Preface

Invited Lectures

Nonequilibrium Phonon and Electron Transport in Heterostructures and Superlattices

Recent Developments in Microscale Temperature Measurement Techniques

Size Effect on Flow and Heat Transfer Characteristics in MEMS

Attempts to Apply Micro Heat Transfer to Thermal Management

Microstructure Devices for Applications in Thermal and Chemical Process Engineering

Heat Transfer in Microchannels

Single-Phase Flow Heat Transfer in Channels

Flow and Heat Transfer in an Almost Circular Microtube with Rough Walls

Toward a Better Understanding of Friction and Heat/Mass Transfer in Microchannels - A Literature Review

A Comparative Analysis of Studies on Heat Transfer and Fluid Flow in Microchannels

Prediction of Flow and Heat Transfer Characteristics in Micro Couette Flow

Slip-Flow Low Peclet Number Thermal Entry Problem within a Flat Microchannel Subject to Constant Wall Temperature

Experimental Investigation of Hydraulic and Single Phase Heat Transfer in 0.130 MM Capillary Tubes

An Analysis for Heat Transfer Between Two Unsymmetrically Heated Parallel Plates with Micro Spacing in Slip Flow Regime

Heat and Fluid Flow

Conjugate Heat Transfer in Microchannels

Non-Fourier Heat Conduction Phenomena in Porous Material Heated by Microsecond Laser Pulse

Temperature Propagations and Convective Instabilities in Critical Fluids

Improved Thermal Efficiency and Temperature Uniformity Using Fractal-Like Branching Channel Networks

Pressure Drop

Liquid Flow Pressure Drop in Microtubes

An Experimental Investigation of Gaseous Flow Characteristics in Microchannels

Experimental Study on Flow Characteristics of Liquid in Circular Microtubes

Friction Characteristics of Water, R-134a and Air in Small Tubes

Boiling Phenomena

Boiling Heat Transfer on Surfaces Coated by Porous Wick with Open Channels

Onset of Vapor Generation in Small Channels at Low Reynolds

Arguments on Microscale Boiling Dynamics

Quantitative Microscale High Speed Visualization of Pool Boiling Phenomena from Enhanced Evaporator Tubes

Effects of the Polarity of Working Fluids on Vapor-Liquid Flow and Heat Transfer Characteristics in a Capillary

The Visualization of Boiling in Small Diameter Tubes

Bubble Dynamics of Boiling Explosion in Pure Liquid Induced by Pulsed Heating
An Experimental Investigation of Heat Transfer Coefficients in Vertical Narrow Channels p. 217
Flow Boiling of Water and n-Heptane in Micro Channels p. 222
Characteristics of Two-Phase Flow and Evaporation Heat Transfer in a Capillary at Constant Heat Fluxes p. 229
Boiling Nucleation, Bubble Dynamics and Heat Transfer on a Micro Film Surface Heated at an Extremely High Rate p. 237
Transport Phenomena
DSMC Modeling of Interface Curvature Effects on Near-Interface Transport p. 245
Optical Measurement of Microscale Transport Processes in Dropwise Condensation with Corrugated Walls p. 253
Effects of System Dimension on Turbulence and Microfluidic Mixing p. 261
Modeling Phonon Transport in Solid Thin Films p. 268
Clamped Nanowire Thermal Conductivity based on Phonon Transport Equation p. 276
Micro-Solidification Process in Multi-Component System p. 284
Diffusion and Flow Development in Co-Flowing Micro-Channel Streams p. 292
Chaotic Behaviors and Transition to Turbulence in Porous Media p. 299
Heat Transfer Applications
Effect of Condenser Location and Imposed Circulation on the Performance of a Compact Two-Phase Thermosyphon p. 304
Transport Phenomena in Micro Heat Exchangers with Corrugated Walls p. 312
Industrial Applications and Mems
Flow Based Characterization of the Operation of a Microfluidic Amplifier p. 316
DSMC Simulation of Microscale Backward-Facing Step Flow p. 323
Cooling by Resonant Fowler-Nordheim Emission Through a-Few-NM-Thick Films p. 331
Miniaturization of Thermoacoustic Devices for Thermal Management of Microelectronics p. 335
Thermal Radiation
Optimization of the Spacing Effects of Thermal Radiation for Microscale Thermophotovoltaic Devices p. 339
Modification of the Thermal Emission Spectrum at Short Distances p. 347
Enhanced Radiative Heat Transport at Nanometric Distances p. 352
Material and Thermophysical Properties
Size Effects on the Thermal Conductivity of Polymers Laden with Highly Conductive Filler Particles p. 358
Lattice Dynamics Study of Anisotropic Heat Conduction in Superlattices p. 364
Thermal Conductivity of InAs/AISb Superlattices p. 369
Size Effect on Surface Tension and Contact Angle Between Protein Solution and Silicon Compound, PC, and PMMA Substrates p. 373
Structural and Microstructural Effects on the Thermal Conductivity of Zirconia Thin Films p. 380
Thermal Stress Modeling in Microelectronics and Photonics Packaging p. 384
Thermoreflectance Microscopy: Calibration of Temperature Measurements upon Micrometric Metal Lines Applied to Thermal Conductivity Identification of Micrometric Dielectric Layer p. 392
Local Thermal Characterization of Inner Gun Barrel Refractory Metallic Coatings p. 398
Cluster, Magnetic and Rheological Characteristics of a Ferromagnetic Colloidal System  p. 405

Thermal Conductivity of Doped Polysilicon Layers  p. 413

Molecular Dynamics

Molecular Dynamics Study of Surfactants on a Water Surface  p. 420

Cavitation and Bubble Nucleation Using Molecular Dynamics Simulation  p. 425

A Molecular Dynamics Approach to Interphase Mass Transfer Between Liquid and Vapor  p. 432

Cluster Growth and Structures of Lennard-Jones Molecules Near the Critical Point  p. 440

Molecular Dynamics Simulation of Heterogeneous Nucleation of Liquid Droplet on Solid Surface  p. 448

Table of Contents provided by Blackwell's Book Services and R.R. Bowker. Used with permission.