

Subject Index

Aircraft Technology, Conventional, STOL/VTOL

Aerodynamics

A Look at Handling Qualities of Canard Configurations G87-024

Aeroelasticity

Interactions Between an Aircraft Structure and Active Control Systems G87-072
Stability Robustness Improvement Using Constrained Optimization Techniques G87-029

Avionics Systems

Development of a Takeoff Performance Monitoring System G87-070
Optimization of Cruise at Constant Altitude G87-018

Crew Stations

Investigation of Limb-Side Stick Dynamic Interaction with Roll Control G87-030

Flight Displays

Limited Evaluation of the Longitudinal Flying Qualities of a Centerstick Aircraft with Variations in Stick Feel Parameters G87-085

Flight Operations

Development of a Takeoff Performance Monitoring System G87-070
Optimization and Acceleration Guidance of Flight Trajectories in a Windshear G87-060
Optimization of Cruise at Constant Altitude G87-018

Ground Support

A Track Correlation Algorithm for Multi-Sensor Integration G87-028

Guidance and Control

Sensitivity of Closed-Loop Eigenvalues and Robustness G87-093
Energy Management of Three-Dimensional Minimum-Time Intercept G87-091
Eigensystem Synthesis for Active Flutter Suppression on an Oblique-Wing Aircraft G87-086
Method for Robust Design of Multivariable Feedback Systems G87-078
Interactions Between an Aircraft Structure and Active Control Systems G87-072
Accelerometer Placement in Active Flutter Suppression Systems G87-071
A Homotopy Approach to the Feedback Stabilization of Linear Systems G87-069
Time-Scale Synthesis of a Closed-Loop Discrete Optimal Control System G87-068
Optimization and Acceleration Guidance of Flight Trajectories in a Windshear G87-060

Gradient-Based Combined Structural and Control Optimization G87-049
Aircraft Automatic Flight Control System with Model Inversion G87-046
Design Methodology for Robust Stabilizing Controllers G87-043
Closed-Loop Pilot Vehicle Analysis of the Approach and Landing Task G87-031

Robust Controller Design Using Frequency Domain Constraints G87-027
Dynamics of a Cantilever Beam Attached to a Moving Base G87-025
A Look at Handling Qualities of Canard Configurations G87-024
Multivariable Control Robustness Examples: A Classical Approach G87-019
Optimization of Cruise at Constant Altitude G87-018
Linear-Quadratic-Gaussian with Loop-Transfer-Recovery Methodology for an Unmanned Aircraft G87-012
Application of Eigenstructure Assignment to Flight Control Design: Some Extensions G87-011
Nonlinear Flight Test Trajectory Controllers for Aircraft G87-010

Handling Qualities, Stability and Control

Limited Evaluation of the Longitudinal Flying Qualities of a Centerstick Aircraft with Variations in Stick Feel Parameters G87-085
Time-Scale Synthesis of a Closed-Loop Discrete Optimal Control System G87-068
Development and Application of a Convolution Technique for Flying Qualities Research G87-032
Closed-Loop Pilot Vehicle Analysis of the Approach and Landing Task G87-031
Investigation of Limb-Side Stick Dynamic Interaction with Roll Control G87-030
Stability Robustness Improvement Using Constrained Optimization Techniques G87-029

Navigation, Communication, and Traffic Control

Error Equations of Inertial Navigation G87-058

Performance

Energy Management of Three-Dimensional Minimum-Time Intercept G87-091
Development of a Takeoff Performance Monitoring System G87-070
Optimization and Acceleration Guidance of Flight Trajectories in a Windshear G87-060
Direct Trajectory Optimization Using Nonlinear Programming and Collocation G87-056
Nonlinear Flight Test Trajectory Controllers for Aircraft G87-010

Simulation

Time-Scale Synthesis of a Closed-Loop Discrete Optimal Control System G87-068
Development and Application of a Convolution Technique for Flying Qualities Research G87-032

Testing, Flight and Ground

Limited Evaluation of the Longitudinal Flying Qualities of a Centerstick Aircraft with Variations in Stick Feel Parameters G87-085
Design Study for a High-Accuracy Three-Axis Test Table G87-015
Nonlinear Flight Test Trajectory Controllers for Aircraft G87-010

Energy

Nuclear Fission

A Look at Handling Qualities of Canard Configurations G87-024

Fluid Dynamics

Hydrodynamics

Side Moment Exerted by a Two-Component Liquid Payload on a Spinning Projectile G87-003

Interdisciplinary Topics

Aerospace Technology Utilization

Design Study for a High-Accuracy Three-Axis Test Table G87-015

Analytical and Numerical Methods

Testing Matrices of Definiteness and Application Examples that Spawn the Need G87-079
Direct Trajectory Optimization Using Nonlinear Programming and Collocation G87-056
Gradient-Based Combined Structural and Control Optimization G87-049
Robust Controller Design Using Frequency Domain Constraints G87-027
Rotation of a Triaxial Satellite Near the Lagrangian Point L_4 G87-021
The Minimum for Geometric Dilution of Precision in Global Positioning System Navigation G87-017
Avoidance of Numerical Instabilities in Computation of Higher-Order Gravity G87-016
Application of Eigenstructure Assignment to Flight Control Design: Some Extensions G87-011
Stability of Multidimensional Linear Time-Varying Systems G85-101

Astrodynamics

Direct Trajectory Optimization Using Nonlinear Programming and Collocation G87-056

- Orbital Modifications Using Forced Tether-
Length Variations G87-041
Accessibility of Near-Earth Asteroids G87-040
Avoidance of Numerical Instabilities in
Computation of Higher-Order Gravity G87-016
Meter-Level Orbit Determination of Geo-
synchronous Satellites by an Economical
Tracking System G87-007
Numerical Method for Rapidly Determining
Satellite-Satellite and Satellite-Ground Sta-
tion In-View Periods G87-005
Gravity Gradient Torque for an Arbitrary
Potential Function G86-021

Celestial Mechanics

- Accessibility of Near-Earth Asteroids G87-040
Rotation of a Triaxial Satellite Near the
Lagrangian Point L_4 G87-021
Avoidance of Numerical Instabilities in
Computation of Higher-Order Gravity G87-016

Computer Science

- Fault-Tolerant Clock Synchronization Val-
idation Methodology G87-083

Human Factors

- Closed-Loop Pilot Vehicle Analysis of the
Approach and Landing Task G87-031
Investigation of Limb-Side Stick Dynamic
Interaction with Roll Control G87-030

Numerical Analysis

- Testing Matrices of Definiteness and Appli-
cation Examples that Spawn the Need G87-079
Identification of Large Space Structures: A
Factorization Approach G87-074
Equations of Motion for Maneuvering Flex-
ible Spacecraft G87-073

Reliability, Maintainability, and Logistics Support

- Fault-Tolerant Clock Synchronization Val-
idation Methodology G87-083
Sensor-Failure Detection Method for Flex-
ible Structures G87-075

Research Facilities and Instrumentation

- Design Study for a High-Accuracy Three-
Axis Test Table G87-015

Sensor Systems

- A Track Correlation Algorithm for Multi-
Sensor Integration G87-028
Charge Transfer Device Star Tracker Appli-
cations G87-014

State Estimation

- Spacecraft Attitude Determination Using a
Second-Order Nonlinear Filter G87-089
Testing Matrices of Definiteness and Appli-
cation Examples that Spawn the Need G87-079
Mass Property Estimation for Control of
Asymmetrical Satellites G87-076
Sensor-Failure Detection Method for Flex-
ible Structures G87-075
Onboard Spin Axis Controller for a Geosta-
tionary Spin-Stabilized Satellite G87-048
Trajectory and Attitude Determination of a
Thrusting Spin-Stabilized Apogee Stage G87-047
On-Line Aircraft State and Stability Deriv-

Launch Vehicle Systems

- An Optimal Q-Guidance Scheme for Satellite
Launch Vehicles G87-008

Missile Systems

- Time-Invariant Controllers for Target Track-
ing G87-055

Simulation

- Modern Control Theory for Design of Au-
topilots for Bank-to-Turn Missiles G87-061
Comparison of Theory and Experiment for
Moments Induced by Loose Internal Parts G87-002
ative Estimation Using the Modified-Gain
Extended Kalman Filter G87-045
A New Method of Computing the State
Transition Matrix for Linear Systems G87-036
Recursive Attitude Determination from Vec-
tor Observations: Euler Angle Estimation G87-026
Investigation of Moving-Bank Multiple
Model Adaptive Algorithms G87-013
Modeling Clear-Air Turbulence with Vor-
tices Using Parameter-Identification Tech-
niques G87-004

System Identification

- Distributed Systems Approach to the Iden-
tification of Flexible Structures G87-087
On-Line Aircraft State and Stability Deriva-
tive Estimation Using the Modified-Gain
Extended Kalman Filter G87-045
Modeling Clear-Air Turbulence with Vor-
tices Using Parameter-Identification Tech-
niques G87-004

Launch Vehicle and Missile (LV/M) Technology

Aerodynamics

- Magnus Attenuation on a Generic Missile
Configuration Using N-Vanes G87-051

Dynamics and Control

- Sensitivity of Closed-Loop Eigenvalues and
Robustness G87-093
Method for Robust Design of Multivariable
Feedback Systems G87-078
A Homotopy Approach to the Feedback
Stabilization of Linear Systems G87-069
Modern Control Theory for Design of Au-
topilots for Bank-to-Turn Missiles G87-061
Time-Invariant Controllers for Target Track-
ing G87-055
Magnus Attenuation on a Generic Missile
Configuration Using N-Vanes G87-051
Dynamics of a Multibody System with
Relative Translation on Curved, Flexible
Tracks G87-050
Dynamics of a Cantilever Beam Attached to
a Moving Base G87-025
Relationship Between Kane's Equations and
the Gibbs-Appell Equations G87-020
Multivariable Control Robustness Examples:
A Classical Approach G87-019
Analytical Solution of Optimal Trajectory-
Shaping Guidance G87-009
Side Moment Exerted by a Two-Component
Liquid Payload on a Spinning Projectile G87-003
Comparison of Theory and Experiment for
Moments Induced by Loose Internal Parts G87-002

Guidance

- Time-Invariant Controllers for Target Track-
ing G87-055
Optimal Descending, Hypersonic Turn to
Heading G87-044
The Closed-Form Solution of Generalized
Proportional Navigation G87-035
Recursive Attitude Determination from Vec-
tor Observations: Euler Angle Estimation G87-026
Analytical Solution of Optimal Trajectory-
Shaping Guidance G87-009
An Optimal Q-Guidance Scheme for Satellite
Launch Vehicles G87-008

Testing, Flight and Ground

- Comparison of Theory and Experiment for
Moments Induced by Loose Internal Parts G87-002

Trajectories and Tracking Systems

- Trajectory and Attitude Determination of a
Thrusting Spin-Stabilized Apogee Stage G87-047
Analytical Solution of Optimal Trajectory-
Shaping Guidance G87-009

Vibration

- Dynamics of a Cantilever Beam Attached to
a Moving Base G87-025

Propulsion

Electric and Advanced Space Propulsion

- Orbital Modifications Using Forced Tether-
Length Variations G87-041

Spacecraft Technology

Attitude Determination

- Spacecraft Attitude Determination Using a
Second-Order Nonlinear Filter G87-089
Onboard Spin Axis Controller for a Geosta-
tionary Spin-Stabilized Satellite G87-048
Trajectory and Attitude Determination of a
Thrusting Spin-Stabilized Apogee Stage G87-047
Recursive Attitude Determination from Vec-
tor Observations: Euler Angle Estimation G87-026
Charge Transfer Device Star Tracker Appli-
cations G87-014

Dynamics and Control

- Sensitivity of Closed-Loop Eigenvalues and
Robustness G87-093
Fuel-Optimal Rendezvous Near a Point in
General Keplerian Orbit G87-090
Dynamics of Earth-Orbiting Flexible Satel-
lites with Multibody Components G87-088
Model Reference Adaptive Control for Large
Structural Systems G87-081
Symmetric Kinematic Transformation Pair
Using Euler Parameters G87-080
Method for Robust Design of Multivariable
Feedback Systems G87-078
Mass Property Estimation for Control of
Asymmetrical Satellites G87-076
Sensor-Failure Detection Method for Flex-
ible Structures G87-075
Identification of Large Space Structures: A
Factorization Approach G87-074
Equations of Motion for Maneuvering Flex-
ible Spacecraft G87-073

- A New Approach to the Space-Axis Rotation
G87-066
- Perturbation Analysis of Internal Balancing
for Lightly Damped Mechanical Systems
with Gyroscopic and Circulatory Forces
G87-065

Dynamics of Gyroelastic Spacecraft

- G87-064
- Robust Multivariable Control of Large Space
Structures Using Positivity G87-063
- Effects of Atmosphere on Slewing Control of
a Flexible Structure G87-062
- Parameter-Insensitive Technique for Aircraft
Sensor Fault Analysis G87-059

- Reduced-Order Pulse-Motor Ignition Control
Logic G87-057

- Improved Method for the Initial Attitude
Acquisition Maneuver G87-053

- Dynamics of a Multibody System with
Relative Translation on Curved, Flexible
Tracks G87-050

- Onboard Spin Axis Controller for a Geosta-
tionary Spin-Stabilized Satellite G87-048

- A Three-Mass Tethered System for Micro-
g/Variable-g Applications G87-042

- Orbital Modifications Using Forced Tether-
Length Variations G87-041

- A New Method of Computing the State
Transition Matrix for Linear Systems
G87-036

- Configuration Tradeoffs for the Space Infra-
red Telescope Facility Pointing Control
System G87-034

- Robust Controller Synthesis for a Large
Flexible Space Antenna G87-033

- Stability Robustness Improvement Using
Constrained Optimization Techniques
G87-029

- Robust Controller Design Using Frequency
Domain Constraints G87-027

- Relationship Between Kane's Equations and
the Gibbs-Appell Equations G87-020

- Optimized Rotation-Axis Attitude Maneuver
Controller for the Space Shuttle Orbiter
G87-001

- Gravity Gradient Torque for an Arbitrary
Potential Function G86-021

- Stability of Multidimensional Linear Time-
Varying Systems G85-101

Earth-Orbital Trajectories

- Fuel-Optimal Rendezvous Near a Point in
General Keplerian Orbit G87-090

- A Common-Period Four-Satellite Continu-
ous Global Coverage Constellation
G87-077

- Meter-Level Orbit Determination of Geo-
synchronous Satellites by an Economical
Tracking System G87-007
- Long-Term Evolution of Near-Geostationary
Orbits G86-062

Entry Vehicle Dynamics and Control

- Optimal Re-Entry Maneuvers with Bounded
Lift Control G87-054

Entry Vehicle Guidance

- Optimal Re-Entry Maneuvers with Bounded
Lift Control G87-054

Mission Analysis

- Accessibility of Near-Earth Asteroids
G87-040

Navigation, Guidance, and Flight-Path Control

- Fuel-Optimal Rendezvous Near a Point in
General Keplerian Orbit G87-090

- Evaluation Method of Polynomial Models'
Prediction Performance for Random Clock
Error G87-084

- Analysis of the Geometric Dilution of Pre-
cision Using the Eigenvalue Approach
G87-082

- A Common-Period Four-Satellite Continu-
ous Global Coverage Constellation
G87-077

Error Equations of Inertial Navigation

- G87-058

- Aircraft Automatic Flight Control System
with Model Inversion G87-046

- The Minimum for Geometric Dilution of
Precision in Global Positioning System
Navigation G87-017

- Using Delta Differential One-Way Range to
Determine Highly Elliptical Earth Orbits
G87-006

Signatures and Tracking

- Investigation of Moving-Bank Multiple
Model Adaptive Algorithms G87-013

- Meter-Level Orbit Determination of Geo-
synchronous Satellites by an Economical
Tracking System G87-007

Simulation

- Dynamics of a Multibody System with
Relative Translation on Curved, Flexible
Tracks G87-050

- A Three-Mass Tethered System for Micro-
g/Variable-g Applications G87-042

Space Station Systems, Manned

- Distributed Systems Approach to the Iden-
tification of Flexible Structures G87-087

Systems

- A Three-Mass Tethered System for Micro-
g/Variable-g Applications G87-042

Testing, Flight and Ground

- Closed-Form Solution for a Class of Gui-
dance Laws G87-067

Structural Mechanics and Materials

Aeroelasticity and Hydroelasticity

- Interactions Between an Aircraft Structure
and Active Control Systems G87-072

- Accelerometer Placement in Active Flutter
Suppression Systems G87-071

Structural Design

- Re-examination of Eigenvector Derivatives
G87-092

- Gradient-Based Combined Structural and
Control Optimization G87-049

Structural Dynamics

- Re-examination of Eigenvector Derivatives
G87-092

- Distributed Systems Approach to the Iden-
tification of Flexible Structures G87-087

- Identification of Large Space Structures: A
Factorization Approach G87-074

- Equations of Motion for Maneuvering Flex-
ible Spacecraft G87-073

- Dynamics of Gyroelastic Spacecraft
G87-064

- New Time-Domain Identification Technique
G87-052

- Stability of Multidimensional Linear Time-
Varying Systems G85-101

Structural Stability

- Re-examination of Eigenvector Derivatives
G87-092

- Model Reference Adaptive Control for Large
Structural Systems G87-081

- Symmetric Kinematic Transformation Pair
Using Euler Parameters G87-080