

Chronological Index

T04-001 Measurement and Use of Reflectance Function Based on the Discrete-Ordinates Method. Mauricio A. Sanchez and William H. Sutton, *University of Oklahoma* (18, 1, p. 9) Article

T04-002 Combined Radiation-Conduction Analysis and Experiment of Ceramic Insulation for Reentry Vehicles. Toshiya Nakamura and Takashi Kai, *National Aerospace Laboratory of Japan, Japan* (18, 1, p. 24) Article

T04-003 Analysis and Prediction of Constriction Resistance for Contact Between Rough Engineering Surfaces. Anthony F. Black, Vishal Singhal, and Suresh V. Garimella, *Purdue University* (18, 1, p. 30) Article

T04-004 Thermal Contact Conductance at Low Contact Pressures. Fernando H. Milanez, *Federal University of Santa Catarina, Brazil*; Michael M. Yovanovich, *University of Waterloo, Canada*; and Marcia B. Mantelli, *Federal University of Santa Catarina, Brazil* (18, 1, p. 37) Article based on AIAA Paper 2003-3489

T04-005 Thermal Spreading Resistance in Compound and Orthotropic Systems. Y. S. Muzychka, *Memorial University of Newfoundland, Canada*; M. M. Yovanovich and J. R. Culham, *University of Waterloo, Canada* (18, 1, p. 45) Article based on AIAA Paper 2001-0366

T04-006 Optimization of Thermally and Geometrically Asymmetric Trapezoidal Fins. H. S. Kang, *Kangwon National University, South Korea*; and D. C. Look, *University of Missouri-Rolla* (18, 1, p. 52) Article

T04-007 Heat-Transfer and Friction Characteristics for the Louver-Fin Heat Exchanger. Joung Ha Kim, *Hanyang University, South Korea*; Jae Ho Yun, *Korea Institute of Industrial Technology, South Korea*; and Chang Sik Lee, *Hanyang University, South Korea* (18, 1, p. 58) Article

T04-008 Investigation of Liquid Flow in Microchannels. Dong Liu and Suresh V. Garimella, *Purdue University* (18, 1, p. 65) Article

T04-009 Effect of Heat Flux Ratio on Two-Dimensional Horizontal Channel Flow. Shuichi Torii, *Kumamoto University, Japan*; and Wen-Jei Yang, *University of Michigan* (18, 1, p. 73) Article

T04-010 Perturbation Solution to Mixed Convection in Rotating Horizontal Elliptic Cylinders. Olumuyiwa A. Lasode, *University of Ilorin, Nigeria* (18, 1, p. 79) Article

T04-011 Experimental and Numerical Study of Solidification Process in Unsaturated Granular Packed Bed. P. Rattanadecho, *Thammasat University, Thailand* (18, 1, p. 87) Article

T04-012 Heat Transfer Characteristics of Acoustic Streaming by Longitudinal Ultrasonic Vibration. Byoung-Gook Loh, *Hansung University, South Korea*; and Dong-Ryul Lee, *Catholic University of Daegu, South Korea* (18, 1, p. 94) Article

T04-013 Axisymmetric Impingement Heat Transfer with a Nonlinear k - ϵ Model. B. Merci, C. De Langhe, K. Lodefier, and E. Dick, *Ghent University, Belgium* (18, 1, p. 100) Article based on AIAA Paper 2003-3743

T04-014 Low-Reynolds-Number Effects on Hypersonic Blunt-Body Shock Standoff. George R. Inger, *Iowa State University* (18, 1, p. 108) Article

T04-015 Numerical Simulation of Nonequilibrium Stagnation-Line CO₂ Flows with Catalyzed Surface Reactions. P. Rini, *Université Libre de Bruxelles, Belgium*; A. Garcia and T. Magin, *von Kármán Institute for Fluid Dynamics, Belgium*; and G. Degrez, *Université Libre de Bruxelles, Belgium* (18, 1, p. 114) Article based on AIAA Paper 2003-4038

T04-016 Kinetic Model for Simulation of Aerosol Droplets in High-Temperature Environments. Craig M. Benson, *George Washington University*; Deborah A. Levin, Jiaqiang Zhong, and Sergey F. Gimelshein, *Pennsylvania State University*; and Akbar Montaser, *George Washington University* (18, 1, p. 122) Article

T04-017 Thermodynamic Properties of Moist Air: -40 to 400 Degrees Celsius. H. F. Nelson and H. J. Sauer, *University of Missouri-Rolla* (18, 1, p. 135) Article

T04-018 Collision Integrals for Ion-Neutral Interactions of Nitrogen and Oxygen. Eugene Levin and Michael J. Wright, *ELORET Corporation* (18, 1, p. 143) Article

T04-019 Direct Simulation of Free Molecular Flow in Fully Three-Dimensional Axial Rotor. S. M. Hosseinalipour and A. Amoli, *Iran University of Science and Technology, Iran*; and R. Ebrahimi, *K. N. Toosi University of Technology, Iran* (18, 1, p. 148) Technical Note based on AIAA Paper 2003-3777

T04-020 Backward Monte Carlo Method Based on Radiation Distribution Factor. L. H. Liu, *Harbin Institute of Technology, China (PRC)* (18, 1, p. 151) Technical Note

T04-021 First Hybrid Turbulence Modeling for Turbine Blade Cooling. Sagar Kapadia and Subrata Roy, *Kettering University*; and James Heidmann, *NASA John H. Glenn Research Center at Lewis Field* (18, 1, p. 154) Technical Note

T04-022 Accelerated Solution of the Radiation-Transfer Equation with Strong Scattering. G. D. Raithby, *University of Waterloo, Canada*; and E. H. Chui, *Natural Resources Canada, Canada* (18, 1, p. 160) Technical Note

T04-023 Multiple Scattering of Laser-Beam Radiation. H. F. Nelson, *University of Missouri-Rolla* (18, 2, p. 161) Article based on AIAA Paper 2003-3904

T04-024 Radiative Heat Transfer Solutions for Anisotropically Scattering Media: The Use of Wavelets. Oguzhan Guven and Yildiz Bayazitoglu, *Rice University* (18, 2, p. 172) Article

T04-025 Radiative Characteristics of Opaque Spherical Particles Beds: A New Method of Prediction. R. Coquard, *Centre Scientifique et Technique du Bâtiment, France*; and D. Baillis, *Centre de Thermique de Lyon, France* (18, 2, p. 178) Article

T04-026 Parameter Estimation in a Two-Layer Planar Gray Participating Medium. V. Swaminathan, C. Balaji, and S. P. Venkateshan, *Indian Institute of Technology Madras, India* (18, 2, p. 187) Article

T04-027 Thermal Performance of Silicon-Die/Water-Cooled Heat-Sink Assembly: Experimental Investigation. E. E. Marotta, M. Ellsworth, and S. Mazzuca, *IBM Corporation*; and J. F. Eberth, *Clemson University* (18, 2, p. 193) Article

T04-028 Analysis of Thermal Resistance of Orthotropic Materials Used for Heat Spreaders. Tung T. Lam, William D. Fischer, and Patrick S. Cabral, *The Aerospace Corporation* (18, 2, p. 203) Article

T04-029 Thermal Contact Resistance of Nonconforming Rough Surfaces, Part 1: Contact Mechanics Model. M. Bahrami, J. R. Culham, Michael M. Yovanovich, and G. E. Schneider, *University of Waterloo, Canada* (18, 2, p. 209) Article based on AIAA Paper 2003-4197

T04-030 Thermal Contact Resistance of Nonconforming Rough Surfaces, Part 2: Thermal Model. M. Bahrami, J. R. Culham, M. M. Yovanovich, and G. E. Schneider, *University of Waterloo, Canada* (18, 2, p. 218) Article based on AIAA Paper 2003-4198

T04-031 Effect of Substrate Wettability on Frost Properties. J. L. Hoke, J. G. Georgiadis, and A. M. Jacobi, *University of Illinois at Urbana-Champaign* (18, 2, p. 228) Article

T04-032 Nucleate Pool Boiling on Copper-Graphite Composite Surfaces and Its Enhancement Mechanism. David F. Chao, *NASA John H. Glenn Research Center at Lewis Field*; Nengli Zhang, *Ohio Aerospace Institute*; and Wen-Jei Yang, *University of Michigan* (18, 2, p. 236) Article

T04-033 Study of Lennard-Jones Chains for Hydrocarbons. Jurij Avsec and Milan Marcic, *University of Maribor, Slovenia*; and Koichi Watanabe, *Keio University, Japan* (18, 2, p. 243) Article

T04-034 Nano- to Microscale Modeling by Cluster Potentials. J. K. Chen, J. E. Beraun, and R. Roybal, *U.S. Air Force Research Laboratory, Kirtland Air Force Base*; and D. Y. Tzou, *University of Missouri-Columbia* (18, 2, p. 253) Article

T04-035 Effect of Rotation on Heat Transfer in Rectangular Channels with Pin-Fins. Lesley M. Wright, Eungsuk Lee, and Je-Chin Han, *Texas A&M University* (18, 2, p. 263) Article

T04-036 Analytical Expressions for View Factors with an Intervening Surface. M. Deiveegan, V. Ramamoorthy, and Subrahmanya S. Katte, *Shanmugha Arts, Science, Technology and Research Academy, India* (18, 2, p. 273) Technical Note

T04-037 One-Dimensional Analysis of Hollow Conical Radiating Fin. M. Deiveegan and Subrahmanya S. Katte, *Shanmugha Arts, Science, Technology, and Research Academy, India* (18, 2, p. 277) Technical Note

T04-038 Radiation with Mixed Convection in an Absorbing, Emitting, and Anisotropic Scattering Medium. Tzer-Ming Chen, *National Taipei University of Technology, Taiwan (ROC)* (18, 2, p. 279) Technical Note

T04-039 Coupled Radiation and Conduction in a Graded Index Layer with Specular Surfaces. Yong Huang, Xin-Lin Xia, and He-Ping Tan, *Harbin Institute of Technology, China (PRC)* (18, 2, p. 281) Technical Note

T04-040 Two-Dimensional Hyperbolic Heat Conduction with Temperature-Dependent Properties. W. Shen and S. Han, *Tennessee Technological University* (18, 2, p. 285) Technical Note

T04-041 Thermal Characterization of Functionally Graded Materials: Design of Optimal Experiments. Kevin D. Cole, *University of Nebraska* (18, 3, p. 289) Article based on AIAA Paper 2002-2882

T04-042 Simultaneous Determination of Thermophysical Properties Using a Thermistor, Part 1: Numerical Model. Cherif Ould Lahoucine, *Georgia Institute of Technology*; Hiroto Sakashita and Toshiaki Kumada, *Hokkaido University, Japan* (18, 3, p. 295) Article

T04-043 Simultaneous Determination of Thermophysical Properties Using a Thermistor, Part 2: Experiment. Cherif Ould Lahoucine, *Georgia Institute of Technology*; Hiroto Sakashita and Toshiaki Kumada, *Hokkaido University, Japan* (18, 3, p. 302) Article

T04-044 Thermal Transport in High Porosity Cellular Metal Foams. C. Y. Zhao, T. Kim, T. J. Lu, and H. P. Hodson, *University of Cambridge, Great Britain* (18, 3, p. 309) Article

T04-045 Thermal Joint Resistances of Conforming Rough Surfaces with Gas Filled Caps. M. Bahrami, M. M. Yovanovich, and J. R. Culham, *University of Waterloo, Canada* (18, 3, p. 318) Article based on AIAA Paper 2004-0821

T04-046 Thermal Joint Resistances of Nonconforming Rough Surfaces with Gas-Filled Gaps. M. Bahrami, M. M. Yovanovich, and J. R. Culham, *University of Waterloo, Canada* (18, 3, p. 326) Article based on AIAA Paper 2004-0822

T04-047 High Heat-Flux Sensor Calibration: A Monte Carlo Modeling. A. V. Murthy, *Aero-Tech, Inc.*; A. V. Prokhorov and D. P. DeWitt, *National Institute of Standards and Technology* (18, 3, p. 333) Article

T04-048 Nonequilibrium Phenomena Behind Strong Shock Waves Generated in Superorbital Reentry Flight. Atsushi Matsuda, *University of Tokyo, Japan*; Kazuhisa Fujita, Shunichi Sato, and Takashi Abe, *The Institute of Space and Astronautical Science, Japan* (18, 3, p. 342) Article based on AIAA Paper 2002-3101

T04-049 Stagnation-Point Radiation for Apollo 4. Chul Park, *Eloret Corporation* (18, 3, p. 349) Article

T04-050 Hydrodynamic and Thermal Study of a Water-Filled Micro-Heat-Pipe Array. Stéphane Launay, Valérie Sartre, and Monique Lallemand, *Institut National des Sciences Appliquées, France* (18, 3, p. 358) Article

T04-051 Air-Water Two-Phase Pressure Drop in U-Type Wavy Tubes. Ing Youn Chen and Yee Kang Lai, *National Yunlin University of Science and Technology, Taiwan (ROC)*; and Chi-Chuan Wang, *Industrial Technology Research Institute, Taiwan (ROC)* (18, 3, p. 364) Article

T04-052 Effects of Gravity on the Performance of Pulsating Heat Pipes. Junjie Gu, *Carleton University, Canada*; Masahiro Kawaji, *University of Toronto, Canada*; and Ryosuke Futamata, *Japan Aerospace Exploration Agency, Japan* (18, 3, p. 370) Article

T04-053 Thermal Conductivity, Viscosity and Thermal Diffusivity Calculation for Binary and Ternary Mixtures. Jurij Avsec and Maks Oblak, *University of Maribor, Slovenia* (18, 3, p. 379) Article based on AIAA Paper 2003-3915

T04-054 Film Condensation Process Controlled by a Darcy-Cooling Fluid Flow. N. Luna, *Instituto Mexicano del Petróleo, Mexico*; and F. Mendez, *Universidad Nacional Autonoma de Mexico, Mexico* (18, 3, p. 388) Article

T04-055 Fluid Flow And Heat Transfer from a Cylinder Between Parallel Planes. W. A. Khan, J. R. Culham, and M. M. Yovanovich, *University of Waterloo, Canada* (18, 3, p. 395) Article based on AIAA Paper 2004-493

T04-056 Flame Temperature Distribution Measurement of Solid Propellants. Wenhua Zhao, Shuguang Zhu, Yan Li, and Zhongyan Fang, *Tsinghua University, China (PRC)*; Rongjie Yang and Yuping Li, *Beijing Institute of Technology, China (PRC)* (18, 3, p. 404) Technical Note

T04-057 Thermally Asymmetric Annular Rectangular Fin Optimization. H. S. Kang, *Kangwon National University, South Korea*; and D. C. Look, *University of Missouri - Rolla* (18, 3, p. 406) Technical Note

T04-058 Inverse Radiative Problem in Semitransparent Slab with Variable Spatial Refractive Index. L. H. Liu, *Harbin Institute of Technology, China (PRC)* (18, 3, p. 410) Technical Note

T04-059 Turbulator Effects on Heat Transfer in Fan-Driven Flows. Tzeng-Yuan Chen and Min-Ji Suen, *Tamkang University, Taiwan (ROC)* (18, 3, p. 413) Technical Note

T04-060 Loop Heat Pipe for Spacecraft Thermal Control, Part 1: Vacuum Chamber Tests. Michelle L. Parker and Bruce L. Drolen, *Boeing Satellite Systems*; and Portonovo S. Ayyaswamy, *University of Pennsylvania* (18, 4, p. 417) Article

T04-061 Experimental and Theoretical Analysis on Enhanced Flat Miniature Heat Pipes. M. C. Zaghdoudi, *Institut National des Sciences Appliquées et de Technologie, Tunisia*; C. Tantolin and C. Godet, *Metal Process, France* (18, 4, p. 430) Article

T04-062 Conditions of Onset of Boiling in a Vertical Thermosiphon Reboiler. M. Shamsuzzoha, M. Kamil, and S. S. Alam, *Aligarh Muslim University, India* (18, 4, p. 448) Article

T04-063 Natural Convection in Rectangular Layered Porous Cavities. Jik-Chang Leong and Feng C. Lai, *University of Oklahoma* (18, 4, p. 457) Article

T04-064 Mixed Convection Cooling of Heat Sources Mounted with Porous Blocks. Po-Chuan Huang, Chao-Fu Yang, and Shih-Yang Chang, *National Taipei University of Technology, Taiwan (ROC)* (18, 4, p. 464) Article

T04-065 Strong Magnetic Field Asymptotic Model for Binary Alloyed Semiconductor Crystal Growth. Xianghong Wang and Nancy Ma, *North Carolina State University* (18, 4, p. 476) Article

T04-066 Effective Thermal Conductivity of Aqueous Suspensions of Carbon Nanotubes (Carbon Nanotube Nanofluids). Dongsheng Wen and Yulong Ding, *University of Leeds, Great Britain* (18, 4, p. 481) Article

T04-067 Thermally Developing Electroosmotic Convection in Rectangular Microchannels With Vanishing Debye-Layer Thickness. B. D. Iverson, D. Maynes, and B. W. Webb, *Brigham Young University* (18, 4, p. 486) Article

T04-068 Adaptive Surface Microprofiling for Microfluidic Energy Conversion. Greg F. Naterer, *University of Manitoba, Canada* (18, 4, p. 494) Article

T04-069 Three-Dimensional Distributed Mass Weighting for Noninverted Convective Skew Upwinding. Emmanuel O. Ogedengbe and Greg F. Naterer, *University of Manitoba, Canada* (18, 4, p. 502) Article based on AIAA Paper 2004-995

T04-070 Elemental Demixing in Air and Carbon Dioxide Stagnation Line Flows. P. Rini, *von Kármán Institute for Fluid Dynamics, Belgium*; and G. Degrez, *Université Libre de Bruxelles, Belgium* (18, 4, p. 511) Article

T04-071 Radiation of Spalled Particles in Shock Layers. Chul Park, *ELORET Corporation*; George A. Raiche and David M. Driver, *NASA Ames Research Center* (18, 4, p. 519) Article based on AIAA Paper 2004-1349

T04-072 Rotational Relaxation of N₂ Behind a Strong Shock Wave. Chul Park, *ELORET Corporation* (18, 4, p. 527) Article based on AIAA Paper 2002-3218

T04-073 Flow and Heat-Transfer Computations in Rotating Rectangular Channels with V-Shaped Ribs. Guoguang Su, Shuye Teng, Hamn-Ching Chen, and Je-Chin Han, *Texas A&M University* (18, 4, p. 534) Article

T04-074 Gas Permeability of Oblique-Layered Carbon-Cloth Ablator. Toshiyuki Suzuki and Keisuke Sawada, *Tohoku University, Japan*; Tetsuya Yamada and Yoshifumi Inatani, *Institute of Space and Astronautical Science, Japan* (18, 4, p. 548) Technical Note based on AIAA Paper 2003-4045

T04-075 Vibrational Population Enhancement in Nonequilibrium Dissociating Hypersonic Nozzle Flows. Eswar Josyula, *U.S. Air Force Research Laboratory*; and William F. Bailey, *U.S. Air Force Institute of Technology* (18, 4, p. 550) Technical Note based on AIAA Paper 2003-3778

T04-076 View-Factor Based Radiation Transport in a Hypersonic Shock Layer. Deepak Bose and Michael J. Wright, *NASA Ames Research Center* (18, 4, p. 553) Technical Note

T04-077 Finite Element Simulation of Radiative Heat Transfer in Absorbing and Scattering Media. L. H. Liu, *Harbin Institute of Technology, China (PRC)* (18, 4, p. 555) Article

T04-078 Laminar Flow Through a Staggered Tube Bank. You Qin Wang, *University of Northern British Columbia, Canada* (18, 4, p. 557) Technical Note

T04-079 Thermoeconomical Optimization of Double-Pipe Heat Exchanger For Waste Heat Recovery. Mehmet S. Söylemez, *University of Gaziantep, Turkey* (18, 4, p. 559) Technical Note

T04-080 Convection in a Vertical Annular Duct with Circumferentially Variable Boundary Conditions. Antonio Barletta, Stefano Lazzari, and Enzo Zanchini, *Università di Bologna, Italy* (18, 4, p. 563) Technical Note