

- Lateral vibration and stability relationship of elastically restrained circular plates. K. Singa Rao and C. L. Amba-Rao (AIAA J, TN) 1689
- Axisymmetric buckling of uniformly loaded spherical caps undergoing plastic deformation. Michael T. Wilkinson and Robert E. Fulton (AIAA J, TN) 1695
- Stability of clamped rectangular plates in uniform subsonic flow. C. H. Ellen (AIAA J, TN) 1716

Structural Static Analysis

- Electric snap-through analysis of curved plates using discrete elements. T. Y. Yang (AIAA J, SYN) 371
- A high-precision curved shell finite element. Lawrence J. Brombolich and Philip L. Gould (AIAA J, SYN) 727
- Analysis of a ring with a hinged cross section. Harry E. Williams (JSR, SYN) 787
- Study of stresses and deformations in sandwich plates with anisotropic facings. Walter P. Stroud Jr. and Herbert B. Kingsbury (JA, SYN) 801
- Deflection of orthotropic sandwich plates. Jamal J. Azar and Peter C. Johnson (AIAA J, SYN) 981
- Pseudo-static deformation and frequencies of rotating turbomachinery blades. M. A. Dokainish and S. Rawtani (AIAA J, SYN) 1397
- Finite deflections of uniformly loaded, clamped, rectangular, anisotropic plates. C. Y. Chia (AIAA J, SYN) 1399
- Evaluation of techniques for predicting static aeroelastic effects on flexible aircraft. Irving Abel (JA) 43
- Experimental investigation of strains in fabric under biaxial and shear forces. Vernon L. Alley Jr. and Richard W. Faison (JA) 55
- Effects of bending stiffness in tow and salvage cables. John J. McCoy (JH) 77
- Asymptotic solution of a thick spherical shell with circular holes. Howard N. Franklin and Jerome M. Klosner (JH) 90
- A nonlinear method applied to variable-thickness plates. Tsai-Chen Soong (AIAA J) 148
- Erratum: "A nonlinear method applied to variable-thickness plates." Tsai-Chen Soong (AIAA J, ERR) 720
- Structural analysis of a parawing during deployment. Paul M. Kenner (JA) 168
- Development and evaluation of solution procedures for geometrically nonlinear structural analysis. Walter E. Haisler, James A. Stricklin, and Frederick J. Stebbins (AIAA J) 264
- Crippling and buckling of corrugated ring-stiffened cylinders. David Bushnell (JSR) 357
- Pressurized crack behavior in two-dimensional rocket motor geometries. E. C. Francis, G. H. Lindsey, and R. R. Parmerter (JSR) 415
- Intermediate diagonal tension field shear beam development for the Boeing SST. Raymond M. Mello, Robert E. Sherrer, and Max D. Musgrove (JA) 470
- Slip front mechanisms in mechanical joints. Clark T. Rollins and Paul E. Sandorff (JA) 581
- Bending of a uniformly loaded circular plate with mixed boundary conditions. Bernhard Stahl and Leon M. Keer (AIAA J) 739
- Stress analysis of axisymmetric solids with asymmetric properties. James G. Crose (AIAA J) 866
- Bending rigidity of an inflated circular cylindrical membrane of rubbery materials. Tatsuo Koga (AIAA J) 1485
- A strain energy basis for studies of element stiffness matrices. G. L. Rigby and G. M. McNeice (AIAA J) 1490
- Interpolation using surface splines. Robert L. Harder and Robert N. Desmarais (JA, EN) 189
- Condition of finite element matrices generated from nonuniform meshes. Isaac Fried (AIAA J, TN) 219
- Development of two simple shell elements. Jean L. Batoz and Gurbachan Dhatt (AIAA J, TN) 237
- Deflection function for the symmetrical bending of circular plates. Gerard C. Pardoan (AIAA J, TN) 239
- Accuracy of complex finite elements. Isaac Fried (AIAA J, TN) 347
- Constitutive equations for bimodulus elastic materials. Farhad Tabaddor (AIAA J, TN) 516
- Bending of a simply supported plate clamped about a central circular hole. Roy C. Fedotoff and John F. Carney III (AIAA J, TN) 518
- Control theory formulation for nonlinear elastic analysis of trusses. N. M. Singaraj and Jawalker K. Sridhar Rao (AIAA J, TN) 527
- Annular plate with supporting edge beams. B. Moustakakis and John F. Carney III (AIAA J, TN) 529
- A consistent approach for treating distributed loading in the matrix force method. L. W. Rehfield (JA, EN) 602
- Analysis of a clamped skew plate under uniform loading. C. S. Kale, S. Gopalacharyulu, and B. S. Ramachandra Rao (AIAA J, TN) 695
- Bending of an orthotropic cantilever. R. Sierakowski, R. S. Van Huysen, and J. L. Krahula (AIAA J, TN) 708
- Structural averaging of stresses in the hybrid stress model. John P. Wolf (AIAA J, TN) 843
- Computing pressure cure viscoelastic effects in solid propellants. David A. Hunt (JSR, EN) 937
- Statics of transversely isotropic beams. E. J. Brunelle (AIAA J, TN) 1083

- Convergence criteria for iterative processes. Pål G. Bergan and Ray W. Clough (AIAA J, TN) 1107
- Mechanical behavior of fiber reinforced cylindrical shells. J. Padovan and J. Lestingi (AIAA J, TN) 1239
- Best finite elements distribution around a singularity. Isaac Fried and Shok Keng Yang (AIAA J, TN) 1244
- Mixed quadrilateral elements for bending. Jean Bron and Gurbachan Dhatt (AIAA J, TN) 1359
- Solution of stresses and strains for laminated monoclinic cylinders. Joseph Padovan (AIAA J, TN) 1364
- Plane stress analysis of an annular disk with distorted inner hole. Thomas J. Kim (AIAA J, TN) 1374
- Finite elements for axisymmetric solids under arbitrary loadings with nodes on origin. Ted Belytschko (AIAA J, TN) 1532
- Torsion of certain prismatic bars. Amir K. Naghdi (AIAA J, TN) 1543
- Axisymmetric buckling of uniformly loaded spherical caps undergoing plastic deformation. Michael T. Wilkinson and Robert E. Fulton (AIAA J, TN) 1695
- Influence coefficients for end-loaded conical frustums. Paul Seide (AIAA J, TN) 1717
- Comment on "Large deflection analysis of plates." R. C. Dixon (AIAA J, TC) 367
- Comment on "Interpolation using surface splines." William P. Rodden, Jean A. McGrew, and Terez P. Kálmán (JA, TC) 869
- Reply by authors to W. P. Rodden, J. A. McGrew, and T. P. Kálmán. Robert L. Harder and Robert N. Desmarais (JA, TC) 871
- Erratum: "Constitutive equations for bimodulus elastic materials." Farhad Tabaddor (AIAA J, ERR) 976

Thermal Stresses

- Heat transfer in solid-propellant motors. Anthony San Miguel and Robert M. McCarten (JSR, SYN) 129
- Material design concepts for filament-wound, graphite-graphite heatshields. Tommy R. Guess and Charles W. Bert (JSR) 165
- Stress analysis of axisymmetric solids with asymmetric properties. James G. Crose (AIAA J) 866
- Thermoelastic stress in a rod due to distributed time-dependent heat sources. Snehanishu Kumar Roy Choudhuri (AIAA J, TN) 531
- Thermal bending of moderately thick rectangular plate. Y. C. Das and B. K. Rath (AIAA J, TN) 1349

THERMOPHYSICS AND THERMOCHEMISTRY

Atomic, Molecular, and Plasma Properties

- Measurements of the H β line shape using a fiber optics slit system. George H. Stickford Jr. (AIAA J, SYN) 1269
- An immersion-type electrical conductivity probe for anisotropic plasmas. Elie J. Stubbe (AIAA J) 92
- Thermodynamic properties of hydrogen-helium plasmas. H. F. Nelson (JSR) 177
- Errata: "Thermodynamic properties of hydrogen-helium plasmas." H. F. Nelson (JSR, ERR) 720
- Photon generators and engines for laser power transmission. Abraham Hertzberg, Walter H. Christiansen, Earl W. Johnston, and Harlow G. Ahlstrom (AIAA J) 394
- Nuclear pumped gas lasers. Karlheinz Thom and Richard T. Schneider (AIAA J) 400
- Physics of CO₂ electric discharge lasers. R. H. Bullis, W. L. Nighan, M. C. Fowler, and W. J. Wiegand (AIAA J) 407
- Measurement of nitrogen plasma transport properties. Paul W. Schreiber, Allen M. Hunter II, and Kenneth R. Benedetto (AIAA J) 670
- Population inversion of atomic carbon in recombining plasma flow. S. W. Bowen and C. Park (AIAA J, TN) 522
- Electrophilic property of uranium hexafluoride. J. C. Wu, J. R. Williams, J. C. Handley, and B. P. Cooper (JSR, EN) 614

Heat Conduction

- Heat transfer in solid-propellant motors. Anthony San Miguel and Robert M. McCarten (JSR, SYN) 129
- A review of thermal control materials for metallic junctions. Leroy S. Fletcher (JSR, SYN) 849
- Nonlinear heat conductions in rarefied gases. Y. S. Lou and T. K. Shih (AIAA J, SYN) 1149
- Approximate optimal control of distributed parameter systems. John T. Betts and Stephen J. Citron (AIAA J) 19
- Parameter optimization—An aid to thermal protection design. S. D. Williams and D. M. Curry (JSR) 33
- Temperature distributions in anisotropic shells of revolution. Joseph Padovan (AIAA J) 60
- Bleaching wave phenomena. Loren C. Steinhauer and Harlow G. Ahlstrom (AIAA J) 429
- Heat flux measurement using swept null point calorimetry. Charles A. Powars, William S. Kennedy, and Roald A. Rindal (JSR) 668

- Measurement of nitrogen plasma transport properties. Paul W. Schreiber, Allen M. Hunter II, and Kenneth R. Benedetto (AIAA J) 670
- Prediction of transient temperature distributions with embedded thermocouples. Murray Imber and Jamal Khan (AIAA J) 784
- Application of an improved transpiration cooling concept to space shuttle type vehicles. John R. Schuster and Thomas G. Lee (JSR) 804
- Film cooling of insert turbine vane trailing edges. E. C. Bassiot (JA) 849
- Simple conduction model for theoretical steady-state heat pipe performance. K. H. Sun and C. L. Tien (AIAA J) 1051
- Biot's variational principle for a Stefan problem. Anant Prasad and H. C. Agrawal (AIAA J, TN) 325
- Thermal control of a Jovian survivable probe. Bruce G. Schelden (JSR, EN) 453
- Practical problems in cryosurgical techniques. Andrew A. Gage (JSR, EN) 844
- Approximate temperature distribution for a diffuse, highly reflecting material. Kenneth C. Weston, John T. Howe and Michael J. Green (AIAA J, TN) 1252

Liquid and Solid Thermophysical Properties

- Study of zirconium dioxide white pigment for space environment. H. K. Alan Kan, R. J. Champetier, and T. G. Erler (JSR) 103
- Vapor escape from a droplet containing a volatile solute. Daniel E. Rosner (AIAA J, TN) 339

Material Ablation

- Erosion of graphite surface exposed to high-temperature supersonic hydrogen gas. Om P. Sharma (JSR, SYN) 785
- Ducts for material and ablation studies. E. M. Winkler, R. L. Humphrey, and M. T. Madden (JSR) 172
- Silica reinforcement and char reactions in the Apollo heat shield. D. E. Cagliostro, H. Goldstein, and J. A. Parker (JSR) 346
- Foreign gas injection into three-dimensional stagnation point flows. Andrzej Wortman (JSR) 428
- Turbulent flow studies in two arc-heated duct facilities. M. Alan Covington and Nick S. Vojvodich (JSR) 441
- Nonsimilar solution for laminar and turbulent boundary-layer flows over ablating surfaces. Robert M. Kendall, Larry W. Anderson, and Ronald H. Aungier (AIAA J) 1230
- Reflecting ablating heat shields for planetary entry. David L. Peterson, Philip R. Nachtsheim, and John T. Howe (AIAA J) 1499
- Investigation of simulated melting instability waves near stagnation region in hypersonic flow. William Kuzyk and Ching Jen Chen (AIAA J) 1505
- Observations of crosshatched wave patterns in liquid films. Philip R. Nachtsheim and Jack R. Hagen (AIAA J) 1637
- Three-dimensional heat-transfer and ablation disturbances in high-speed flows. G. R. Inger (AIAA J) 1641
- The ablation of slip-cast fused silica. C. E. Willbanks and C. W. Gorton (JSR, EN) 222
- Biot's variational principle for a Stefan problem. Anant Prasad and H. C. Agrawal (AIAA J, TN) 325
- Further experimental studies of cross-hatching. Hans W. Stock and Jean J. Ginoux (AIAA J, TN) 557
- Inhibition of the ablation rate of graphite by gaseous chlorine. Howard G. Maahs (AIAA J, TN) 710
- Role of the anelastic behavior of the ablation material on cross-hatching. Hans W. Stock (AIAA J, TN) 1528

Radiation and Radiative Heat Transfer

- Advanced high-power arc heaters for simulating entries into the atmospheres of the outer planets. Charles E. Shepard (AIAA J, SYN) 117
- Application of the Sn method to spherically symmetric radiative-transfer problems. Kuei-Yuan Chien (AIAA J) 55
- Gain and power of CO₂ gasdynamic lasers. George Lee, Forrest E. Gowen, and Jack R. Hagen (AIAA J) 65
- Nuclear pumped gas lasers. Karlheinz Thom and Richard T. Schneider (AIAA J) 400
- Bleaching wave phenomena. Loren C. Steinhauer and Harlow G. Ahlstrom (AIAA J) 429
- Measurement of nitrogen plasma transport properties. Paul W. Schreiber, Allen M. Hunter II, and Kenneth R. Benedetto (AIAA J) 670
- Analytical model of the flash produced in aluminum-aluminum hypervelocity impacts. Kenneth E. Harwell, Kynric M. Pell, and T. Dwayne McCay (JSR) 682
- Measurement of apparent thermal conductivity of multilayer insulations at low-compressive loads. Vernon L. Holmes, Leon E. McCrary, and Dennis R. Krause (JSR) 791
- Radiant heat transfer between nongray directional surfaces. W. D. Fischer and R. G. Hering (JSR) 915

- Spectral reflectance and emittance of Apollo 11 and 12 lunar material. Richard C. Birkebak (AIAA J) 1064
- Reflecting ablating heat shields for planetary entry. David L. Peterson, Philip R. Nachtsheim, and John T. Howe (AIAA J) 1499
- Directional behavior of thermal emission from a rough lunar surface. A. S. Adorjan (JSR, EN) 59
- Radiative cooling and nonequilibrium chemistry coupling behind normal shock waves. Leland A. Carlson (AIAA J, TN) 230
- Variational solutions by the use of stepwise constant functions: I. Linear case. K. K. Yoshikawa (AIAA J, TN) 343
- A technique for delineating convective and radiative wall heat flux. L. A. Lukens and F. P. Incropera (AIAA J, TN) 359
- Evaluation of the averaged specular component of reflectance. J. S. Toor and R. Viskanta (AIAA J, TN) 535
- A simple method for calculating nongray radiation. H. F. Nelson and K. H. Browne (JSR, EN) 781
- The optical temperature of the Apollo 15 exhaust plume. A. E. Pifer and E. P. Krider (JSR, EN) 847
- Measurement of the error of temperature sensors in flowing gases. C. R. Rein and J. R. O'Loughlin (AIAA J, TN) 954
- Eigenvalues and eigenvectors for solutions to the radiative transport equation. J. A. Roux, D. C. Todd, and A. M. Smith (AIAA J, TN) 973
- Effect of polarization on the apparent emittance of rectangular groove cavities. C. L. Tien (AIAA J, TN) 1113
- Approximate temperature distribution for a diffuse, highly reflecting material. Kenneth C. Weston, John T. Howe and Michael J. Green (AIAA J, TN) 1252
- Influence of a temperature dependent spectral absorption coefficient on radiative flux. H. F. Nelson, C. Y. Wang, and A. L. Crosbie (AIAA J, TN) 1255
- An approximation to radiative transfer in a nongray gas. Robert R. Gilpin (AIAA J, TN) 1340
- Radiative and convective heating during Venus entry. William A. Page and Henry T. Woodward (AIAA J, TN) 1379

Thermal Modeling and Experimental Thermal Simulation

- Heat transfer in solid-propellant motors. Anthony San Miguel and Robert M. McCarten (JSR, SYN) 129
- Application of thermal barriers to high-temperature engine components. R. L. Newman, K. R. Cross, W. C. Spicer, H. D. Sheets, and T. D. Driskell (JA, SYN) 609
- Internal temperature distributions in an operational heat pipe. Richard D. Fox, Kelly G. Carothers, and William J. Thomson (AIAA J, SYN) 859
- Synthesis of stiffened conical shells. W. A. Thornton (JSR) 189
- Development and application of a comprehensive analysis of liquid-rocket combustion. R. D. Sutton, W. S. Hines, and L. P. Combs (AIAA J) 194
- Effects of thermal discharges on the stratification cycle of lakes. T. R. Sundaram and R. G. Rehm (AIAA J) 204
- Silica reinforcement and char reactions in the Apollo heat shield. D. E. Cagliostro, H. Goldstein, and J. A. Parker (JSR) 346
- Investigation of simulated melting instability waves near stagnation region in hypersonic flow. William Kuzyk and Ching Jen Chen (AIAA J) 1505
- Directional behavior of thermal emission from a rough lunar surface. A. S. Adorjan (JSR, EN) 59
- Prediction of pressure during evacuation of multilayer insulation. A. P. M. Glassford (JSR, EN) 378
- Graded thermal barrier—A new approach for turbine engine cooling. J. R. Cavanagh, K. R. Cross, R. L. Newman, and W. C. Spicer (JA, EN) 795
- The optical temperature of the Apollo 15 exhaust plume. A. E. Pifer and E. P. Krider (JSR, EN) 847
- Flight evaluation of a quartz-fiberfrax heat shield. George F. Greenwald (JSR, EN) 939
- Errata: Design of an astronaut-operated, lunar-surface, antenna-aiming mechanism. N. S. Ajlouny and A. R. Spencer (JSR, ERR) 384

Thermal Surface Properties

- Study of zirconium dioxide white pigment for space environment. H. K. Alan Kan, R. J. Champetier, and T. G. Erler (JSR) 103
- Radiant heat transfer between nongray directional surfaces. W. D. Fischer and R. G. Hering (JSR) 915
- Spectral reflectance and emittance of Apollo 11 and 12 lunar material. Richard C. Birkebak (AIAA J) 1064
- Directional behavior of thermal emission from a rough lunar surface. A. S. Adorjan (JSR, EN) 59
- Evaluation of the averaged specular component of reflectance. J. S. Toor and R. Viskanta (AIAA J, TN) 535
- Effect of polarization on the apparent emittance of rectangular groove cavities. C. L. Tien (AIAA J, TN) 1113

Thermochemistry and Chemical Kinetics

- Thermochemical nonequilibrium in an argon constricted arc plasma. K. J. Clark and F. P. Incropera (AIAA J, SYN) 17
- Theory and experiment of electric discharge CO₂ convection lasers. Robert K. Seals Jr., Frank Allario, Roy A. Lucht, and H. A. Hassan (AIAA J, SYN) 369
- Atmospheric transport, dispersion, and chemical reactions in air pollution: A review. Martin I. Hoffert (AIAA J, SA) 377
- Errata: "Atmospheric transport, dispersion and chemical reactions in air pollution: A Review." Martin I. Hoffert (AIAA J, TC) 1729

- Shock-tube study of nitrogen dissociation rates using pressure measurements. Ronald K. Hanson and Donald Baganoff (AIAA J) 211
- Experimental gas dynamic laser studies. Richard A. Meinzer (AIAA J) 388
- Ionization behind shock waves in nitrogen-oxygen mixtures. J. H. Schäfer and A. Frohn (AIAA J) 985
- Radiative cooling and nonequilibrium chemistry coupling behind normal shock waves. Leland A. Carlson (AIAA J, TN) 230
- Effect of nozzle throat radius of curvature on gasdynamic laser gain. Jerry L. Wagner and John D. Anderson Jr. (JSR, EN) 471
- Population inversion of atomic carbon in recombining plasma flow. S. W. Bowen and C. Park (AIAA J, TN) 522