitive Paint
B09-057 Experimental Study of a Mach 3 Bump-Compression Flowfield
B09-086 Buzz Instability in a Mixed-Compression Air Intake
B09-013 Oscillatory Flows of Rectangular Hypersonic Inlet Unstart Caused by Downstream Mass-Flow Choking
B09-072 Optimization of Second Throat Ejectors for High-Altitude Test Facility
B09-098 Rotational Flowfields in Porous Channels with Arbitrary Headwall Injection
B09-073 Compressible Flow Structures Interaction with a Two-Dimensional Ejector: A Cold-Flow Study
B09-081 Performance Characteristics of an Annular Conical Aerospike Nozzle with Free-stream Effect
B09-020 Computational Analyses of Offset-Stream Nozzles for Noise Reduction
B09-120 Infrared Thermography and Pitot Pressure Measurements of a Scramjet Nozzle Flowfield
B09-113 Study of Restricted Shock Separation Phenomena in a Thrust Optimized Parabolic Nozzle
B09-015 Analytic Model for Single-Cycle Detonation Tube with Diverging Nozzles

Jets, Wakes, and Viscid-Inviscid Flow Interactions

- B09-119** Vane Clocking in a Three-Stage Compressor: Frequency Domain Data Analysis

- B09-071** Experimental and Numerical Study of Jet Mixing from a Shock-Containing Nozzle
B09-096 Effect of Chamber Backpressure on Swirl Injector Fluid Mechanics
B09-098 Rotational Flowfields in Porous Channels with Arbitrary Headwall Injection

Multiphase Flows

- B09-025** Spray Structure in Near-Injector Region of Aerated Jet in Subsonic Crossflow
B09-080 Computational Analysis of the Oxidizer Preflow in an Upper-Stage Rocket Engine
B09-043 Comparison of Several Zero-Boil-Off Pressure Control Strategies for Cryogenic Fluid Storage in Microgravity
B09-091 Reaction Mechanism of Aluminum-Particle-Air Detonation
B09-097 Experimental Characterization of a Two-Phase Flowfield in a Solid Rocket Motor Model

Plasmadynamics and MHD

- B09-109** Operation of an Annular Helicon Plasma Source
B09-039 Langmuir Probe Studies of Magnetic Confinement in an Ion Thruster Discharge Plasma
B09-008 Feasibility of an Onboard Surface Hall Magnetohydrodynamic Power Generator in Reentry Flight
B09-056 Wall-Propelled, In-Tube Propulsion with Repetitive-Pulse Laser Ablation
B09-040 Numerical Study of Plasma Behavior in a Magnetoplasmadynamic Thruster Around Critical Current

Rarefied Flows

- B09-075** Thrust Measurement of the Hybrid Electric Thruster TIHTUS by a Baffle Plate

Reacting Flows and Combustion

- B09-089** Liquid Monopropellant Combustion in Mesoscale Vortex Chamber
B09-124 Vortical Structure of Reacting Flow in a Sudden-Expansion Combustor with Solid Fuel
B09-137 Simulation of Supersonic Combustion in Three Dimensional Configurations
B09-007 Diffusion Flame Calculations for Composite Propellants Using a Vorticity-Velocity Formulation
B09-032 Reacting Mixing-Layer Computations in a Simulated Turbine-Stator Passage
B09-061 Mixing and Combustion Characteristics of Kerosene in a Model Supersonic Combustor
B09-088 Condensation-Induced Surface Boiling of Alcohol Fuel Droplets in Combustion Chambers

Separated Flows

- B09-113** Study of Restricted Shock Separation Phenomena in a Thrust Optimized Parabolic Nozzle
B09-141 Transient Three-Dimensional Side-Load Analysis of a Film-Cooled Nozzle
B09-142 Thrust Measurement of a Multicycle Partially Filled Pulse Detonation Rocket Engine

Shock Waves and Detonations

- B09-090** Review of Recent Developments in Wave Rotor Combustion Technology
B09-141 Transient Three-Dimensional Side-Load Analysis of a Film-Cooled Nozzle
B09-142 Thrust Measurement of a Multicycle Partially Filled Pulse Detonation Rocket Engine

- B09-014** Pressure Measurements and Attenuation in a Hybrid Multitube Pulse Detonation Turbine System
B09-073 Compressible Flow Structures Interaction with a Two-Dimensional Ejector: A Cold-Flow Study
B09-091 Reaction Mechanism of Aluminum-Particle-Air Detonation

Subsonic Flow

- B09-022** Shroud and Ejector Augmenters for Subsonic Propulsion and Power Systems

Supersonic Flow

- B09-099** Effect of Tabs on Rectangular Jet Plume Development
B09-057 Experimental Study of a Mach 3 Bump-Compression Flowfield
B09-075 Thrust Measurement of the Hybrid Electric Thruster TIHTUS by a Baffle Plate
B09-061 Mixing and Combustion Characteristics of Kerosene in a Model Supersonic Combustor
B09-095 In-Stream Hypermixer Fueling Pylons in Supersonic Flow

Transonic Flow

- B09-069** Shock/Boundary-Layer/Tip-Clearance Interaction in a Transonic Rotor Blade

Unsteady Flows

- B09-067** Development and Application of an Arbitrary Lagrangian Eulerian Solver for Turbomachinery Aeromechanics
B09-086 Buzz Instability in a Mixed-Compression Air Intake
B09-145 Single-Phase Internal Flowfield Validation with an Experimental Solid Rocket Motor Model
B09-141 Transient Three-Dimensional Side-Load Analysis of a Film-Cooled Nozzle
B09-071 Experimental and Numerical Study of Jet Mixing from a Shock-Containing Nozzle
B09-031 New Simulation Strategy for an Oscillating Cascade in Turbomachinery Using Immersed-Boundary Method
B09-073 Compressible Flow Structures Interaction with a Two-Dimensional Ejector: A Cold-Flow Study
B09-113 Study of Restricted Shock Separation Phenomena in a Thrust Optimized Parabolic Nozzle

Vortices

- B09-098** Rotational Flowfields in Porous Channels with Arbitrary Headwall Injection
B09-145 Single-Phase Internal Flowfield Validation with an Experimental Solid Rocket Motor Model
B09-095 In-Stream Hypermixer Fueling Pylons in Supersonic Flow
B09-097 Experimental Characterization of a Two-Phase Flowfield in a Solid Rocket Motor Model
B09-124 Vortical Structure of Reacting Flow in a Sudden-Expansion Combustor with Solid Fuel

GUIDANCE, CONTROL, AND DYNAMICS TECHNOLOGY

Artificial Intelligence

- B09-033** Gas Turbine Fault Diagnosis Using Fuzzy-Based Decision Fusion

Control System Sensors

B09-114 Flame Spectra of a Turbulent Liquid-Fueled Swirl-Stabilized Lean-Direct Injection Combustor

Engine Control

B09-140 Forced Flame Response of Turbulent Liquid-Fueled Lean-Direct-Injection Combustion to Fuel Modulations

Soft Computing

B09-033 Gas Turbine Fault Diagnosis Using Fuzzy-Based Decision Fusion

INTERDISCIPLINARY TOPICS

Analytical and Numerical Methods

B09-131 Numerical Simulation of SMART-1 Hall-Thruster Plasma Interactions

B09-038 Influence of Electrode Shape on Performance of Pulsed Magnetoplasmadynamic Thruster SIMP-LEX

B09-125 Singular Spectrum Analysis Applied to Time-Series Measurements in a Self-Excited Tube Combustor

Environmental Effects

B09-121 Chemical Properties of Aircraft Engine Particulate Exhaust Emissions

B09-065 Performance Evaluation of a Fast Mobility-Based Particle Spectrometer for Aircraft Exhaust

Lasers and Laser Applications

B09-093 Oxygen/Hydrogen-Planar-Laser-Induced Fluorescence Measurements and Accuracy Investigation in High-Pressure Combustion

B09-092 Temperature Measurements in a Gas-Turbine-Combustor Sector Rig Using Swept-Wavelength Absorption Spectroscopy

B09-041 Impulse Generation on Aluminum Target Irradiated with Nd:YAG Laser Pulse in Ambient Gas

B09-056 Wall-Propelled, In-Tube Propulsion with Repetitive-Pulse Laser Ablation

B09-122 Comparative Study of Plastics as Propellants for Laser Ablation Plasma Thrusters

Multidisciplinary Design Optimization

B09-074 Design of Quiet Propeller for an Electric Mini Unmanned Air Vehicle

B09-017 Aerothermal Analysis of a Partially Shrouded Axial Turbine

B09-118 Comparison of Several Optimization Strategies for Robust Turbine Blade Design

Research Facilities and Instrumentation

B09-065 Performance Evaluation of a Fast Mobility-Based Particle Spectrometer for Aircraft Exhaust

B09-147 Hardware-in-the-Loop Testing of a Fuel Cell Aircraft Powerplant

B09-087 Development of a Specific Impulse Balance for Capillary Discharge Pulsed Plasma Thrusters

Sensor Systems

B09-092 Temperature Measurements in a Gas-Turbine-Combustor Sector Rig Using Swept-Wavelength Absorption Spectroscopy

LAUNCH VEHICLE AND MISSILE (LV/M) TECHNOLOGY

Propulsion and Propellant Systems

B09-151 Transient Behavior of H₂O₂ Thruster: Effect of Injector Type and Ullage Volume

B09-002 Effect of Recess in High-Pressure Liquid Oxygen/Methane Coaxial Injection and Combustion

B09-134 Air-Hydrogen Heat Exchangers for Advanced Space Launchers

B09-144 Numerical Investigation of Roll Torque Induced by Solid Rocket Motor Internal Flow

B09-112 Scaling and Evaluation of Pt/Al₂O₃ Catalytic Reactor for Hydrogen Peroxide Monopropellant Thruster

B09-054 Compatibility of Glycidyl Azide Polymer with Hydroxyl Terminated Polybutadiene and Plasticizers

B09-081 Performance Characteristics of an Annular Conical Aerospike Nozzle with Free-stream Effect

Simulation

B09-072 Optimization of Second Throat Ejectors for High-Altitude Test Facility

Testing, Flight and Ground

B09-072 Optimization of Second Throat Ejectors for High-Altitude Test Facility

B09-016 Performance Validation of a Single-Tube Pulse Detonation Rocket System

Thermal Protection Systems

B09-116 Mitigation of Graphite Nozzle Erosion by Boundary-Layer Control in Solid Propellant Rocket Motors

B09-082 Passive Control of Pressure Oscillations in Solid Rocket Motors: Cold-Flow Experiments

PROPULSION

Advanced Space Propulsion

B09-045 Film Cooling of Accelerated Flow in a Subscale Combustion Chamber

B09-102 Zero-Dimensional Time-Dependent Model of High-Pressure Ablative Capillary Discharge for Plasma Thrusters

B09-079 Circumferential Film Cooling Effectiveness in a LOX/H₂ Subscale Combustion Chamber

B09-101 Creation of Onset Voltage Hash by Anode Spots in a Magnetoplasmadynamic Thruster

B09-039 Langmuir Probe Studies of Magnetic Confinement in an Ion Thruster Discharge Plasma

B09-075 Thrust Measurement of the Hybrid Electric Thruster TIHTUS by a Baffle Plate

B09-041 Impulse Generation on Aluminum Target Irradiated with Nd:YAG Laser Pulse in Ambient Gas

B09-055 Thrust Measurement of a Pure Magnetic Sail Using Parallelogram-Pendulum Method

B09-109 Operation of an Annular Helicon Plasma Source

B09-010 Deep Space 1 Flight Spare Ion Thruster 30,000-Hour Life Test

B09-081 Performance Characteristics of an Annular Conical Aerospike Nozzle with Free-stream Effect

Airbreathing Propulsion

B09-028 Experiments on Electrically Controlled Flameholding on a Plane Wall in a Supersonic Airflow

B09-030 Influence of Heat Capacity Ratio on Pressure and Nozzle Flow of a Scramjets

B09-026 Measurement of Flow Properties and Thrust on Scramjet Nozzle Using Pressure-Sensitive Paint

B09-057 Experimental Study of a Mach 3 Bump-Compression Flowfield

B09-142 Thrust Measurement of a Multicycle Partially Filled Pulse Detonation Rocket Engine

B09-105 Emissions Reductions in Diesel and Kerosene Flames Using a Novel Fuel Injector

B09-064 Adaptive Instability Suppression Controls Method For Aircraft Gas Turbine Engine Combustors

B09-124 Vortical Structure of Reacting Flow in a Sudden-Expansion Combustor with Solid Fuel

B09-134 Air-Hydrogen Heat Exchangers for Advanced Space Launchers

B09-100 Tip-Clearance Effects on Hot-Streak Migration in Low-Pressure Stage of Vaneless Counter-Rotating Turbine

B09-069 Shock/Boundary-Layer/Tip-Clearance Interaction in a Transonic Rotor Blade

B09-029 Effects of Upstream Injection on Scramjet Performance Using an Entropy-Based Method

B09-094 Preliminary Investigation on Lithium Hydride as Fuel for Solid-Fueled Scramjet Engines

B09-120 Infrared Thermography and Pitot Pressure Measurements of a Scramjet Nozzle Flowfield

B09-140 Forced Flame Response of Turbulent Liquid-Fueled Lean-Direct-Injection Combustion to Fuel Modulations

B09-035 Experimental Evaluation of a Low Pressure-Swirl Atomizer Applied Engineering Design Procedure

Combined-Cycle Engines

B09-123 Multi-Objective Optimization of Rocket-Based Combined-Cycle Engine Performance Using a Hybrid Evolutionary Algorithm

Combustion and Combustor Designs

B09-089 Liquid Monopropellant Combustion in Mesoscale Vortex Chamber

B09-060 Swept-Leading-Edge Pylon Effects on a Scramjet Pylon-Cavity Flameholder Flowfield

B09-007 Diffusion Flame Calculations for Composite Propellants Using a Vorticity-Velocity Formulation

B09-036 Experimental Investigation of Thermoacoustic Coupling for Low-Swirl Lean Premixed Flames

B09-105 Emissions Reductions in Diesel and Kerosene Flames Using a Novel Fuel Injector

B09-093 Oxygen/Hydrogen-Planar-Laser-Induced Fluorescence Measurements and Accuracy Investigation in High-Pressure Combustion

B09-021 Time Delay Analysis of Turbofan Engine Direct and Indirect Combustion Noise Sources

B09-048 Production, Characterization, and Combustion of Nanoaluminum in Composite Solid Propellants

- B09-046** High-Pressure Supercritical Turbulent Cryogenic Injection and Combustion: A Single-Phase Flow Modeling Proposal
B09-063 Experimental Investigation of a Novel Combustor Model for Gas Turbines
B09-035 Experimental Evaluation of a Low Pressure-Swirl Atomizer Applied Engineering Design Procedure
B09-001 Flame Stabilization in High-Pressure Liquid Oxygen/Methane Rocket Engine Combustion
B09-133 Catalyzed Ignition of Using Methane/Hydrogen Fuel in a Microtube for Microthruster Applications
B09-032 Reacting Mixing-Layer Computations in a Simulated Turbine-Stator Passage
B09-015 Analytic Model for Single-Cycle Detonation Tube with Diverging Nozzles

Combustion Instability

- B09-036** Experimental Investigation of Thermoacoustic Coupling for Low-Swirl Lean Premixed Flames
B09-053 Submerged Combustion and Two-Phase Exhaust Jet Instabilities
B09-064 Adaptive Instability Suppression Controls Method For Aircraft Gas Turbine Engine Combustors
B09-052 Aluminum Combustion Driven Instabilities in Solid Rocket Motors
B09-146 Acoustics, Vortex Shedding, and Low-Frequency Dynamics Interaction in an Unstable Hybrid Rocket
B09-125 Singular Spectrum Analysis Applied to Time-Series Measurements in a Self-Excited Tube Combustor
B09-114 Flame Spectra of a Turbulent Liquid-Fueled Swirl-Stabilized Lean-Direct Injection Combustor
B09-140 Forced Flame Response of Turbulent Liquid-Fueled Lean-Direct-Injection Combustion to Fuel Modulations
B09-149 Measurement of Flame Transfer Functions in Swirl-Stabilized, Lean-Premixed Combustion
B09-110 Simulation of Combustion Instabilities in Liquid Rocket Engines with Acoustic Perturbation Equations

Detonation

- B09-090** Review of Recent Developments in Wave Rotor Combustion Technology
B09-142 Thrust Measurement of a Multicycle Partially Filled Pulse Detonation Rocket Engine
B09-062 Investigation of Self-Sustaining Waves in Metastable Systems: Deflagration to Detonation Transition
B09-014 Pressure Measurements and Attenuation in a Hybrid Multitube Pulse Detonation Turbine System
B09-015 Analytic Model for Single-Cycle Detonation Tube with Diverging Nozzles
B09-016 Performance Validation of a Single-Tube Pulse Detonation Rocket System

Droplet and Spray Characterization

- B09-003** Cryogenic Flow and Atomization from a Coaxial Injector
B09-025 Spray Structure in Near-Injector Region of Aerated Jet in Subsonic Crossflow

- B09-035** Experimental Evaluation of a Low Pressure-Swirl Atomizer Applied Engineering Design Procedure
B09-034 Twin-Fluid Atomization and Novel Lifted Swirl-Stabilized Spray Flames

Ducted Rocket Engines

- B09-123** Multi-Objective Optimization of Rocket-Based Combined-Cycle Engine Performance Using a Hybrid Evolutionary Algorithm

Electric Propulsion

- B09-038** Influence of Electrode Shape on Performance of Pulsed Magnetoplasmadynamic Thruster SIMP-LEX
B09-039 Langmuir Probe Studies of Magnetic Confinement in an Ion Thruster Discharge Plasma
B09-102 Zero-Dimensional Time-Dependent Model of High-Pressure Ablative Capillary Discharge for Plasma Thrusters
B09-077 Validating a Plasma Momentum Flux Sensor to an Inverted Pendulum Thrust Stand
B09-087 Development of a Specific Impulse Balance for Capillary Discharge Pulsed Plasma Thrusters
B09-009 Environmental Testing of NASA's Evolutionary Xenon Thruster Prototype Model 1 Reworked Ion Engine
B09-109 Operation of an Annular Helicon Plasma Source
B09-130 Methodology and Historical Perspective of a Hall Thruster Efficiency Analysis
B09-103 Regenerable Field Emission Cathode for Spacecraft Neutralization
B09-107 SMART-1 from Conception to Moon Impact
B09-101 Creation of Onset Voltage Hash by Anode Spots in a Magnetoplasmadynamic Thruster
B09-108 Performance Modeling of a Thrust Vectoring Device for Hall Effect Thrusters
B09-076 Plume Profiles of a Planar Crossed-Field Thruster with Hall Current Injection
B09-055 Thrust Measurement of a Pure Magnetic Sail Using Parallelogram-Pendulum Method
B09-040 Numerical Study of Plasma Behavior in a Magnetoplasmadynamic Thruster Around Critical Current
B09-132 Dawn Ion Propulsion System: Initial Checkout after Launch
B09-131 Numerical Simulation of SMART-1 Hall-Thruster Plasma Interactions
B09-010 Deep Space 1 Flight Spare Ion Thruster 30,000-Hour Life Test

Emissions and Noises

- B09-121** Chemical Properties of Aircraft Engine Particulate Exhaust Emissions
B09-053 Submerged Combustion and Two-Phase Exhaust Jet Instabilities
B09-105 Emissions Reductions in Diesel and Kerosene Flames Using a Novel Fuel Injector
B09-129 Assessment of Technologies for the Silent Aircraft Initiative

Energy Conservation

- B09-053** Submerged Combustion and Two-Phase Exhaust Jet Instabilities
B09-034 Twin-Fluid Atomization and Novel Lifted Swirl-Stabilized Spray Flames

Engine Control Integration and Health Monitoring

- B09-066** Multiple-Point Adaptive Performance Simulation Tuned to Aeroengine Test-Bed Data

Engine Cooling and Heat Transfer

- B09-079** Circumferential Film Cooling Effectiveness in a LOX/H₂ Subscale Combustion Chamber
B09-045 Film Cooling of Accelerated Flow in a Subscale Combustion Chamber

Engine Performance

- B09-143** Performance of a Monopropellant Thruster Prototype Using Advanced Hydrogen Peroxide Catalytic Beds
B09-066 Multiple-Point Adaptive Performance Simulation Tuned to Aeroengine Test-Bed Data
B09-148 Optimum Design of Turboprop Engines Using Genetic Algorithm
B09-129 Assessment of Technologies for the Silent Aircraft Initiative
B09-016 Performance Validation of a Single-Tube Pulse Detonation Rocket System

Fuel Cells

- B09-147** Hardware-in-the-Loop Testing of a Fuel Cell Aircraft Powerplant

Fuels and Propellants, Properties of

- B09-117** Characterization of Nanothermite Material for Solid-Fuel Microthruster Applications
B09-136 Catalytic Cracking and Heat Sink Capacity of Aviation Kerosene under Supercritical Conditions
B09-054 Compatibility of Glycidyl Azide Polymer with Hydroxyl Terminated Polybutadiene and Plasticizers
B09-048 Production, Characterization, and Combustion of Nanoaluminum in Composite Solid Propellants
B09-094 Preliminary Investigation on Lithium Hydride as Fuel for Solid-Fueled Scramjet Engines
B09-024 Thermoanalytical Screening of Nitrogen-Rich Compounds for Ballistic Requirements of Gun Propellant
B09-083 Pyrolysis/Evaporation Study of Succinic Acid/Polyvinyl Acetate for Reducing Nozzle Throat Erosion

Gas Turbine Engines

- B09-066** Multiple-Point Adaptive Performance Simulation Tuned to Aeroengine Test-Bed Data
B09-148 Optimum Design of Turboprop Engines Using Genetic Algorithm
B09-068 Experimental Investigations of Pressure Distortions on the High-Pressure Compressor Operating Behavior
B09-129 Assessment of Technologies for the Silent Aircraft Initiative
B09-118 Comparison of Several Optimization Strategies for Robust Turbine Blade Design
B09-106 Bayesian Framework for Calibration of Gas Turbine Simulator
B09-138 Resonant Response of Mistuned Bladed Disks Including Aerodynamic Damping Effects
B09-034 Twin-Fluid Atomization and Novel Lifted Swirl-Stabilized Spray Flames
B09-090 Review of Recent Developments in Wave Rotor Combustion Technology

- B09-114** Flame Spectra of a Turbulent Liquid-Fueled Swirl-Stabilized Lean-Direct Injection Combustor
B09-033 Gas Turbine Fault Diagnosis Using Fuzzy-Based Decision Fusion
B09-014 Pressure Measurements and Attenuation in a Hybrid Multitube Pulse Detonation Turbine System
B09-063 Experimental Investigation of a Novel Combustor Model for Gas Turbines
B09-119 Vane Clocking in a Three-Stage Compressor: Frequency Domain Data Analysis
B09-032 Reacting Mixing-Layer Computations in a Simulated Turbine-Stator Passage

Hybrid Rocket Engines

- B09-005** Large Eddy Simulation of Flow Development in Chamber with Surface Mass Injection
B09-085 Predicting Hybrid Propellant Regression Rate Using Response Surfaces
B09-146 Acoustics, Vortex Shedding, and Low-Frequency Dynamics Interaction in an Unstable Hybrid Rocket

Hypersonic Propulsion

- B09-091** Reaction Mechanism of Aluminum-Particle-Air Detonation
B09-135 A Quasi-One-Dimensional Model of Hydrogen-Fueled Scramjet Combustors
B09-137 Simulation of Supersonic Combustion in Three Dimensional Configurations
B09-058 Shock-Tunnel Experiments with a Mach 12 Rectangular-to-Elliptical Shape-Transition Scramjet at Offdesign Conditions
B09-027 Probabilistic Aspects of Scramjet Design
B09-029 Effects of Upstream Injection on Scramjet Performance Using an Entropy-Based Method

Ignition

- B09-062** Investigation of Self-Sustaining Waves in Metastable Systems: Deflagration to Detonation Transition
B09-001 Flame Stabilization in High-Pressure Liquid Oxygen/Methane Rocket Engine Combustion
B09-059 Suitability of C₂-, C₃-Hydrocarbon Fuels for Plasma Ignition in High-Speed Flow
B09-028 Experiments on Electrically Controlled Flameholding on a Plane Wall in a Supersonic Airflow
B09-133 Catalyzed Ignition of Using Methane/Hydrogen Fuel in a Microtube for Microthruster Applications
B09-150 Simplified Theory for Ignition Times of Hypergolic Gelled Propellants
B09-012 Microwave and Direct-Current Discharges in High-Speed Flow: Fundamentals and Application to Ignition

Laser Integration/Systems

- B09-122** Comparative Study of Plastics as Propellants for Laser Ablation Plasma Thrusters
B09-056 Wall-Propelled, In-Tube Propulsion with Repetitive-Pulse Laser Ablation

Liquid Rocket Engines

- B09-151** Transient Behavior of H₂O₂ Thruster: Effect of Injector Type and Ullage Volume

- B09-143** Performance of a Monopropellant Thruster Prototype Using Advanced Hydrogen Peroxide Catalytic Beds
B09-045 Film Cooling of Accelerated Flow in a Subscale Combustion Chamber
B09-080 Computational Analysis of the Oxidizer Preflow in an Upper-Stage Rocket Engine
B09-110 Simulation of Combustion Instabilities in Liquid Rocket Engines with Acoustic Perturbation Equations
B09-093 Oxygen/Hydrogen-Planar-Laser-Induced Fluorescence Measurements and Accuracy Investigation in High-Pressure Combustion
B09-003 Cryogenic Flow and Atomization from a Coaxial Injector
B09-079 Circumferential Film Cooling Effectiveness in a LOX/H₂ Subscale Combustion Chamber
B09-096 Effect of Chamber Backpressure on Swirl Injector Fluid Mechanics
B09-088 Condensation-Induced Surface Boiling of Alcohol Fuel Droplets in Combustion Chambers
B09-001 Flame Stabilization in High-Pressure Liquid Oxygen/Methane Rocket Engine Combustion
B09-044 Experimental Verification for Acoustic Damping Enhancement by Gaps in Injector-Formed Baffles
B09-046 High-Pressure Supercritical Turbulent Cryogenic Injection and Combustion: A Single-Phase Flow Modeling Proposal
B09-112 Scaling and Evaluation of Pt/Al₂O₃ Catalytic Reactor for Hydrogen Peroxide Monopropellant Thruster
B09-018 Effects of Floating-Ring Seal Clearance on the Pump Performance for Turbopumps
B09-002 Effect of Recess in High-Pressure Liquid Oxygen/Methane Coaxial Injection and Combustion

Magnetohydrodynamic Power Generation

- B09-008** Feasibility of an Onboard Surface Hall Magnetohydrodynamic Power Generator in Reentry Flight

Micro Propulsion and Power

- B09-089** Liquid Monopropellant Combustion in Mesoscale Vortex Chamber
B09-077 Validating a Plasma Momentum Flux Sensor to an Inverted Pendulum Thrust Stand
B09-133 Catalyzed Ignition of Using Methane/Hydrogen Fuel in a Microtube for Microthruster Applications
B09-047 Effect of Bulk Density on Reaction Propagation in Nanothermites and Micron Thermites

Microwaves

- B09-011** Thrust Performance of Microwave Rocket Under Repetitive-Pulse Operation

Ramjets and Scramjets

- B09-030** Influence of Heat Capacity Ratio on Pressure and Nozzle Flow of a Scramjets
B09-025 Spray Structure in Near-Injector Region of Aerated Jet in Subsonic Crossflow
B09-086 Buzz Instability in a Mixed-Compression Air Intake
B09-136 Catalytic Cracking and Heat Sink Capacity of Aviation Kerosene under Supercritical Conditions

- B09-028** Experiments on Electrically Controlled Flameholding on a Plane Wall in a Supersonic Airflow
B09-095 In-Stream Hypermixer Fueling Pylons in Supersonic Flow
B09-060 Swept-Leading-Edge Pylon Effects on a Scramjet Pylon-Cavity Flameholder Flowfield
B09-026 Measurement of Flow Properties and Thrust on Scramjet Nozzle Using Pressure-Sensitive Paint
B09-120 Infrared Thermography and Pitot Pressure Measurements of a Scramjet Nozzle Flowfield
B09-013 Oscillatory Flows of Rectangular Hypersonic Inlet Unstart Caused by Downstream Mass-Flow Choking
B09-059 Suitability of C₂-, C₃-Hydrocarbon Fuels for Plasma Ignition in High-Speed Flow

Rotating Machinery

- B09-138** Resonant Response of Mistuned Bladed Disks Including Aerodynamic Damping Effects
B09-067 Development and Application of an Arbitrary Lagrangian Eulerian Solver for Turbomachinery Aeromechanics

Solid Rocket Motors

- B09-144** Numerical Investigation of Roll Torque Induced by Solid Rocket Motor Internal Flow
B09-084 Flame-Spreading Behavior in a Fin-Slot Solid Propellant Rocket Motor Grain (Part II)
B09-115 Nano Additives and Plateau Burning Rates of Ammonium-Perchlorate-Based Composite Solid Propellants
B09-052 Aluminum Combustion Driven Instabilities in Solid Rocket Motors
B09-145 Single-Phase Internal Flowfield Validation with an Experimental Solid Rocket Motor Model
B09-049 Nanoaluminum as a Solid Propellant Fuel
B09-097 Experimental Characterization of a Two-Phase Flowfield in a Solid Rocket Motor Model
B09-117 Characterization of Nanothermite Material for Solid-Fuel Microthruster Applications
B09-051 Flowfield Structure in a Fin-Slot Solid Rocket Motor (Part I)
B09-085 Predicting Hybrid Propellant Regression Rate Using Response Surfaces
B09-048 Production, Characterization, and Combustion of Nanoaluminum in Composite Solid Propellants
B09-082 Passive Control of Pressure Oscillations in Solid Rocket Motors: Cold-Flow Experiments
B09-083 Pyrolysis/Evaporation Study of Succinic Acid/Polyvinyl Acetate for Reducing Nozzle Throat Erosion
B09-054 Compatibility of Glycidyl Azide Polymer with Hydroxyl Terminated Polybutadiene and Plasticizers
B09-116 Mitigation of Graphite Nozzle Erosion by Boundary-Layer Control in Solid Propellant Rocket Motors
B09-006 Fracture Mechanics of Composite Solid Rocket Propellant Grains: Material Testing
B09-004 Chemical Erosion of Refractory-Metal Nozzle Inserts in Solid-Propellant Rocket Motors
- ### *Supersonic Combustion*
- B09-060** Swept-Leading-Edge Pylon Effects on a Scramjet Pylon-Cavity Flameholder Flowfield

B09-094 Preliminary Investigation on Lithium Hydride as Fuel for Solid-Fueled Scramjet Engines

B09-117 Characterization of Nanothermite Material for Solid-Fuel Microthruster Applications

B09-064 Adaptive Instability Suppression Controls Method For Aircraft Gas Turbine Engine Combustors

B09-027 Probabilistic Aspects of Scramjet Design

B09-029 Effects of Upstream Injection on Scramjet Performance Using an Entropy-Based Method

B09-059 Suitability of C2-, C3-Hydrocarbon Fuels for Plasma Ignition in High-Speed Flow

Transient Combustion

B09-062 Investigation of Self-Sustaining Waves in Metastable Systems: Deflagration to Detonation Transition

Turbomachinery

B09-138 Resonant Response of Mistuned Bladed Disks Including Aerodynamic Damping Effects

B09-100 Tip-Clearance Effects on Hot-Streak Migration in Low-Pressure Stage of Vaneless Counter-Rotating Turbine

B09-031 New Simulation Strategy for an Oscillating Cascade in Turbomachinery Using Immersed-Boundary Method

B09-069 Shock/Boundary-Layer/Tip-Clearance Interaction in a Transonic Rotor Blade

B09-018 Effects of Floating-Ring Seal Clearance on the Pump Performance for Turbopumps

B09-070 Flow Characteristics of Tip Injection on Compressor Rotating Spike via Time-Accurate Simulation

B09-119 Vane Clocking in a Three-Stage Compressor: Frequency Domain Data Analysis

B09-017 Aerothermal Analysis of a Partially Shrouded Axial Turbine

SPACE TECHNOLOGY

Mission Design and Analysis

B09-107 SMART-1 from Conception to Moon Impact

Mission Trajectories (Earth and Interplanetary)

B09-107 SMART-1 from Conception to Moon Impact

Space Systems

B09-038 Influence of Electrode Shape on Performance of Pulsed Magnetoplasma dynamic Thruster SIMP-LEX

B09-042 Jupiter Power Generation with Electrodynamic Tethers at Constant Orbital Energy

B09-104 System-Level Feasibility Assessment of Microwave Power Beaming for Small Satellites

Spacecraft Power

B09-104 System-Level Feasibility Assessment of Microwave Power Beaming for Small Satellites

B09-042 Jupiter Power Generation with Electrodynamic Tethers at Constant Orbital Energy

Spacecraft Propulsion System Integration

B09-131 Numerical Simulation of SMART-1 Hall-Thruster Plasma Interactions

Spacecraft Test and Evaluation

B09-132 Dawn Ion Propulsion System: Initial Checkout after Launch

B09-010 Deep Space 1 Flight Spare Ion Thruster 30,000-Hour Life Test

B09-078 Ground Test Investigation of Temperature Distribution in Four Parallel High-Altitude Engines

STRUCTURAL MECHANICS AND MATERIALS

Materials Structural Properties

B09-006 Fracture Mechanics of Composite Solid Rocket Propellant Grains: Material Testing

B09-024 Thermoanalytical Screening of Nitrogen-Rich Compounds for Ballistic Requirements of Gun Propellant

Structural Durability (Including Fatigue, Fracture, and Environmental Degradation)

B09-006 Fracture Mechanics of Composite Solid Rocket Propellant Grains: Material Testing

Thermal Effects

B09-078 Ground Test Investigation of Temperature Distribution in Four Parallel High-Altitude Engines

THERMOPHYSICS AND HEAT TRANSFER

Ablation, Pyrolysis, Thermal Decomposition and Degradation

B09-077 Validating a Plasma Momentum Flux Sensor to an Inverted Pendulum Thrust Stand

B09-136 Catalytic Cracking and Heat Sink Capacity of Aviation Kerosene under Supercritical Conditions

B09-004 Chemical Erosion of Refractory-Metal Nozzle Inserts in Solid-Propellant Rocket Motors

B09-083 Pyrolysis/Evaporation Study of Succinic Acid/Polyvinyl Acetate for Reducing Nozzle Throat Erosion

B09-041 Impulse Generation on Aluminum Target Irradiated with Nd:YAG Laser Pulse in Ambient Gas

Aerothermodynamics/Thermal Protection

B09-100 Tip-Clearance Effects on Hot-Streak Migration in Low-Pressure Stage of Vaneless Counter-Rotating Turbine

Boiling/Condensation

B09-088 Condensation-Induced Surface Boiling of Alcohol Fuel Droplets in Combustion Chambers

Computational Heat Transfer

B09-139 Computational Simulation of Cylindrical Film Hole with Jet Pulsation on Flat Plates

Cryogenics

B09-043 Comparison of Several Zero-Boil-Off Pressure Control Strategies for Cryogenic Fluid Storage in Microgravity

Forced Convection

B09-139 Computational Simulation of Cylindrical Film Hole with Jet Pulsation on Flat Plates

Mixed Convection

B09-047 Effect of Bulk Density on Reaction Propagation in Nanothermites and Micron Thermites

Nonintrusive Diagnostics

B09-092 Temperature Measurements in a Gas-Turbine-Combustor Sector Rig Using Swept-Wavelength Absorption Spectroscopy

Radiation Interchange Between Surfaces

B09-078 Ground Test Investigation of Temperature Distribution in Four Parallel High-Altitude Engines

Thermal Control

B09-043 Comparison of Several Zero-Boil-Off Pressure Control Strategies for Cryogenic Fluid Storage in Microgravity

Thermochemistry and Chemical Kinetics

B09-024 Thermoanalytical Screening of Nitrogen-Rich Compounds for Ballistic Requirements of Gun Propellant

B09-050 High-Temperature Heterogeneous Reaction Kinetics of Tungsten Oxidation by CO₂, CO, and O₂

Thermophysical Properties

B09-047 Effect of Bulk Density on Reaction Propagation in Nanothermites and Micron Thermites

B09-111 Thermophysical Properties Measurements of Rocket Propellants RP-1 and RP-2