Subject Index

Aircraft Technology, Conventional, STOL/VTOL

Aeroelasticity

Frequency Domain Synthesis of a Robust Flutter Suppression Control Law G86-059
Design of a Flutter Mode Controller Using Positive Real Feedback G86-058
Design of an Active Flutter Suppression System G86-011

Avionics Systems

A Performance Evaluation of the Software-Implemented Fault-Tolerance Computer G86-033

Configuration Design

Flight Evaluation of Augmented Controls for Approach and Landing of Powered-Lift Aircraft G86-095
Classical Flight Dynamics of a Variable Forward-Sweep-Wing Aircraft G86-060

Economics

Practical Considerations in Optimal Flight Management Computations G86-075

Flight Operations

Fuel Conservative Guidance for Shipboard Landing of Powered-Lift STOL Aircraft G86-065
Reduced-Order Observers Applied to State and Parameter Estimation of Hydromechanical Servoactuators G86-044

General Aviation

An Interpretation of Airplane General Motion and Control as Inverse Problem G86-036

Guidance and Control

Comparison of Local Pole Assignment Methods G86-120
Aircraft Control Design Using Improved Time-Domain Stability Robustness Bounds G86-117
A Sequential Linear Optimization Approach for Controller Design G86-115
A Highly Accurate Feedback Approximation for Horizontal Variable-Speed Interceptions G86-114
Sensitivity Analysis of Automatic Flight Control Systems Using Singular-Value Concepts G86-104
Cross Coupling in Pilot-Vehicle Systems G86-103
Fault Detection, Isolation, and Reconfiguration in the Fault Tolerant Multiprocessor G86-099
Effect of Time Delay on Flying Qualities: An Update G86-098
Flight Evaluation of Augmented Controls for Approach and Landing of Powered-Lift Aircraft G86-095
Control Law Synthesis for an Airplane with Relaxed Static Stability G86-094
Flying Qualities of Pitch Rate Command/Attitude Hold Control Systems for Landing G86-093
Comparison of Angular and Metric Guidance Laws for Tactical Missiles G86-086
Development of Control Laws for a Flight Test Maneuver Autopilot G86-077
Identification of Pilot-Vehicle Dynamics from In-Flight Tracking Data G86-076
Practical Considerations in Optimal Flight Management Computations G86-075
Estimation of Distributed Parameter Systems: Some Closed-Form Solutions G86-072
A Discrete-Time Multivariable Model-Following Method Applied to Decoupled Flight Control G86-071
Disturbance Attenuation by a Frequency-Shaped Linear-Quadratic-Regulator Method G86-070
Identifying Approximate Linear Models for Simple Nonlinear Systems G86-068
Fuel Conservative Guidance for Shipboard Landing of Powered-Lift STOL Aircraft G86-065
Computation of Optimal Controls by Newton's Method Using a Discretized Jacobian G86-063
Frequency Domain Synthesis of a Robust Flutter Suppression Control Law G86-059
Design of a Flutter Mode Controller Using Positive Real Feedback G86-058
Design and Simulation of Closed-Loop Ground Alignment of Inertial Platforms with Sway Motion G86-057
Effects of Noise on Modal Parameters Identified by the Eigensystem Realization Algorithm G86-053
The Optimal Projection Equations for Reduced-Order, Discrete-Time Modeling, Estimation, and Control G86-052
A Computational Method to Solve Nonautonomous Matrix Riccati Equations G86-045
Reduced-Order Observers Applied to State and Parameter Estimation of Hydromechanical Servoactuators G86-044
Transient Motion of a Hypersonic Wedge, Including Time History Effects G86-037
An Interpretation of Airplane General Motion and Control as Inverse Problem G86-036
Influence of High-Order Dynamics on Helicopter Flight-Control System Bandwidth G86-035
Periodic Control for Minimum-Fuel Aircraft Trajectories G86-032
Wind Shear Estimation by Frequency-Shaped Optimal Estimator G86-031
A Parallel Quasi-Linearization Algorithm for Air Vehicle Trajectory Optimization G86-019
Motor Characteristics in the Control of a Compliant Load G86-018
Control of a Forward-Swept-Wing Configuration Dominated by Flight Dynamic/Aeroelastic Interactions G86-012
Design of an Active Flutter Suppression System G86-011
Endurance Increase by Cyclic Control G86-010
Extension of the Midvalue Selection Technique for Redundancy Management of Inertial Sensors G86-007
To Pursue or to Evade - That is the Question G85-028

Handling Qualities, Stability and Control

Cross Coupling in Pilot-Vehicle Systems G86-103
A Flight-Path-Overshoot Flying Qualities Metric for the Landing Task G86-102
Effect of Time Delay on Flying Qualities: An Update G86-098
In-Flight Evaluation of Incremental Time Delays in Pitch and Roll G86-097
Space Shuttle Longitudinal Landing Flying Qualities G86-096
Flight Evaluation of Augmented Controls for Approach and Landing of Powered-Lift Aircraft G86-095
Control Law Synthesis for an Airplane with Relaxed Static Stability G86-094
Flying Qualities of Pitch Rate Command/Attitude Hold Control Systems for Landing G86-093
A Perspective on Superaugmented Flight Control: Advantages and Problems G86-092
Handling Qualities and Pilot Evaluation (Wright Brothers Lectureship in Aeronautics) G86-091
Identification and Verification of Frequency-Domain Models for XV-15 Tilt-Rotor Aircraft Dynamics in Cruising Flight G86-078
Identification of Pilot-Vehicle Dynamics from In-Flight Tracking Data G86-076
Disturbance Attenuation by a Frequency-Shaped Linear-Quadric-Regulator Method G86-070
Classical Flight Dynamics of a Variable Forward-Sweep-Wing Aircraft G86-060
Influence of High-Order Dynamics on Helicopter Flight-Control System Bandwidth G86-035
Simulator Evaluation of a Remotely Piloted Vehicle Visual Landing Task G86-013
Control of a Forward-Swept-Wing Configuration Dominated by Flight Dynamic/Aeroelastic Interactions G86-012

Helicopters

Identification and Verification of Frequency-Domain Models for XV-15 Tilt-Rotor Aircraft Dynamics in Cruising Flight G86-078
Influence of High-Order Dynamics on Helicopter Flight-Control System Bandwidth G86-035

Landing Dynamics

Simulator Evaluation of a Remotely Piloted Vehicle Visual Landing Task G86-013

Military Missions

A Highly Accurate Feedback Approximation for Horizontal Variable-Speed Interceptions G86-114
Fuel Conservative Guidance for Shipboard Landing of Powered-Lift STOL Aircraft G86-065

Navigation, Communication, and Traffic Control

Gravity-Induced Errors in Airborne Inertial Navigation G86-074
Error Analysis Strapdown Inertial Navigation Using Quaternions G86-066
Design and Simulation of Closed-Loop Ground Alignment of Inertial Platforms with Sway Motion G86-057
Historical Perspective on Estimation Techniques for Position and Gravity Survey with Inertial Systems G86-048

Performance

A Highly Accurate Feedback Approximation for Horizontal Variable-Speed Interceptions G86-114
Practical Considerations in Optimal Flight Management Computations G86-075
Periodic Control for Minimum-Fuel Aircraft Trajectories G86-032
Endurance Increase by Cyclic Control G86-010

Simulation

Flying Qualities of Pitch Rate Command/Attitude Hold Control Systems for Landing G86-093
Simulator Evaluation of a Remotely Piloted Vehicle Visual Landing Task G86-013

Testing, Flight and Ground

Identification and Verification of Frequency-Domain Models for XV-15 Tilt-Rotor Aircraft Dynamics in Cruising Flight G86-078

Fluid Dynamics

Computational Methods

Flight Trajectory Simulation of Fluid Payload Projectiles G86-038

Nonsteady Aerodynamics

Transient Motion of a Hypersonic Wedge, Including Time History Effects G86-037

Subsonic Flow

Multi-Input Multi-Output Automatic Design Synthesis for Performance and Robustness G86-051

Supersonic and Hypersonic Flow

Unfolding of Degenerate Hopf Bifurcation for Supersonic Flow past a Pitching Wedge G86-073
Transient Motion of a Hypersonic Wedge, Including Time History Effects G86-037

Wave Motion and Sloshing

Spacecraft Nutational Instability Prediction by Energy-Dissipation Measurements G86-061

Interdisciplinary Topics

Aerospace Technology Utilization

Historical Perspective on Estimation Techniques for Position and Gravity Survey with Inertial Systems G86-048

Analytical and Numerical Methods

Aircraft Control Design Using Improved Time-Domain Stability Robustness Bounds G86-117
Nonlinear Attitude Motion of a Dual-Spin Spacecraft Containing Spherical Dampers G86-113
An Asymptotic Perturbation Method for Nonlinear Optimal Control Problems G86-069
The Hybrid Automated Reliability Predictor G86-056
Spline-Based Distributed System Identification with Application to Large Space Antennas G86-054
Exact Nonlinear Control of Spacecraft Slewing Maneuvers with Internal Momentum Transfer G86-042
The Principal Minor Test for Semidefinite Matrices G86-020
Necessary Conditions for Optimal Pulse Control G86-009
A New Algorithm for the Computation of the Geodetic Coordinates as a Function of Earth-Centered Earth-Fixed Coordinates G85-133

Astrodynamics

Auxiliary Problem Concerning Optimal Pursuit on Lagrangian Orbits G86-119
Nonlinear Feedback Control for Remote Orbital Capture G86-110
Linear Guidance Laws for Space Missions G86-084
Orbit Determination Singularities in the Doppler Tracking of a Planetary Orbiter G86-083
An Asymptotic Perturbation Method for Nonlinear Optimal Control Problems G86-069
Exact Nonlinear Control of Spacecraft Slewing Maneuvers with Internal Momentum Transfer G86-042
Differential Interferometry for Precise Tracking of a Geosynchronous Satellite G86-028
Gravity Gradient Torque for an Arbitrary Potential Function G86-021
A Simple Targeting Technique for Two-Body Spacecraft Trajectories G86-005
An Energy Approach for Orbital Transfers G86-004
Optimal Multiple-Impulse Time-Fixed Rendezvous Between Circular Orbits G86-003
Dynamics of a Subsatellite System Supported by Two Tethers G86-002

Computer Software

The Hybrid Automated Reliability Predictor G86-056

Computer Technology

Fault Detection, Isolation, and Reconfiguration in the Fault Tolerant Multiprocessor G86-099
A Performance Evaluation of the Software-Implemented Fault-Tolerance Computer G86-033

Human Factors

Handling Qualities and Pilot Evaluation (Wright Brothers Lectureship in Aeronautics) G86-091

Numerical Analysis

Computation of Optimal Controls by Newton's Method Using a Discretized Jacobian G86-063
The Principal Minor Test for Semidefinite Matrices G86-020

Reliability, Maintainability, and Logistics Support

The Hybrid Automated Reliability Predictor G86-056
Actuator Failure Detection in the Control of Distributed Systems G86-034

Sensor Systems

Error Analysis Strapdown Inertial Navigation Using Quaternions G86-066
Extension of the Midvalue Selection Technique for Redundancy Management of Inertial Sensors G86-007

State Estimation

Coordinate-Transformation-Based Filter for Improved Target Tracking G86-116
Orbit Determination Singularities in the Doppler Tracking of a Planetary Orbiter G86-083
Estimation of Distributed Parameter Systems: Some Closed-Form Solutions G86-072
Design and Simulation of Closed-Loop Ground Alignment of Inertial Platforms with Sway Motion G86-057
Historical Perspective on Estimation Techniques for Position and Gravity Survey with Inertial Systems G86-048

System Identification

Spline-Based Distributed System Identification with Application to Large Space Antennas G86-054
Actuator Failure Detection in the Control of Distributed Systems G86-034

Launch Vehicle and Missile (LV/M) Technology

Aerodynamics

Subsonic and Transonic Aerodynamics of a Wraparound Fin Configuration G86-105
Unfolding of Degenerate Hopf Bifurcation for Supersonic Flow past a Pitching Wedge G86-073

Configurational Design

Wing Size vs Radome Compensation in Aerodynamically Controlled Radar Homing Missiles G86-108

Dynamics and Control

Comparison of Local Pole Assignment Methods G86-120
Wing Size vs Radome Compensation in Aerodynamically Controlled Radar Homing Missiles G86-108
Control of Missile Dispersion via Roll Rate Modulation G86-107
Roll Divergence of a Canard-Controlled Missile with a Freely Spinning Tail G86-106

Subsonic and Transonic Aerodynamics of a Wraparound Fin Configuration G86-105
Computation of Optimal Controls by Newton's Method Using a Discretized Jacobian G86-063
Roll Motion of a Wraparound Fin Configuration at Subsonic and Transonic Mach Numbers G86-046
Flight Trajectory Simulation of Fluid Payload Projectiles G86-038
Advanced Midcourse Guide for Air-to-Air Missiles G86-027
Necessary Conditions for Optimal Pulse Control G86-009
Perturbation Guidance Laws for Perfect Information Interceptors with Symmetrical Nonlinearities G86-006
Flight Dynamics of a Spinning, Sequential Munition-Dispenser G86-001
Absolute Stability of Symmetric Highly Maneuverable Missiles G85-113

Guidance

Coordinate-Transformation-Based Filter for Improved Target Tracking G86-116
Comparison of Angular and Metric Guidance Laws for Tactical Missiles G86-086
Linear Guidance Laws for Space Missions G86-084
Clutter Effect on the Guidance of a Semi-Active Radar Homing Missile G86-049
Advanced Midcourse Guide for Air-to-Air Missiles G86-027
A Parallel Quasi-Linearization Algorithm for Air Vehicle Trajectory Optimization G86-019
Perturbation Guidance Laws for Perfect Information Interceptors with Symmetrical Nonlinearities G86-006
A Simple Targeting Technique for Two-Body Spacecraft Trajectories G86-005

Missile Systems

Wing Size vs Radome Compensation in Aerodynamically Controlled Radar Homing Missiles G86-108
Control of Missile Dispersion via Roll Rate Modulation G86-107
Roll Divergence of a Canard-Controlled Missile with a Freely Spinning Tail G86-106
Necessary Conditions for Optimal Pulse Control G86-009
Perturbation Guidance Laws for Perfect Information Interceptors with Symmetrical Nonlinearities G86-006
Flight Dynamics of a Spinning, Sequential Munition-Dispenser G86-001
Absolute Stability of Symmetric Highly Maneuverable Missiles G85-113

Simulation

Clutter Effect on the Guidance of a Semi-Active Radar Homing Missile G86-049
Roll Motion of a Wraparound Fin Configuration at Subsonic and Transonic Mach Numbers G86-046
Advanced Midcourse Guide for Air-to-Air Missiles G86-027
Flight Dynamics of a Spinning, Sequential Munition-Dispenser G86-001

Testing, Flight and Ground

Subsonic and Transonic Aerodynamics of a Wraparound Fin Configuration G86-105
Roll Motion of a Wraparound Fin Configuration at Subsonic and Transonic Mach Numbers G86-046

Trajectories and Tracking Systems

Coordinate-Transformation-Based Filter for Improved Target Tracking G86-116
A Unified Three-Dimensional Trajectory Simulation Methodology G86-109
A Parallel Quasi-Linearization Algorithm for Air Vehicle Trajectory Optimization G86-019

Propulsion

Airbreathing Propulsion

Linear-Quadratic Gaussian with Loop-Transfer Recovery Methodology for the F-100 Engine G86-008

Engine Control

Linear-Quadratic Gaussian with Loop-Transfer Recovery Methodology for the F-100 Engine G86-008

Engine Performance

Linear-Quadratic Gaussian with Loop-Transfer Recovery Methodology for the F-100 Engine G86-008

Spacecraft Technology

Attitude Determination

Optimal Control of Quaternion Propagation Errors in Spacecraft Navigation G86-067
Error Analysis Strapdown Inertial Navigation Using Quaternions G86-066
Attitude Determination Covarience Analysis for Geostationary Transfer Orbits G86-030
Evolution of an Attitude Control System for Body-Stabilized Communication Spacecraft G86-017
In-Flight Identification of the Galileo Spacecraft Flexible Mode Characteristics G86-015

Configurational and Structural Design (including Loads)

Efficient Modal Analysis of Damped Space Structures G86-121
Motor Characteristics in the Control of a Compliant Load G86-018

Data Sensing, Presentation, and Transmission

Future Payload Isolation and Pointing System Technology G86-081

Dynamics and Control

Efficient Modal Analysis of Damped Space Structures G86-121
Comparison of Local Pole Assignment Methods G86-120
Aircraft Control Design Using Improved Time-Domain Stability Robustness Bounds G86-117
A Sequential Linear Optimization Approach for Controller Design G86-115
Nonlinear Attitude Motion of a Dual-Spin Spacecraft Containing Spherical Dampers G86-113
Wave-Absorbing Controllers for a Flexible Beam G86-112
Thruster-Augmented Active Control of a Tethered Subsatellite System During Its Retrieval G86-111
Nonlinear Feedback Control for Remote Orbital Capture G86-110
Modeling and Simulation of Spacecraft Solar Array Deployment G86-100
On-Off Attitude Control of Flexible Satellites G86-087
A Simple Algorithm for the Selection of Terminal Penalty Weighting Matrices G86-085
Integrated Design of Space Structures Using Lattic Plate Finite Elements G86-082
Future Payload Isolation and Pointing System Technology G86-081
Traveling Wave Control for Large Spacecraft Structures G86-080
Predictive Momentum Management for the Space Station G86-079
Estimation of Distributed Parameter Systems: Some Closed-Form Solutions G86-072
An Asymptotic Perturbation Method for Nonlinear Optimal Control Problems G86-069
Identifying Approximate Linear Models for Simple Nonlinear Systems G86-068
Optimal Control of Quaternion Propagation Errors in Spacecraft Navigation G86-067
Spacecraft Nutational Instability Prediction by Energy-Dissipation Measurements G86-061
Effects of Noise on Modal Parameters Identified by the Eigensystem Realization Algorithm G86-053
The Optimal Projection Equations for Reduced-Order, Discrete-Time Modeling, Estimation, and Control G86-052
Compensating Structure and Parameter Optimization for Attitutde Control of a Flexible Spacecraft G86-043
Exact Nonlinear Control of Spacecraft Slewing Maneuvers with Internal Momentum Transfer G86-042
Variable-Structure Control of Spacecraft Large-Angle Maneuvers G86-041
Robust Beam-Pointing and Attitude Control of a Flexible Spacecraft G86-040
Uniform Damping Control of Spacecraft G86-039
Flight Trajectory Simulation of Fluid Payload Projectiles G86-038
Actuator Failure Detection in the Control of Distributed Systems G86-034
Optimal Continuous Control for Remote Orbital Capture G86-029
Differential Interferometry for Precise Tracking of a Geosynchronous Satellite G86-028
Spacecraft Attitude Dynamics and Control--A Personal Perspective on Early Developments (History of Key Technologies) G86-026
Gravity Gradient Torque for an Arbitrary Potential Function G86-021
Motor Characteristics in the Control of a Compliant Load G86-018
Evolution of an Attitude Control System for Body-Stabilized Communication Spacecraft G86-017
Optimal Nonlinear Feedback Control for Spacecraft Attitude Maneuvers G86-016
In-Flight Identification of the Galileo Spacecraft Flexible Mode Characteristics G86-015
Robustness Properties of Collocated Controllers for Flexible Spacecraft G86-014
Dynamics of a Subsatellite System Supported by Two Tethers G86-002
Minimum Energy-Loss Guidance for Aeroassisted Orbital Plane Change G85-083
A General Formulation for Librational Dynamics of Spacecraft with Deploying Appendages G84-091

Earth-Orbital Trajectories

A Unified Three-Dimensional Trajectory Simulation Methodology **G86-109**
Long-Term Evolution of Near-Geostationary Orbits **G86-062**
Explicit Guidance of Drag-Modulated Aeroassisted Transfer Between Elliptical Orbits **G86-050**
Differential Interferometry for Precise Tracking of a Geosynchronous Satellite **G86-028**
Optimal Multiple-Impulse Time-Fixed Rendezvous Between Circular Orbits **G86-003**
A New Algorithm for the Computation of the Geodetic Coordinates as a Function of Earth-Centered Earth-Fixed Coordinates **G85-133**

Entry Vehicle Dynamics and Control

Spacecraft Attitude Dynamics and Control--A Personal Perspective on Early Developments (History of Key Technologies) **G86-026**

Entry Vehicle Guidance

Explicit Guidance of Drag-Modulated Aeroassisted Transfer Between Elliptical Orbits **G86-050**
Minimum Energy-Loss Guidance for Aeroassisted Orbital Plane Change **G85-083**

Entry Vehicle Mission Studies and Flight Mechanics

A Unified Three-Dimensional Trajectory Simulation Methodology **G86-109**

Lunar and Interplanetary Trajectories

Auxiliary Problem Concerning Optimal Pursuit on Lagrangian Orbits **G86-119**
Optimal Multiple-Impulse Time-Fixed Rendezvous Between Circular Orbits **G86-003**

Mission Analysis

An Energy Approach for Orbital Transfers **G86-004**

Navigation, Guidance, and Flight-Path Control

Auxiliary Problem Concerning Optimal Pursuit on Lagrangian Orbits **G86-119**
Trilateration and Extension to Global Positioning System Navigation **G86-118**
Linear Guidance Laws for Space Missions **G86-084**
Orbit Determination Singularities in the Doppler Tracking of a Planetary Orbiter **G86-083**
Predictive Momentum Management for the Space Station **G86-079**
Gravity-Model Errors in Mobile Inertial-Navigation Systems **G86-055**
Uniform Damping Control of Spacecraft **G86-039**
Extension of the Midvalue Selection Technique for Redundancy Management of Inertial Sensors **G86-007**
A Simple Targeting Technique for Two-Body Spacecraft Trajectories **G86-005**
An Energy Approach for Orbital Transfers **G86-004**
Minimum Energy-Loss Guidance for Aeroassisted Orbital Plane Change **G85-083**

Simulation

Modeling and Simulation of Spacecraft Solar Array Deployment **G86-100**
A Simple Algorithm for the Selection of Terminal Penalty Weighting Matrices **G86-085**
Optimal Control of Quaternion Propagation Errors in Spacecraft Navigation **G86-067**
A General Formulation for Librational Dynamics of Spacecraft with Deploying Appendages **G84-091**

Space Station Systems, Manned

Future Payload Isolation and Pointing System Technology **G86-081**
Predictive Momentum Management for the Space Station **G86-079**

Testing, Flight and Ground

A Slewing Control Experiment for Flexible Structures **G86-101**
In-Flight Identification of the Galileo Spacecraft Flexible Mode Characteristics **G86-015**

Structural Mechanics and Materials

Aeroelasticity and Hydroelasticity

Frequency Domain Synthesis of a Robust Flutter Suppression Control Law **G86-059**

Structural Dynamics

Efficient Modal Analysis of Damped Space Structures **G86-121**
A Sequential Linear Optimization Approach for Controller Design **G86-115**
Thruster-Augmented Active Control of a Tethered Subsatellite System During Its Retrieval **G86-111**
A Slewing Control Experiment for Flexible Structures **G86-101**
Integrated Design of Space Structures Using Lattic Plate Finite Elements **G86-082**
Traveling Wave Control for Large Spacecraft Structures **G86-080**
Identifying Approximate Linear Models for Simple Nonlinear Systems **G86-068**
Effects of Noise on Modal Parameters Identified by the Eigensystem Realization Algorithm **G86-053**
Uniform Damping Control of Spacecraft **G86-039**
Control of a Forward-Swept-Wing Configuration Dominated by Flight Dynamic/Aeroelastic Interactions **G86-012**
A General Formulation for Librational Dynamics of Spacecraft with Deploying Appendages **G84-091**