

Space Processing

- Bubble behavior during solidification in low gravity. John M. Papazian, Robert Gutowski, and William R. Wilcox (AIAA J) 1111
- Comment on "SPS cost considerations." George A. Hazelrigg Jr. (JE, TC) 125
- Reply by author to G. Hazelrigg. Gordon R. Woodcock (JE, TC) 126
- Effect of internal heat transport on the thermal migration of bubbles. John M. Papazian and Robert L. Kosson (AIAA J, TN) 1279
- Growth of HgI₂ single crystals in Spacelab III. W.F. Schneppe, L. van den Berg, and N. Skinner (JSR, EN) 441
- Multispectral data acquisition and classification: statistical models for system design. Friedrich O. Huck and Stephen K. Park (PS, V.67) 490
- Optical motion control applied to the Atmospheric Cloud Physics Laboratory (ACPL). L.R. Eaton and S.L. Neste (AIAA J) 261
- Role of "smart" sensors in Earth resources remote sensing programs. Lawrence P. Murphy and John W. Jarman (PS, V.67) 101
- Space-manufactured satellite power systems. R.H. Miller and D.L. Akin (JE, TN) 373

LAUNCH VEHICLE AND MISSILE (LV/M) TECHNOLOGY

LV/M Aerodynamic Heating and Ablation

- Aerothermodynamic assessment of corrugated panel thermal protection systems. Harold J. Brandon, Allen H. Britt, and James C. Dunavant (PS, V.64) 193
- Response of heat-shield materials to intense laser radiation. J.H. Lundell and R.R. Dickey (PS, V.64) 193
- Shock-tube investigation of heat transfer in the base region of a slender cone-hemisphere. B.S.C. Kim (PS, V.64) 278

LV/M Aerodynamics

- Aerodynamics of slender bodies at high angles of attack. C.E.G. Przirembel and Donald E. Shereda (JSR) 10
- Experimental investigation of support interference on an ogive cylinder at high incidence. W.E. Dietz Jr. and M.C. Altstatt (JSR, SYN) 67
- In-flight measurements of the vibration history of spin-stabilized projectiles. W.P. D'Amico (JSR, EN) 444
- System identification technology for estimating re-entry vehicle aerodynamic coefficients. Narendra K. Gupta and W. Earl Hall Jr. (JGC) 139
- Wake vortex measurements of an ogive cylinder at α 36 degrees. F.K. Owen and D.A. Johnson (JA) 577

LV/M Configurational Design

- Experimental determination of the artillery shell mass-property/trajectory-drift relationship. L.R. Rollstin (JSR) 108
- Minimum-ballistic-factor flat-nosed missiles. V.B. Tawakley (JSR, EN) 280
- Prediction of roll controllability of slender cruciform canard configurations. I. Gur, J. Shinar, and J. Rom (JSR) 238

LV/M Dynamics and Control

- Angular motion of spinning almost-symmetric missiles. Charles H. Murphy (JGC) 504
- Atmospheric flight of a variable-bend body. William J. Larkin and Mitchell Thomas (JGC) 382
- Copperhead semiactive laser guidance system development. Robert A. Nulk, Harold L. Pastrick, and Phillip A. Morrison (JGC) 374
- Experimental evaluation of artillery projectile impact errors induced by principal-axis misalignment. Larry R. Rollstin and Albert E. Hodapp Jr. (JSR) 316
- Hysteresis zone or locus—aerodynamics of bulbous based bodies at low speeds. Eugene E. Covert (AIAA J, TN) 659
- Instability of spinning projectiles during terminal guidance. K.H. Lloyd and D.P. Brown (JGC) 65
- Missile guidance for low-altitude air defense. F. William Nesline (JGC) 283
- Modular, spin-stabilized, tandem solid rocket upper stage. G. Porcelli and E. Vogel (JSR) 338
- Optimal thrust for maximal rocket turn. R. Hermesh, S. Katzir, and E. Kreindler (JGC) 301
- Prediction of roll controllability of slender cruciform canard configurations. I. Gur, J. Shinar, and J. Rom (JSR) 238
- Re-entry vehicle dispersion from entry angular misalignment. D.H. Platus (JGC) 276

- Unique nozzle cover for the shuttle booster separation motors. J. Ray Dettling and Stan McIntyre (JSR) 361
- Valve delay effects on bending limit cycles of a deadband system. Franklin C. Loesch (JGC, EN) 436
- Velocity required for intercept with perturbations. Bruce D. White (JGC, EN) 94

LV/M Guidance

- Concept to enhance strapdown navigation on MaRV's. Thomas J. Duffy (JGC, EN) 542
- Copperhead semiactive laser guidance system development. Robert A. Nulk, Harold L. Pastrick, and Phillip A. Morrison (JGC) 374
- Method for designing approximate optimal controllers for nonlinear systems. James W. Austin and Cornelius T. Leonde (JGC, EN) 347
- Missile guidance for low-altitude air defense. F. William Nesline (JGC) 283
- Vector methods in homing guidance. Malcolm J. Abzug (JGC, EN) 253
- Velocity required for intercept with perturbations. Bruce D. White (JGC, EN) 94

LV/M Mission Studies and Economics

- Comment on "SPS cost considerations." George A. Hazelrigg Jr. (JE, TC) 125
- Reply by author to G. Hazelrigg. Gordon R. Woodcock (JE, TC) 126
- Constrained impulsive trajectory optimization for orbit-to-orbit transfer. Richard G. Brusch (JGC) 204
- Cost comparisons of dual-fuel propulsion in advanced shuttles. James A. Martin (JSR) 232
- High performance dash-on-warning air mobile missile system. D.S. Hague and Alan D. Levin (JA) 551
- Launch window for a shuttle-based geosynchronous orbit mission. W.H. Wright (JSR, EN) 439
- Probability of crashing from Monte Carlo simulation. E.P. Cunningham (JSR, EN) 348
- Stationkeeping at constant distance. Wayne A. Fey (JGC, EN) 90

LV/M Propulsion and Propellant Systems

- Cost comparisons of dual-fuel propulsion in advanced shuttles. James A. Martin (JSR) 232
- Coupled thermomechanical effects in high solids propellants. Tieh-Ying Lee (AIAA J, TN) 1015
- Effects of propellant temperature gradients on thrust imbalance of the space shuttle. Richard H. Sforzini, Winfred A. Foster Jr., and Benjamin W. Shackelford Jr. (JSR) 135
- Enthalpies of combustion of ramjet fuels. N.K. Smith and W.D. Good (AIAA J, TN) 905
- High performance dash-on-warning air mobile missile system. D.S. Hague and Alan D. Levin (JA) 551
- New law for crack propagation in solid propellant material. G. Langlois and R. Gonard (JSR) 357
- New solid propellant for European apogee boost motor. R. Isopi (JSR, SYN) 355
- Reusable insulation systems for cryogenic Earth-based space vehicles. Irving E. Sumner and James R. Barber (PS, V.65) 275
- Solid rocket motor plume and ablation study. G.R. Moore, L.P. Anderson Jr., C.H. Lewis, and A.L. Murray (PS, V.64) 265

LV/M Simulation

- General expression for a three-angle rotation matrix. James M. Wilkes (JGC, EN) 156
- Probability of crashing from Monte Carlo simulation. E.P. Cunningham (JSR, EN) 348
- Velocity required for intercept with perturbations. Bruce D. White (JGC, EN) 94

LV/M Structural Design (including Loads)

- Estimation of payload loads using rigid-body interface accelerations. J.C. Chen, J.A. Garba, and B.K. Wada (JSR) 74
- Geometric analysis of Rosette[®] exit cones. N.J. Pagano and P.W. Hsu (JSR) 311
- Probability of solid-propellant motor failure due to environmental temperatures. R.A. Heller, M.P. Kamat, and M.P. Singh (JSR) 140
- Reusable solid rocket motor case: optimum probabilistic fracture control. S. Hanagud and B. Uppaluri (JSR) 147
- Voyager design and flight loads comparison. J.C. Chen, J.A. Garba, and F.D. Day III (JSR) 27

LV/M Testing, Flight and Ground

- Flight vibration environments defined from Mk 12 booster static tests. N. Rubinstein and W.C. Caywood (JSR) 214
 In-flight measurements of the vibration history of spin-stabilized projectiles. W.P. D'Amico (JSR, EN) 444

LV/M Trajectories and Tracking Systems

- Experimental determination of the artillery shell mass-property/trajectory-drift relationship. L.R. Rollstin (JSR) 108
 Experimental evaluation of artillery projectile impact errors induced by principal-axis misalignment. Larry R. Rollstin and Albert E. Hodapp Jr. (JSR) 316
 Flight instability produced by a rapidly spinning, highly viscous liquid. W.P. D'Amico and M.C. Miller (JSR, EN) 62
 Optimal climb paths for a ballistic rocket within the atmosphere. Edward Large (JSR, EN) 282
 Optimal thrust for maximal rocket turn. R. Hermesh, S. Katzir, and E. Kreindler (JGC) 301
 Re-entry vehicle dispersion from entry angular misalignment. D.H. Platus (JGC) 276
 Stationkeeping at constant distance. Wayne A. Fey (JGC, EN) 90

LV/M Vibration

- Flight vibration environments defined from Mk 12 booster static tests. N. Rubinstein and W.C. Caywood (JSR) 214
 Eigenrelations for general second-order systems. H.D. Nelson and D.A. Glasgow (AIAA J, TN) 795
 In-flight measurements of the vibration history of spin-stabilized projectiles. W.P. D'Amico (JSR, EN) 444
 Some results from 1/8-scale shuttle model vibration studies. Larry D. Pinson and Sumner A. Leadbetter (JSR) 48

Launch Vehicle Systems

- Effect of demand on optimum launch vehicle size. R.H. Miller (JSR, EN) 287
 Modular, spin-stabilized, tandem solid rocket upper stage. G. Porcelli and E. Vogel (JSR) 338
 Solid rocket motor plume and ablation study. G.R. Moore, L.P. Anderson Jr., C.H. Lewis, and A.L. Murray (PS, V.64) 265
 Unique nozzle cover for the shuttle booster separation motors. J. Ray Dettling and Stan McIntyre (JSR) 361

Missile Systems

- Analysis of three-dimensional optimal evasion with linearized kinematics. J. Shinar, Y. Rotsztein, and E. Bezner (JGC) 353
 Copperhead semiactive laser guidance system development. Robert A. Nulk, Harold L. Pastrick, and Phillip A. Morrison (JGC) 374
 High performance dash-on-warning air mobile missile system. D.S. Hague and Alan D. Levin (JA) 551
 Millimeter-wave missile seeker aimpoint wander phenomenon. D.T. Williams and W.H. Boykin Jr. (JGC) 196
 Missile guidance for low-altitude air defense. F. William Nesline (JGC) 283
 Performance potential and research needs of a hypersonic, air-breathing, lifting missile concept. J.L. Hunt, P.L. Lawing, D.C. Marcum, and J.M. Cubbage. (JA) 666

Sounding Rocket Systems

- Optimal climb paths for a ballistic rocket within the atmosphere. Edward Large (JSR, EN) 282

MARINE TECHNOLOGY**Marine Hydrodynamics, Vessel and Control Surface**

- Interference effect of catamaran planing hulls. C.Y. Liu and C.T. Wang (JH, EN) 31
 Numerical solution of a body-propeller combination flow including swirl and comparisons with data. Joseph A. Schetz and Stanley Favin (JH) 46
 Powering prediction for surface effect ships based on model results. Robert A. Wilson, Steven M. Wells, and Charles E. Heber (JH) 113
 Seakeeping quality of advanced marine vehicles for design applications. M.D. Ochi and D.D. Moran (JH) 85
 Section design for hydrofoil wings with flaps. Young T. Shen and Richard Eppler (JH) 39
 Simulation of maneuvering control during underway replenishment. Samuel H. Brown and Reidar Alvestad (JH, ERR) 68

Marine Instrumentation

- Advanced oceanographic instrumentation systems and measurements at St. Croix, U.S.V.I. F.S. Billig, L.J. Crawford, and C.J. Gundersdorf (JH) 77
 Mathematical modeling of fish detection with a scanning airborne laser. David L. Murphree, Ronald W. McClendon, Bradley W. Ward, and Fred Glaum (AIAA J, SYN) 745
 Measurements of vertical profiles of oceanic current and Richardson number near St. Croix, U.S.V.I. D.C. Wenstrand (JH) 69

Marine Materials, Corrosion/Erosion

- Application of hybrid composites to hydrofoil structures. L.B. Greszczuk, A.V. Hawley, and W. Couch (JH) 105

Marine Mooring Systems and Cable Mechanics

- Effect of hydrostatic pressure on underwater towed body cable configurations. Theodore R. Goodman and Daniel T. Valentine (JH, EN) 131
 Hydrodynamic analysis of a high-speed marine towed system. D.E. Calkins (JH) 10
 Similarity in the modeling of cable twisting and looping. A.J. Shashaty (JH, EN) 133
 Stability of faired underwater towing cables. S. Nair and G. Hegemier (JH) 20

Marine Propulsion

- Flow about a propeller-driven body in temperature-stratified fluid. T.F. Swann Jr. and J.A. Schetz (AIAA J) 863
 Simulation of maneuvering control during underway replenishment. Samuel H. Brown and Reidar Alvestad (JH, ERR) 68

Marine Vessel Design (including Loads)

- Application of hybrid composites to hydrofoil structures. L.B. Greszczuk, A.V. Hawley, and W. Couch (JH) 105
 Seakeeping quality of advanced marine vehicles for design applications. M.D. Ochi and D.D. Moran (JH) 85

Marine Vessel Systems, Submerged and Surface

- Aircraft operating environments around high-speed ships. James F. Marchman III (JH, SYN) 3
 Application of hybrid composites to hydrofoil structures. L.B. Greszczuk, A.V. Hawley, and W. Couch (JH) 105
 Hydrodynamic analysis of a high-speed marine towed system. D.E. Calkins (JH) 10
 The 260-ton French amphibious hovercraft—Naviplane N 500. P.F. Guienne (JH) 33

Marine Vessel Trajectories, Stability and Control

- Simulation of maneuvering control during underway replenishment. Samuel H. Brown and Reidar Alvestad. (JH, ERR) 68

Oceanography, Physical and Biological

- Advanced oceanographic instrumentation systems and measurements at St. Croix, U.S.V.I. F.S. Billig, L.J. Crawford, and C.J. Gundersdorf (JH) 77
 Advanced systems requirements for ocean observations via microwave radiometers. Hans-Juergen C. Blume, Calvin T. Swift, and Bruce M. Kendall (PS, V.67) 89
 Mathematical modeling of fish detection with a scanning airborne laser. David L. Murphree, Ronald W. McClendon, Bradley W. Ward, and Fred Glaum (AIAA J, SYN) 745
 Measurements of vertical profiles of oceanic current and Richardson number near St. Croix, U.S.V.I. D.C. Wenstrand (JH) 69
 "Smart" remote sensor needs for U.S. Coast Guard Ocean environment missions. Richard M. Hayes (PS, V.67) 44

Sea Pollution and Containment Control

- Advanced systems requirements for ocean observations via microwave radiometers. Hans-Juergen C. Blume, Calvin T. Swift, and Bruce M. Kendall (PS, V.67) 89

PROPULSION**Airbreathing Propulsion**

- Accelerated mission testing of gas turbine engines. Jon S. Ogg and Wilson R. Taylor (JA) 247