

## HEAT TRANSFER RESEARCH

---

**Volume 34**

---

**Volume 34 Numbers 1 & 2, 2003**

- 1 Radiation Transfer in Moving Volumes of Nonequilibrium Molecular Gases  
*E. I. Vitkin and A. A. Kirillov*
- 13 Determination of Temperature Using Radiation in a System of Opaque Surfaces  
*S. P. Rusin*
- 20 Heating and Sorption Panels for Vacuum Drying of Timber  
*A. A. Antukh, P. V. Bokhan, A. G. Kulakov, V. K. Kulikovskii,*  
*and M. I. Rabetskii*
- 28 Solar-Radiative Heating of Different Objects in the Regions with Severe  
Climatic Conditions  
*B. Punsagdulam, B. V. Berg, and V. A. Mikula*
- 34 Axial Conduction Effects on Thermally Developing Forced Convection  
in a Porous Medium: Circular Tube with Uniform Wall Temperature  
*K. Hooman, A. A. Ranjbar-Kani, and A. Ejlali*
- 41 Modeling of Heat and Mass Transfer in Polydisperse Turbulent Jets  
with Coagulation, Break-up, and Evaporation of Droplets  
*V. A. Naumov*
- 46 Hyperbolic Problem of Heat Transfer in Rapid Solidification of Supercooled  
Liquids  
*D. A. Danilov and P. K. Galenko*
- 59 Growth of Secondary Bubbles on the Wall of a Primary Bubble  
in Superheated Liquid  
*N. N. Avakimyan, N. I. Vasil'ev, V. V. Guguchkin,*  
*and A. A. Trofimov*
- 64 Numerical and Analytical Simulation of Radiative-Convective Heat Exchange  
in the Composite Elements of Structures and Buildings  
*Yu. M. Matsevityi, A. P. Slecarenko, and N. A. Safonov*

- 70 Intermittent Transition to a Turbulence in a Self-Excited Gas–Solid Fluidized Bed  
*A. M'chirgui, L. Tadriss, and St. Radev*
- 81 Influence of Electromagnetic Radiation on Transfer Processes in Disperse Systems  
*H. Y. Kim, H. C. Kim, V. V. Levdanskii, P. Moravec, and J. Smolik*
- 87 Modeling of Motion and Thermal Conversion of Granular Material  
*B. Peters and A. Džugys*
- 98 Use of the Approximation of Optically Thin Pulsations in the Problems of Radiative Heat Transfer in Turbulent Media  
*A. I. Bril', V. P. Kabashnikov, and V. M. Popov*
- 104 Study of the Instability of Wave Packets in Fluidized-Bed Furnances within the Framework of Ginzburg–Landau Equation  
*I. V. Elyukhina, E. V. Toropov, and G. F. Kuznetsov*
- 111 Computation and Experimental Study of Heat and Mass Transfer Processes in Icing of Aviation Engines  
*A. N. Antonov, N. K. Aksenov, A. V. Goryachev, and N. E. Goryacheva*
- 118 Radiative-Convective Heat Transfer in Multielement System "Solid–Gas–Solid"  
*O. G. Martynenko, M. L. German, N. I. Lemesh, and E. F. Nogotov*
- 126 Development of the Theory of Boiling of Solutions with a Nonvolatile Component  
*A. V. Borishanskaya, V. V. Klyuchkin, A. N. Lisitsyn, A. V. Fedorov, V. S. Belyaev, and O. A. Danilyuk*
- 135 Heat Transfer in the Instrument Modules of Space Vehicles  
*G. V. Kuznetsov, A. N. Kozlobrodov, and S. F. Sandu*
- 142 Temperature and Combustion Kinetics of Wood Pellet Char in a Fluidized Bed  
*G. Palchonok, V. A. Borodulya, V. Golubeva, B. Leckner, K.-M. Hansson, C. Tullin, and J. E. Johnsson*

**Volume 34 Numbers 3 & 4, 2003**

- 157 Pulverized Lignite Combustion in Swirl Burners. A Mathematical Model  
*A. Saljnikov, S. Oka, M. Radovanovic, and M. Sijercic*
- 169 Premature Burnout  
*B. P. Avksentyuk and V. V. Ovchinnikov*
- 178 Length of Condensation Zone in Tubes with Supply of a Concurrent Gas Jet into Nitrogen and Hydrogen Flows  
*V. A. Bershadskii, G. A. Dreitser, V. P. Firsov, and I. V. Antyukhov*

- 189 Heat Exchange during Production of Particles in the Process of Impact Atomization  
*A. S. Kalinichenko, A. N. Abramenko, Yu. K. Krivosheev, and E. A. Voronin*
- 195 Heat and Mass Transfer in Evaporative Cooling of Water Films on Two Vertical Plates  
*V. V. Antonik, A. I. Petruchik, A. D. Solodukhin, N. N. Stolovich, and S. P. Fisenko*
- 209 Efficiency of Vapor Generating Facilities Based on the Use of Twisted and Transit Flows  
*E. A. Boltenko*
- 220 Waves on the Surface of Metal Melt in a Melt–Water System  
*N. N. Avakimyan, N. I. Vasil'ev, V. V. Guguchkin, I. V. Tereshchenko, and A. S. Trofimov*
- 226 Concerning the Theory of the Incipience of the Two-Phase Mushy Zone in Solidification of Binary Melts  
*D. V. Aleksandrov*
- 234 Absorption of Electromagnetic Waves under Heat and Mass Transfer Conditions in Nonequilibrium Media  
*V. A. Loshkarev and P. V. Nikitin*
- 239 Numerical Simulation of Heat and Mass Transfer during the Process of Convective Drying in Stagnant and Fluidized Beds  
*M. B. Stakić*
- 252 Translation of Heat Transfer Measurements from Laboratory CFBs to the Conditions of CFB-Boilers  
*C. Breitholtz and B. Leckner*
- 270 Scaling Formula for Heat-Transfer Optimal Gas Velocity in a Fluidized Bed  
*A. V. Smirnov, Yu. V. Yuferev, A. D. Gol'tsiker, and V. E. Kravchenko*
- 276 An Exact Solution for Fully Developed Temperature Distribution in Laminar Steady Forced Convection inside Circular Tubes with Uniform Wall Temperature  
*H. Shokouhmand and K. Hooman*
- 286 Heat and Mass Transfer during Destruction of Materials under the Action of a Heterogeneous Flow with a High Concentration of Particles  
*G. V. Kuznetsov, N. N. Alekseenko, T. N. Nemova, and A. I. Tkachev*

**Volume 34 Numbers 5 & 6, 2003**

- 297 Heat and Mass Transfer in Formation of Diverse-Function Coats by a Supersonic Heterogeneous Flow  
*P. V. Nikitin and A. G. Smolin*

- 304 Heat Transfer to Liquid Metal Flow in a Porous Saturated Circular Tube with Uniform Wall Temperature: An Exact Solution  
*K. Hooman, A. A. Ranjbar-Kani, and A. Ejlali*
- 310 Using a Porous Segment to Increase Thermal Efficiency by Converting Gas Enthalpy to Thermal Radiation in High-Temperature Industrial Furnaces  
*K. Hooman, M. Gorji-Bandpy, and M. Mahdavi-Hezaveh*
- 318 Enhancement of Heat Transfer in the Freeboard Volume of a Fluidized and Circulating Fluidized Beds: Influence of Turbulence  
*G. I. Pal'chenok, V. A. Borodulya, C. Breitholtz, and B. Leckner*
- 332 Heat and Mass Transfer in Gas-Disperse Systems Exposed to Intense Radiation  
*K. N. Volkov, V. N. Emelyanov, and Li Solong*
- 344 Formation of Vapor Nuclei in a Superheated Liquid on Gas Inclusions  
*G. V. Ermakov, S. A. Perminov, and E. V. Lipnyagov*
- 351 The Model of Polydisperse Nonisothermal Flow with Coalescence and Breakup of Drops  
*V. A. Naumov*
- 358 Wide-Range Equation of State of Matter with Account for Evaporation, Dissociation, and Ionization  
*F. N. Borovik and G. S. Romanov*
- 364 Calculation of Vapor Content of a Two-Phase Flow in Water Boiling on Horizontal Tubes (Single Tubes and Tube Bundles)  
*V. D. Chaika*
- 374 Film-Boiling Heat Transfer of Liquid Nitrogen and Hydrogen in Tubes at Large Liquid Subcoolings  
*G. A. Dreitser, V. P. Firsov, I. V. Antyukhov, and A. A. Kurilenko*
- 386 Modeling of the Effect of the Temporal Shape of a Laser Pulse on the Processes of Metal Treatment  
*V. I. Mazhukin, V. V. Nosov, and U. S. Semmler*
- 395 Conductive-Convective Heat Exchange in Disperse Systems with Suspended Particles  
*Yu. S. Teplitskii*
- 403 Growth of a Vapor Film on the Heater Immersed into a Highly Conducting Liquid  
*A. A. Gorbunov, I. M. Dergunov, and A. P. Kryukov*
- 414 Characteristic Features of Heat Transfer of Tube Bundles in a Cross Water–Air Flow and a Three-Phase Fluidized Bed  
*L. K. Vasanova, V. V. Korotke, A. V. Sokolov, G. P. Yasnikov, and V. S. Belousov*

- 421 Heat Transfer in Condensation of Vapor in the Presence of a Large Amount of a Noncondensing Gas in the Contact Apparatus with a Net Packing  
*N. A. Dikii, V. I. Shklyar, and V. V. Dubrovskaya*
- 428 Influence of the Size and Shape of the Bodies Moving in a Fluidized Bed on Heat Transfer Intensity  
*S. A. Nagornov, I. A. Osintsev, A. V. Ostrovskaya, and V. N. Korolev*
- 433 Conjugate Heat and Mass Transfer in Crystallization from Food Solutions  
*O. G. Burdo, S. I. Milinchuk, and E. A. Kovalenko*

**Volume 34 Numbers 7 & 8, 2003**

- 447 Specific Features of Heat Transfer in the Dispersed Mode of Film Boiling of Liquid Nitrogen in Tubes  
*G. A. Dreitser, V. P. Firsov, and I. V. Antyukhov*
- 460 Allowance for the Dynamics of a Vapor Bubble in Calculation of Thermal Interaction of a Hot Spherical Particle with Surrounding Water  
*L. A. Dombrovskii and L. I. Zaichik*
- 471 Heat and Mass Exchange and Fragmentation of the Inclusions of Particles on Adiabatically Boiling-up Dispersed Media Flows  
*A. A. Dolinskii and B. I. Basok*
- 486 Characteristic Features of Heat and Mass Transfer in a Fluidized Bed in a Vortex Chamber  
*E. P. Volchkov, N. A. Dvornikov, and A. N. Yadykin*
- 499 Simulation of Absorption Heat and Mass Transfer Processes in Binary Two-Phase Systems  
*N. I. Grigorieva and V. E. Nakoryakov*
- 511 Special Features of Heat and Mass Exchange in Cryogenic Heat Accumulators  
*S. V. Konev and N. S. Koneva*
- 519 Concerning Stabilization of Heat Transfer of a Gas-Suspension Flow in a Tube  
*Yu. Ya. Pechenegov and O. Yu. Pechenegova*
- 525 Heat and Fluid Flow within a Heterogeneous Porous Medium: Parallel Plate Channel with Isoflux Walls  
*A. A. Ranjbar-Kani, A. A. Kantoory, and K. Hooman*
- 532 Convective Heat and Mass Transfer in Crystallization at Elevated Pressure  
*V. I. Kolesnichenko and A. I. Tsaplin*
- 544 Improvement of the Characteristics of the Elements of Vapor Generating Equipment by Heat Transfer Enhancement  
*Yu. A. Kuzma-Kichta, A. S. Komendantov, and G. Bartsch*

- 554 Description of Heat and Mass Transfer in Film Boiling of Superfluid Helium  
in Microgravity in a Capillary-Porous Body  
*A. P. Kryukov and P. V. Khurtin*
- 562 Computational Simulation of Stationary and Nonstationary Discharge  
of Adiabatically Boiling Liquids from Short Tubes  
*G. K. Ivanitskii*
- 576 Dynamic Fluidization and Heat Transfer in Granular Materials  
*A. F. Ryzhkov, V. A. Mikula, V. G. Tuponogov, and A. P. Lummi*
- 588 Study of Unsteady Evaporation–Condensation Processes on the Surface  
by the Methods of the Molecular-Kinetic Theory  
*A. P. Kryukov, I. N. Shishkova, and A. K. Yastrebov*
- 601 Author Index, Vol. 34
- 605 Tables of Contents, Vol. 34