

Heat and mass transfer bibliography— CIS works

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BOOKS

- V. Ye. Alemasov (Editor), *Modelling of Processes in Engines and Power Plants of Flying Vehicles* (Collected Papers). Izd. Kazan. Aviats. Inst., Kazan (1990).
A. F. Bogatyrev (Editor), *Transfer Processes and Enhancement of the Performance Efficiency of Thermal Power Plants* (Collected Papers). Izd. Kazakhsk. State Univ., Alma-Ata (1991).
Heat Transfer Under the Action of Radiative Flows on Materials (Collected Papers). Izd. ITMO AN BSSR, Minsk (1990).
Yu. A. Kirichenko (Editor), *Heat and Mass Transfer in Cryogenic Technology* (Collected Papers). Izd. Naukova Dumka, Kiev (1990).
O. G. Martynenko (Editor), *Thermal Physics and Hydrogas-dynamics—90* (Collected Papers). Izd. ITMO, Minsk (1991).
V. L. Polunin, *Foam Polymers in Low-Temperature Insulation*. Energoatomizdat, Moscow (1991).
A. A. Ryadno (Editor), *Modelling and Computation Methods of Heat and Mass Transfer Processes* (Collected Papers). Izd. Dnepropetrovsk State Univ., Dnepropetrovsk (1990).
A. V. Temnikov (Editor), *Mathematical Simulation and Optimization of Thermal Processes in Heat Power Plants* (Collected Papers). Izd. Kuibyshevsk, Politekhn. Inst., Kuibyshev (1990).
A. T. Timoshenko, S. S. Yefimov and G. G. Popov, *Thermostability of Multilayered Protecting Structures of Buildings*. Izd. Nauch. Tsentr SO AN SSSR, Yakutsk (1990).
A. I. Yegorov and R. R. Rafatov, *Mathematical Methods of Optimization of Heat Conduction and Diffusion Processes*. Izd. Ilim, Frunze (1990).

PAPERS—GENERAL

- Yu. I. Aryutkin, V. F. Kuryakin and Yu. K. Semenov, The computational-experimental method of solving temperature problems at coordinate- and time-variable boundary conditions, *J. Engng Phys.* **61**(3), 479–485 (1991).
N. Ye. Galich and O. G. Martynenko, Heat or diffusion instability and structures in flow-through dissipative systems, Prepr. No. 9 of the Academic Scientific Complex of the Luikov Heat and Mass Transfer Institute of the Byelorussian Academy of Sciences, Minsk (1991).
T. V. Laktyushina, G. P. Lizunkov and O. I. Yasko, Toward a problem of flow turbulence in electric-arc discharges, Prepr. No. 14 of the Academic Scientific Complex of the Luikov Heat and Mass Transfer Institute of the Byelorussian Academy of Sciences, Minsk (1991).
Yu. K. Mal'kov, V. G. Lisiyenko and A. V. Saplin, The modified Newton-Rafson method for solving the system of nonlinear equations in complex heat transfer problems, *J. Engng Phys.* **61**(3), 485–493 (1991).

HEAT CONDUCTION

- A. Abdulkhalkarov, Fundamental periodical solution to a heat conduction equation. In *Stability and Reliability of*

- Chemical Equipment*, pp. 113–117. Moscow Inst. of Chemical Engineering, Moscow (1989).
D. A. Beglov, V. I. Kugay and E. D. Beglov, Construction of a mathematical model of heat transfer during rolling of aluminum alloys sheets. In *Mathematical Modelling and Optimization of Thermal Processes in Heat Power Plants*, pp. 90–94. Kuibyshev Polytechnical Institute, Kuibyshev (1990).
B. S. Bylinkin, Yu. V. Svetlov and A. A. Vorobjev, Experimental investigation of temperature fields in a thin plate during local thermal treatment, *Izv. VUZov, Energetika* **7**, 77–81 (1991).
Yu. I. Dudarev, M. Z. Maksimov and L. K. Nikonenko, Determination of temperature fields of multilayered spherically symmetric systems, *J. Engng Phys.* **59**(6), 1024–1026 (1990).
G. G. Gadzhiev, Ya. B. Magomedov and Sh. M. Ismailov, Heat conduction of solid solutions of tellurium–selenium in solid and liquid states. In *Phase Conversions and Thermophysical Properties of Multicomponent Systems*, pp. 116–124. Daghestan Branch of the Institute of Physics, Makhach-Kala (1990).
T. B. Gardashov, Solution of inverse problems for the quasi-linear equation of heat conduction under self-similar conditions for a multidimensional case, *J. Engng Phys.* **61**(3), 472–479 (1991).
I. V. Goncharov, V. L. Mikov and V. P. Sobolev, Time dependence of the coefficient of heat transfer between composite components during heat exchange, *J. Engng Phys.* **60**(6), 947–954 (1991).
A. D. Gorbunov, The dynamics of melting processes of quasi-onedimensional bodies, *Izv. AN SSSR, Energet. Transp.* No. 3, 111–115 (1991).
V. V. Gorskiy, A. M. Sigitova and M. N. Televny, An approximate approach to solving a three-dimensional heat conduction problem, *J. Engng Phys.* **61**(2), 319–323 (1991).
A. I. Gryadunov and A. Sh. Aliyev, Express-methods for determining thermal conductivity of thermoelectric materials in semiconductor branches of thermal batteries, *J. Engng Phys.* **61**(2), 296–301 (1991).
F. M. Gumerov, A. N. Sabiryanov, R. N. Maksudov and A. G. Usmanov, Thermal diffusivity of inert gases in the vicinity of the critical point, *J. Engng Phys.* **61**(4), 605–613 (1991).
Sh. M. Ismailov, Thermal conductivity of $TlAsX_2$ compounds in crystalline and glassy modifications in solid and liquid states, *Teplofiz. Vysok. Temp.* **29**(2), 494–498 (1991).
F. I. Kalbaliyev and Ch. M. Verdiyev, A criterial heat transfer equation for a pulsation regime of a transient region of flow at supercritical pressures of aromatic hydrocarbons, *J. Engng Phys.* **61**(2), 215–223 (1991).
V. V. Kalinchak, N. V. Fedoseyeva and A. I. Kalinchak, Delay time of gas ignition by a moving spark, *Fiz. Aero-dispers. Sistem* No. 34, 49–59 (1991).
D. I. Kolotilkin, Unsteady-state heat conduction in a multilayered wall with internal heat sources. In *Mathematical*

- Modelling and Optimization of Thermal Processes in Heat Power Plants*, pp. 29–39. Kuibyshev Polytechnical Institute, Kuibyshev (1990).
- Yu. A. Korolenko, A procedure for selecting a time interval in numerical calculations of temperature fields by the implicit scheme. In *Modelling of Processes in Thermotechnological Plants*, pp. 159–162. Izd. MEI, Moscow (1990).
- O. P. Kotelnikova, Simplified calculation of temperature stresses in the pipeline armature frame with an unsteady state thermal process, *Khim. Neft. Mashinostr.* No. 4, 18–20 (1991).
- E. N. Krivobo, Heating-up of a semilimited body by a variable heat flux, conjugated with surface temperature, *Izv. VUZov. Stroiti. Arkhit.* No. 4, 83–86 (1991).
- V. A. Kudinov, B. V. Vorobiyev, A. D. Roslyakov and A. Yu. Denisov, Solutions to nonstationary three-dimensional heat conduction problems for multilayered bodies, *Izv. AN SSSR, Energet. Transp.* No. 3, 154–157 (1991).
- N. M. Lazuchenkov, Reliability of solutions to boundary value inverse heat transfer problems. In *Modelling and Computation Methods of Heat and Mass Transfer Processes*, pp. 78–82. Dniepropetrovsk State Univ., Dniepropetrovsk (1990).
- N. I. Nikitenko, Yu. N. Kolchik and N. N. Nikitenko, A numerical method to solve heat conduction problems for bodies of complex configuration, *J. Engng Phys.* **61**(5), 851–858 (1991).
- S. V. Pashnin. A three-dimensional mathematical model of thermal operation of a self-roasting electrode. In *Modelling of Processes in Thermotechnological Plants*, pp. 40–45. Izd. MEI, Moscow (1990).
- A. G. Protasov and V. M. Sineglazov, Determination of geometrical parameters of defects by thermal control methods, *Tekhn. Diagnost. i Nerazrush. Kontrol* No. 2, 30–33 (1991).
- A. G. Temkin, Correct formulation of the boundary 1st and 2nd order conditions in the problems of heat conduction and diffusion, *Sborn. Nauch.-Metod. St. po Teplotekhn.* No. 6, 15–17 (1990).
- A. V. Temnikov, N. V. Smagin and V. F. Penkov, Solution of two-dimensional stationary problems of heat conduction by the regional method of approximate structures. In *Mathematical Modelling and Optimization of Thermal Processes in Heat Power Plants*, pp. 4–10. Kuibyshev Polytechnical Institute, Kuibyshev (1990).
- L. V. Tsybriy, The generalized S. Kovalevskaya integral for a hyperbolic-type heat conduction equation. In *Modelling and Computation Methods of Heat and Mass Transfer Processes*, pp. 95–101. Dniepropetrovsk State Univ., Dniepropetrovsk (1990).
- V. Ye. Tyutyunnik and Yu. A. Guloyan, On certain structural aspects of the temperature variation in heat conduction, *Proizv. Issled. Stekla Silikat. Mater.* No. 10, 140–145 (1990).
- A. A. Uglov, I. Yu. Smurov and A. M. Lashin, The effect of the pulse-periodical energy flux structure on the dynamics of phase interfaces of melting and evaporation, *Teplofiz. Vysok. Temp.* **29**(3), 294–302 (1991).
- N. A. Vasiliyeva, I. V. Goncharov, V. L. Mikov and V. V. Sazonov, The experimental approbation of the two-temperature heat conduction theory as applied to rod carbon composites, *J. Engng Phys.* **60**(6), 968–974 (1991).
- T. Ye. Vlasova and L. N. Smirnova, Temperature fields in a system of semibounded cylindrical bodies. In *Mathematical Modelling and Optimization of Thermal Processes in Heat Power Plants*, pp. 55–62. Kuibyshev Polytechnical Institute, Kuibyshev (1990).
- Ye. V. Yegorov and A. V. Khaminich, Generalization of the method of equivalent sources to multidimensional problems of the unsteady-state heat conduction theory. In *Mathematical Methods of Calculations of Hydrogasdynamic Flows*, pp. 27–31. Dniepropetrovsk State Univ., Dniepropetrovsk (1990).
- V. I. Zavelion, Concerning a particular form of dimensionless thermoelasticity equations. In *Modelling and Computation Methods of Heat and Mass Transfer Processes*, pp. 89–95. Dniepropetrovsk State Univ., Dniepropetrovsk (1990).
- I. K. Zharova, N. I. Alekseyenko, V. F. Dementiyev, T. N. Nemova and V. Ye. Abaltusov, Determination of a thermal state of composite materials during gas dynamic tests. In *Thermal Design of Systems*, pp. 211–215. Izd. NII Stroit. Fiz., Moscow (1990).
- ## THERMODYNAMIC PROPERTIES
- Kh. S. Abdulkadirova, S. B. Kiselyov, I. G. Kostyukova and L. V. Fedunina, Equations of state and thermodynamic properties of carbon dioxide and argon in the critical region, *J. Engng Phys.* **61**(1), 117–124 (1991).
- A. V. Kozlov, A. G. Shashkov and A. S. Trofimov, Determination of thermophysical properties of materials by imaginary frequency characteristics, *J. Engng Phys.* **61**(1), 141–146 (1991).
- Kh. S. Nurmuhammadov, Z. S. Salimov, S. K. Nigmadsanov, A. M. Sagitov and Kh. A. Khayridinov, Thermophysical properties of grain-fibrous material in a temperature range from 175 to 450 K, *J. Engng Phys.* **61**(6), 958–964 (1991).
- G. G. Spirin, Ye. K. Shirokova, S. N. Kravchun and Ye. A. Strekalova, Complex short-duration measurements of thermophysical properties of organic fluids, *J. Engng Phys.* **61**(2), 289–296 (1991).
- L. Ye. Yevseyeva, V. Ch. Kruplevich, A. I. Lesnikovich, G. V. Printsev, V. R. Sobol and S. A. Tanayeva, Thermophysical properties of sodium tetrasol and tetrasolate mixture combustion products, *J. Engng Phys.* **61**(3), 422–427 (1991).
- ## HEAT AND MASS TRANSFER BETWEEN A SOLID BODY AND A FLUID
- U. G. Abdullayev, Regimes with accentuation in problems for a quasi-linear equation of heat and mass transfer with convection, *Zh. Vychisl. Matem. Fiz.* **31**(3), 462–466 (1991).
- T. A. Adamov, Heat transfer and resistance of friction with the viscous compressible liquid flow, *Geotermiya* No. 1, 77–80 (1991).
- G. I. Aronchik and G. B. Panina, Mathematical modelling of heat transfer in a system of channels. In *Mathematical Modelling and Optimization of Thermal Processes in Heat Power Plants*, pp. 66–71. Izd. Kuibyshev Polytechnical Institute, Kuibyshev (1990).
- G. S. Aslanyan and L. B. Direktor, Numerical investigation of heat and mass transfer processes of a burning carbon particle, *Teplofiz. Vysok. Temp.* **29**(3), 570–576 (1991).
- A. Ya. Baltsevich, Heat transfer in He II with slow variation of thermal load, *Izv. SO AN SSSR, Ser. Tekh. Nauk* No. 1, 127–128 (1991).
- A. P. Baskakov, V. K. Maskayev, I. V. Ivanov and A. G. Usoltsev, Experimental study of heat transfer from stack walls to a circulatory fluidized bed, *J. Engng Phys.* **59**(6), 975–979 (1990).
- V. A. Batishchev, The influence of the thermal capillary effect on the free boundary shape at large Marangoni numbers, *Zh. Prikl. Mekh. Tekh. Fiz.* No. 5, 41–48 (1990).
- V. Ya. Borovoy and I. V. Struminskaya, Heat transfer on a cylinder in a hypersonic flow in a shock wave fall zone, *Izv. AN SSSR, Mekh. Zhidk. Gaza* No. 3, 117–123 (1991).
- A. A. Bozhko and G. F. Putin, Experimental study of thermomagnetic convection in a uniform external field, *Izv. AN SSSR, Ser. Fiz.* **55**(6), 1149–1155 (1991).
- N. N. Danilov, Heat transfer in a system of cylindrical fuel elements. In *Thermal Processes and Metastable States*, pp. 70–73. Izd. Uralsk. Nauch. Tsentr, Sverdlovsk (1990).
- S. G. Diyakonov, D. V. Proshchekalnikov, G. S. Diyakonov and R. A. Ibragimov, Study of diffusion mass transfer in liquid mixtures by the method of conjugated physical and

- mathematical modelling, *J. Engng Phys.* **59**(6), 1016–1023 (1990).
- N. A. Dunaevskiy and V. P. Reshetin, Heat and mass transfer in a surface layer of metals with laser treatment, *J. Engng Phys.* **60**(6), 999–1004 (1991).
- K. Yu. Fedorovskiy, Study of heat transfer of an impact jet with application of a screen, *Izv. VUZov, Energetika* No. 6, 114–116 (1991).
- V. I. Ganchar, Heat transfer parameters during anode electrolytic heating, *J. Engng Phys.* **60**(1), 92–95 (1991).
- V. F. Getmanets, A. Ya. Levin and P. G. Potemina, Heat transfer in the system of parallel axisymmetric fins with variation of the aggregate state of a coolant, *J. Engng Phys.* **59**(6), 903–910 (1990).
- A. Ye. Indeykina and Yu. S. Ryazantseva, Unsteady-state thermocapillary convection in a layer of uniformly heated liquid, *Izv. AN SSSR, Mekh. Zhidk. Gaza* No. 3, 17–25 (1991).
- Ye. Ya. Kenig, L. I. Kholpanov and V. A. Malyusov, Multi-component mass transfer, complicated by chemical reactions, in a flowing liquid film, *Teor. Osnovy Khim. Tekhnol.* **25**(2), 163–174 (1991).
- Yu. A. Kirichenko, Zh. A. Suprunova and M. N. Anistarov, Heat transfer conditions with uniform heating of a liquid phase during drainage-free storage of cryogenic liquids. In *Thermal Design of Systems*, pp. 189–200. Izd. NII Stroit. Fiz., Moscow (1990).
- Yu. Ya. Kiselev and V. K. Pogora, Investigation of the radial heat flux density distribution in bearing spots of a plasma cutting arc, *J. Engng Phys.* **59**(6), 892–896 (1990).
- A. A. Kochubey, Ye. M. Rakita and A. A. Ryadno, Calculation of hydrodynamics and heat transfer in rotating channels using the finite-elements method, *Izv. SO AN SSSR, Ser. Tekh. Nauk* No. 1, 129–132 (1991).
- V. I. Kordonskiy, S. A. Demchuk, V. A. Kuzmin and E. A. Zaltsgandler, Heat transfer in electrodynamic converters, *J. Engng Phys.* **59**(6), 896–902 (1980).
- N. N. Kortikov and V. V. Nechayev, Heat transfer in a compressible turbulent boundary layer on a curvilinear surface, *Izv. VUZov, Energetika* No. 6, 85–88 (1991).
- V. A. Kudinov, B. V. Vorobiyov, A. Yu. Denisov and V. V. Gnedenko, Heat transfer in a plane channel with account of energy dissipation and temperature dependence of medium viscosity. In *Mathematical Modelling and Optimization of Thermal Processes in Heat Power Plants*, pp. 62–66. Izd. Kuibyshev Polytechnical Institute, Kuibyshev (1990).
- V. A. Kuznetsov, Turbulent heat transfer by a low-conducting liquid near a smooth wall, *Teor. Osnovy Khim. Tekhnol.* **25**(2), 286–288 (1991).
- N. N. Luchko and T. V. Sidorovich, Forced convection in a rectangular region. In *Thermal Physics and Hydrogasdynamics-90*, pp. 52–54. Luikov Heat and Mass Transfer Institute of the Byelorussian Academy of Sciences, Minsk (1990).
- V. Ye. Okunev and G. S. Romanov, A theoretical model and numerical simulation of a powerful electric discharge clamped by a magnet. In *Heat Transfer Under the Action of Radiative Flows on Materials*, pp. 77–98. Izd. ITMO AN BSSR, Minsk (1990).
- A. F. Polyakov, Turbulent heat transfer in tubes at supercritical pressures and essential influence of buoyancy forces. In *Turbulent Convection*, 29–31 May, 1989, pp. 115–137. Izd. Mosk. Khim.-Tekhnol. Inst., Moscow (1990).
- V. N. Popov and Ye. P. Valuyeva, Specific features of heat transfer with turbulence of the forced and mixed convection of liquids in a supercritical region, *Atomnaya Energiya* **70**(5), 329–335 (1991).
- Ye. A. Ryabitskiy, Thermocapillary instability of the plane layer balance in the presence of internal heat sources, *Izv. AN SSSR, Mekh. Zhidk. Gaza* No. 2, 27–31 (1991).
- V. L. Sergeyev, Comparison of methods for measuring heat fluxes in short-term nonstationary gasdynamic processes, *Vestsi AN BSSR, Ser. Fiz.-Energ. Navuk* No. 2, 80–84 (1991).
- A. M. Tsirlin, Optimal control of irreversible heat and mass transfer processes, *Izv. AN SSSR, Tekhn. Kibernet.* No. 2, 171–179 (1991).
- Ye. V. Ushpuras and P. S. Poshkas, Numerical study of turbulent transfer characteristics with mixed convection in vertical tubes. In *Turbulent Convection*, 29–31 May, 1989, pp. 95–113. Izd. Mosk. Khim.-Tekhnol. Inst., Moscow (1990).
- Yu. V. Vilemas, P. S. Poshkas and V. E. Kaupas, Generalization of data on local heat transfer in a gas cooled vertical tube with mixed convection. In *Turbulent Convection*, 29–31 May, 1989, pp. 49–68. Izd. Mosk. Khim.-Tekhnol. Inst., Moscow (1990).
- A. N. Yarkin, V. V. Lozhkin and Yu. V. Chernukhina, Heat transfer and friction pressure losses in channels with a twisted flow, *Teploenergetika* No. 7, 47–51 (1991).
- P. P. Yermakov, The effect of acoustic oscillations on the mass transfer process, *Teor. Osnovy Khim. Tekhnol.* **25**(2), 198–203 (1991).
- V. I. Yevenko and A. K. Anisin, Study of local thermo-hydraulic characteristics of vertical tube bundles with variation in orientation of their elements, *Teploenergetika* No. 5, 51–56 (1991).
- I. G. Yudin and V. V. Shishlyannikov, Experimental investigation of heat transfer in a channel with a porous filler. In *Rheology. Processes and Apparatuses of Chemical Technology*, pp. 95–98. Izd. Volgogradsk. Politekhn. Inst., Volgograd (1989).

RADIATIVE HEAT TRANSFER

- V. V. Averin, Specific features of radiative heat transfer of a spherical particle and of a concentric cavity, *J. Engng Phys.* **60**(4), 615–620 (1991).
- Ye. I. Averkov, Properties of thermal radiation of titanium and of its commercial alloys, *Izv. SO AN SSSR, Ser. Tekh. Nauk* No. 1, 3–16 (1991).
- B. N. Bazylev, I. M. Kozlov, G. S. Romanov and Zh. L. Shipko, Numerical simulation of high-temperature radiative waves. In *Heat Transfer Under the Action of Radiative Flows on Materials*, pp. 109–122. Izd. ITMO AN BSSR, Minsk (1990).
- T. A. Betina and V. P. Soloviyev, Spectral and integral emissivities of a nonisothermal plane layer of quartz ceramics, *Izv. SO AN SSSR, Ser. Tekh. Nauk* No. 1, 23–28 (1991).
- E. T. Brook-Levinson, M. L. German, M. A. Geller and G. V. Gritskevich, Controllable radiative heating of articles as applied to steel heat treatment, *J. Engng Phys.* **61**(2), 187–190 (1991).
- L. A. Brovkin, Ye. N. Gnezdev and V. V. Pichugin, A mathematical model of heat transfer in a layer with radiation taken into account. In *Modelling of Processes in Thermo-technological Plants*, pp. 125–129. Izd. MEI, Moscow (1990).
- G. O. Bykov, The OXMAN program for calculating temperature fields in bodies of complex configuration, *Vopr. Atomm. Nauki Tekh., Ser. Yadern. Tekh. Tekhnol.* No. 1, 22–26 (1990).
- L. I. Dagis and O. L. Tutlite, Radiative heat transfer in a closed system filled by rod bodies of different cross sections. In *Mathematical Modelling and Optimization of Thermal Processes in Heat Power Plants*, pp. 10–15. Kuibyshev Polytechnical Institute, Kuibyshev (1990).
- M. Ya. Flyaks, Radiative properties of composites based on phenol carbon and glass plastics, *J. Engng Phys.* **61**(4), 663–669 (1991).
- I. B. Krasnyuk, T. T. Riskiyev and T. P. Salikhov, On powerful laser radiation transfer in optical media : onset of “optical turbulence”, *J. Engng Phys.* **61**(1), 21–26 (1991).
- V. N. Lunkin and L. P. Barinova, Analytical study of thermal operation of a tubular element of an air preheater. In *Modelling of Processes in Thermotechnological Plants*, pp. 24–29. Izd. MEI, Moscow (1990).
- O. A. Makhotkin, Analysis of radiative heat transfer between nondiffuse surfaces by means of hemispherical harmonics. I.

- Theory, *Izv. SO AN SSSR. Ser. Tekh. Nauk* No. 2, 33–37 (1991).
- O. A. Makhotkin, Analysis of radiative heat transfer between nondiffuse surfaces by means of hemispherical harmonics. II. Numerical experiment, *Izv. SO AN SSSR. Ser. Tekh. Nauk* No. 2, 38–43 (1991).
- O. A. Makhotkin, Improvement of accuracy of a zonal method for solving problems of radiative heat transfer. I. Theoretical fundamentals, *Izv. SO AN SSSR. Ser. Tekh. Nauk* No. 1, 29–32 (1991).
- A. G. Plita and V. V. Prokopov, Radiative heat transfer in a two-phase medium with emitting and reflecting isothermal boundary surfaces. In *Actual Problems of Thermophysics and Physical Hydrogasdynamics* (The IV All-Union Conference, Novosibirsk, 1991), pp. 173–174. Novosibirsk (1990).
- I. N. Popkov and V. A. Tovstonog, On determining radiation field characteristics in a light-scattering material under the action of the restricted source of collimated radiation, *Izv. SO AN SSSR. Ser. Tekh. Nauk* No. 1, 45–50 (1991).
- G. S. Romanov and D. E. Skoromnik, On the existence of a stationary radiation cooling wave, *J. Engng Phys.* **61**(3), 437–443 (1991).
- G. B. Sinyarev, V. N. Yeliseyev, Ye. K. Belonogov, S. V. Reznik and V. A. Tovstonog, Problems of the simulation of thermal regimes of constructions on radiative heating benches. In *Thermal Design of Systems*, pp. 215–224. Izd. NII Stroit. Fiz., Moscow (1990).
- V. Ye. Tyutyunnik and O. A. Sergeyev, Heat conduction of quartz glass in the range of 573–127 K, *Proisv. Issled. Stekla Silikat. Mater.* No. 10, 133–140 (1990).
- V. Ye. Tyutyunnik and Yu. A. Guloyan, Concerning certain specific features of heat transfer under cooling of glasses, *Proisv. Issled. Stekla i Silikat. Mater.* No. 10, 116–121 (1990).
- T. V. Vilenskiy, A. I. Kalinchak and T. V. Dvoynishnikov, The role of radiation heat transfer during burning of an oil coke particle, *Fiz. Aerodispers. Sistem* No. 3, 135–140 (1991).
- I. P. Zhuk and N. I. Stetyukevich, Relationship between emissivity of metals and their thermophysical properties, *J. Engng Phys.* **61**(4), 656–658 (1991).
- HEAT AND MASS TRANSFER IN PHASE AND CHEMICAL CONVERSIONS**
- Z. S. Bagautdinov, Optimization of air flows on thermal electric power plants, *Trudy TsKTI* No. 262, 20–26 (1990).
- V. G. Baydakov and S. A. Maltsev, Steam explosion in the liquid–liquid system. In *Thermal Processes and Metastable States*, pp. 28–35. Izd. Uralsk. Nauch. Tsentr, Sverdlovsk (1990).
- S. A. Beresnev and V. G. Chernyak, Droplet evaporation in an optical radiation field, *Teplofiz. Vysok. Temp.* **29**(3), 577–581 (1991).
- A. M. Brener, V. I. Naydenov, G. G. Almendinger and G. A. Berdaliyeva, Nonstationary film condensation caused by the temperature dependence of condensate viscosity, *Teor. Osnovy Khim. Tekhnol.* **25**(3), 334–342 (1991).
- V. N. Chukanov and B. A. Korobitsyn, Kinetics of homogeneous nucleation in supersaturated vapors of monoatomic alcohols. In *Thermal Processes and Metastable States*, pp. 120–123. Izd. Uralsk. Nauch. Tsentr, Sverdlovsk (1990).
- O. V. Dikhtiyevskiy, G. V. Konyukhov, O. G. Martynenko and I. F. Yurevich, Numerical modelling of an optimal heat accumulator with phase transition, *J. Engng Phys.* **61**(5), 749–756 (1991).
- S. V. Dobkin and E. Ye. Son, Determination of radiant heat conduction of uranium hexafluoride from experiments on heating in a nuclear reactor, *Teplofiz. Vysok. Temp.* **29**(3), 468–473 (1991).
- B. M. Dorofeyev, Pseudocavitation under boiling of a sub-cooled aerated liquid, *Teplofiz. Vysok. Temp.* **39**(3), 564–569 (1991).
- V. N. Durnev and V. S. Vlasov, The temperature dependence of microframe around aluminum particles on the choice of combustion models of particles of aluminum and carbon in a plasma generator, *Teplofiz. Vysok. Temp.* **29**(3), 613–615 (1991).
- O. Ye. Galashev, Metastable states of a system of elastic spheres that is packed in a gravitation field. In *Thermal Processes and Metastable States*, pp. 111–119. Izd. Uralsk. Nauch. Tsentr, Sverdlovsk (1990).
- Ye. L. Goldayevich, On the interaction between sound and interphase boundary in heterogeneous systems with stationary heat fluxes, *Problemy Energosberezeni.* No. 6, 83–90 (1991).
- Yu. A. Kirichenko, K. V. Rusanov and Ye. G. Tyrurina, Investigation of heat transfer with nitrogen film boiling on a horizontal plane facing downward, *Teploenergetika* No. 5, 39–42 (1991).
- O. P. Kuryachiy, A mathematical model of a system of thermal protection with coolant evaporation from a capillary-porous material into a cavity, *Teplofiz. Vysok. Temp.* **29**(3), 540–547 (1991).
- Yu. A. Kuzma-Kichta, A. S. Komendantov, L. T. Vasiliyeva and L. T. Savkin, Study of heat removal enhancement in steam generating channels with porous coating, *Teploenergetika* No. 5, 42–47 (1991).
- V. M. Kuzmenko, T. P. Chernyaeva, A. N. Vladychkin and V. V. Bryk, Crystallization of amorphous films of vanadium and bismuth. In *Thermal Processes and Metastable States*, pp. 92–102. Izd. Uralsk. Nauch. Tsentr, Sverdlovsk (1991).
- V. V. Levdansky, On transfer processes in aerodispersed systems under the resonance radiation action. In *Heat Transfer Under the Action of Radiative Fluxes on Materials*, pp. 40–52. Izd. ITMO AN BSSR, Minsk (1990).
- S. N. Malyshenko, A. B. Andrianov and M. N. Makeyev, Inadequacy of hydrodynamic models of boiling crisis on the surfaces with porous coatings, *Teplofiz. Vysok. Temp.* **29**(3), 548–556 (1991).
- S. I. Mednikov and D. M. Gureyev, Kinetics of phase changes in iron and steel under heating, *J. Engng Phys.* **61**(4), 669–673 (1991).
- S. Ye. Melnik and A. A. Ryadno, Numerical modelling on the basis of the finite-element method of heat and mass transfer problems in a crystallizing melt. In *Modelling and Computation Methods of Heat and Mass Transfer Processes*, pp. 82–89. Dnepropetrovsk State Univ., Dnepropetrovsk (1990).
- V. V. Migunov, A problem on heat and mass transfer with the short-term contact of phases, *J. Engng Phys.* **60**(6), 955–963 (1991).
- Yu. P. Mishin, G. M. Kalugin and L. T. Karaganov, Evaporative cooling of helium helical compressor. In *Cryogenic Processes and Technology*, pp. 81–90. Izd. NIPO MO, Balashikha (1990).
- S. K. Myasnikov, A. V. Rasskazov, V. A. Malyusov and N. N. Kulov, Unsteady-state mass transfer with crystallization from a laminar-wave liquid film, *Teor. Osnovy Khim. Tekhnol.* **25**(3), 323–333 (1991).
- O. E. Odimariya, Numerical solution of the problems of unsteady-state heat transfer with phase conversions in the temperature range, *Izv. AN SSSR, Energet. Transp.* No. 3, 116–125 (1991).
- G. B. Okonishnikov, N. V. Novikov and V. A. Pshenichnikov, Stratifying liquids in processes with pulse heat release. In *Thermal Processes and Metastable States*, pp. 42–47. Izd. Uralsk. Nauch. Tsentr, Sverdlovsk (1990).
- S. M. Ostroumov, Analysis of heat and mass transfer under porous-sUBLIMATION cooling, *J. Engng Phys.* **59**(6), 910–917 (1990).
- P. A. Pavlov, Heat transfer under liquid evaporation near a wetting line of a metallic heater. In *Thermal Processes and Metastable States*, pp. 19–27. Izd. Uralsk. Nauch. Tsentr, Sverdlovsk (1990).
- N. A. Prudnikov, M. A. Brich and Ya. S. Raptunovich, Numerical modelling of heat and mass transfer involving

- drying of granulated polymers in a dense bed, *J. Engng Phys.* **59**(6), 995–1000 (1990).
- Ya. F. Rutner, A generalized thermal problem in the theory of alloy crystallization. In *Mathematical Modelling and Optimization of Thermal Processes in Heat Power Plants*, pp. 100–104. Kuibyshev Polytechnical Institute, Kuibyshev (1990).
- V. P. Skripov, Phase conversions and thermodynamic similarity. In *Thermal Processes and Metastable States*, pp. 3–18. Izd. Uralsk. Nauch. Tsentr. Sverdlovsk (1991).
- P. V. Skripov and S. B. Ryutin, Similarity of lines of attainable superheating of solutions. In *Thermal Processes and Metastable States*, pp. 48–53. Izd. Uralsk. Nauch. Tsentr. Sverdlovsk (1991).
- O. P. Solonenko and A. I. Fedorchenko, Dynamics of crystallization processes of melted particles during their interaction with a surface, *Izv. SO AN SSSR, Ser. Tekh. Nauk* No. 1, 109–117 (1991).
- M. G. Verdiyev, S. A. Ninalalov and M. M. Verdiyev, Crisis of boiling and its criteria. In *Phase Conversions and Thermophysical Properties of Multicomponent Systems*, pp. 125–133. Dagestan Branch of the Institute of Physics, Makhach-Kala (1990).
- A. G. Yakovenko and V. V. Stulov, A mathematical model of slab solidification during convective motion of melt in a crystallizer. In *Modelling and Computation Methods of Heat and Mass Transfer Processes*, pp. 53–58. Dniepropetrovsk State Univ., Dniepropetrovsk (1990).
- A. I. Zanin, Initiation of superheated liquid boiling-up by an electric field. In *Thermal Processes and Metastable States*, pp. 57–64. Izd. Uralsk. Nauch. Tsentr. Sverdlovsk (1990).
- A. G. Zavadskiy, Radiospectral investigations of kinetics of water crystallization in the water–oil emulsion. In *Thermal Processes and Metastable States*, pp. 88–91. Izd. Uralsk. Nauch. Tsentr. Sverdlovsk (1991).
- HEAT AND MASS DISPERSE AND TWO-PHASE SYSTEMS**
- N. P. Antonyuk, V. A. Gerliga and V. I. Skalozubov, Calculation of the thermal acoustic instability boundaries of subcooled boiling flows, *Izv. VUZov, Energet. Transp.* No. 3, 126–131 (1991).
- A. V. Baranenko, Heat transfer enhancement with film absorption under conditions of surface instability, *Izv. SO AN SSSR, Ser. Tekh. Nauk* No. 1, 17–22 (1991).
- E. G. Brutata and Yu. A. Selikhov, Heat transfer under surface cooling by a dispersed liquid, *Izv. AN SSSR, Energet. Transp.* No. 3, 132–138 (1991).
- A. P. Burdukov, G. G. Kuvshinov and A. I. Mukhin, Heat and mass transfer through a horizontal grid lattice in a fluidized bed, *Zh. Prikl. Mekh. Tekhn. Fiz.* No. 5, 81–88 (1990).
- I. V. Derevich and V. M. Yeroshenko, Boundary conditions for the equations of heat and mass transfer of coarse disperse aerosols in the turbulent flow, *J. Engng Phys.* **61**(4), 546–554 (1991).
- A. V. Dubinskiy, A. V. Kalinchak and M. N. Chesnokov, Heat and mass exchange between a spherical particle and a gas with allowance for temperature dependence of transfer coefficients, *Fiz. Aerodispers. Sistem* No. 34, 130–135 (1990).
- E. G. Gudushauri, A. Ye. Medvedev and I. V. Selianov, Relation between fluctuations of pressure and a liquid flow rate in a film for a pulsating air–water dispersed–circular flow, *Teploenergetika* No. 1, 63–65 (1991).
- V. A. Khmylnin and N. V. Bulanov, Heat transfer to the diethyl ether–water emulsion. In *Thermal Processes and Metastable States*, pp. 65–69. Izd. Uralsk. Nauch. Tsentr. Sverdlovsk (1990).
- N. I. Klyuev and A. F. Fedechev, Determination of the coefficient of heat transfer on an inner surface of a two-phase heat exchanger, *J. Engng Phys.* **60**(6), 891–895 (1991).
- A. L. Korotkov, L. P. Razmoldin, I. O. Protodiyakonov and Yu. B. Kuzmichev, A mathematical model for conjugated heat and mass transfer of a steam bubble with a liquid during rectification, *Teor. Osnovy Khim. Tekhnol.* **25**(2), 190–197 (1991).
- N. A. Kudryavtsev, M. V. Mironova and V. P. Yatsenko, A transverse two-phase flow past a cylindrical heat-transfer surface, *J. Engng Phys.* **59**(6), 917–923 (1990).
- V. A. Markov, V. K. Volkov, A. I. Yershov and A. M. Volk, Study of the liquid dispersion process in a rotor, *Izv. VUZov, Energetika* No. 6, 94–98 (1991).
- V. M. Repukhov and A. I. Neduzhko, Efficiency of multicomponent nonequilibrium gas–steam–liquid screens, *Dokl. AN Ukr. SSR* No. 5, 83–87 (1991).
- V. M. Repukhov and A. I. Neduzhko, The effect of non-equilibrium heat and mass transfer on the efficiency of a gas–steam–liquid thermal screen, *Dokl. AN Ukr. SSR* No. 3, 63–66 (1991).
- A. S. Smirnov, V. Ya. Lebedev and Ye. P. Barulin, Simulation of the kinetics of heat and mass transfer of a polydisperse material. In *Heterogeneous Processes of Chemical Technology. Kinetics, Dynamics, Transfer Phenomena*, pp. 112–117. Izd. Ivanovsk. Energet. Inst., Ivanovo (1990).
- F. M. Sultanov and A. L. Yarin, A percolation model of the dispersion process and explosive grinding of liquid media: the droplet size distribution, *Zh. Prikl. Mekh. Tekhn. Fiz.* No. 5, 48–54 (1990).
- V. Ye. Vinogradov and Ye. N. Sinitsyn, Efflux of gas-saturated water through short nozzles, *Teplofiz. Vysok. Temp.* **29**(1), 174–177 (1991).

HIGH-TEMPERATURE THERMOPHYSICS

- A. S. Yaskin and D. L. Timrot, Determination of a set of thermophysical properties of ceramics at high temperatures. Allowance for lateral losses from a sample, *J. Engng Phys.* **59**(2), 261–266 (1990).

LOW-TEMPERATURE THERMOPHYSICS

- V. Ye. Alemasov, M. M. Lampasov, G. B. Odinokova and A. S. Cherenkov, Computational theoretical study of electrophysical properties of low-temperature plasma of flows in the presence of a condensed phase, *J. Engng Phys.* **59**(1), 162–163 (1990).
- N. V. Atapina, D. N. Garipogly, A. S. Drobyshev, V. A. Kuzmin and S. L. Maksimov, Study of the specific features of heat and mass transfer in gas–solid system at low temperatures, *J. Engng Phys.* **61**(6), 986–993 (1991).

HEAT AND MASS TRANSFER IN RHEOLOGICALLY COMPLEX FLUIDS

- V. A. Buryachenko, Yu. V. Skorbov, S. V. Gunin and V. V. Lysov, Effective rheological parameters of suspensions with a polyfractional filler, *J. Engng Phys.* **61**(6), 928–934 (1991).
- Yu. G. Nazmeyev, The equivalency of problem statements when modelling flows of rheologically complicated media in endless screw channels, *J. Engng Phys.* **61**(2), 277–284 (1991).
- Yu. G. Nazmeyev, V. F. Bobrov, V. F. Dits and Ye. K. Vachagina, Calculation of a velocity profile for an elastoviscous fluid flow in screw channels of extrusion machines, *J. Engng Phys.* **61**(3), 392–399 (1991).
- L. S. Stelmakh, A. M. Stolin and B. M. Khusid, Rheodynamics of extrusion of viscous compressible materials, *J. Engng Phys.* **61**(2), 268–277 (1991).
- L. S. Stelmakh, N. N. Zhilyaeva and A. M. Stolin, Non-isothermal rheodynamics of self-propagation high-temperature synthesis-moulding of powder materials, *J. Engng Phys.* **61**(1), 33–41 (1991).

HEAT AND MASS TRANSFER IN TECHNOLOGICAL PROCESSES

- A. Yu. Bushuyev and V. V. Gorskiy, Design of multilayer heat protective systems, *J. Engng Phys.* **61**(3), 456–472 (1991).
- V. L. Dragun, A. P. Kozlova and S. A. Filatov, The methods of computational IR thermography as applied to the system of automatic design of radioelectronic equipment, *J. Engng Phys.* **61**(2), 211–215 (1991).
- N. I. Golovchenko, I. V. Milov, I. L. Strulya and V. V. Kharitonov, Unsteady-state thermoelastic deformation of cooled laser mirrors, *J. Engng Phys.* **61**(2), 190–199 (1991).
- V. A. Ishchenko and E. N. Kvasha, The thermally stressed state of rubber cord envelopes of busbars during manufacture. In *Modelling and Computation Methods of Heat and Mass Transfer Processes*, pp. 108–111. Dniepropetrovsk State Univ., Dniepropetrovsk (1990).
- G. F. Kozoriz, L. I. Melnik and S. V. Zhikh, Theoretical investigations of heat transfer processes in flexible ventilation systems, *Les. Khozyaistvo, Les., Bum., Derevoobrab. Prom.* No. 21, 89–92 (1990).
- N. G. Luzhкова and Yu. M. Grigoriev, Thermal regimes of chemical gas-phase deposition of condensed products on a moving electrically heated substrate, *J. Engng Phys.* **61**(4), 673–680 (1991).
- A. I. Moshinskiy, The effect of relaxation processes of substance transfer on the stability of the operation conditions of an isothermal flow-through chemical reactor, *J. Engng Phys.* **61**(1), 129–136 (1991).
- V. B. Vistyak, A. V. Doroshenko and T. V. Titarenko, Apparatuses with high-effective heat transferring surfaces, *Kholod. Tekh.* No. 2, 33–37 (1990).
- V. N. Ishchenko, I. V. Zhukova and L. F. Chernykh, Attenuation of temperature fluctuations in outer protections, *Zhil. Stroit.* No. 5, 22–23 (1991).
- A. D. Krivosheyn, An engineering method for calculating thermal stability of protecting constructions of buildings with account of air penetrability, *Izv. VUZov, Stroit. Arkhit.* No. 7, 87–91 (1991).
- A. D. Krivosheyn, Heat engineering calculation of air-penetrating protecting constructions of buildings, *Izv. VUZov., Stroit. Arkhit.* No. 2, 65–69 (1991).
- Yu. Ya. Kuvshinov and S. S. Tsyrnova, Simulation of non-stationary heat transfer in a compartment, *Izv. VUZov, Stroit. Arkhit.* No. 6, 86–90 (1991).
- S. N. Osipov and V. M. Staroverov, Non-stationary thermal conditions in heat-insulating low-volumetric buildings, *Izv. VUZov, Energetika* No. 5, 112–116 (1991).
- A. D. Ushakova, N. Nuryllayev and A. Nuryagdyev, Simulation and numerical investigation of the operation of a solar hot water supply system with thermosiphon circulation, *Izv. AN Tadzh. SSR, Ser. Fiz.-Tekh. Nauk* No. 6, 44–51 (1990).
- V. B. Vistyak, A. V. Doroshenko and T. V. Titarenko, Apparatuses with high-effective heat-transferring surfaces, *Kholod. Tekh.* No. 2, 33–37 (1990).

HEAT AND MASS TRANSFER IN BUILDINGS

- V. K. Aksamentov and V. V. Malozemov, Mathematical modelling of the moisture regime of hermetic cabins of piloting flying vehicles. In *Thermal Design of Systems*, pp. 161–169. Izd. NII Stroit. Fiz., Moscow (1990).
- I. P. Banov, Numerical simulation and experimental regime of a building during disconnection of heating, *Sborn. Nauch. Trudov Mosk. Energ. Inst.* No. 239, 55–64 (1990).
- V. M. Ishchenko, Calculation of thermostability of buildings on programmed microcalculators, *Vodosnabzh. San. Tekh.* No. 12, 20–21 (1990).
- Yu. P. Dobryanskiy and V. P. Chernyak, Mutual effect of heat and mass transfer during ventilation of open-cut minings, *Prom. Teplotekh.* 13(3), 40–44 (1991).
- V. P. Ivakin and A. V. Kochergin, An amplitude-scale method for analyzing air temperature fluctuations in the zone of a non-isothermal jet action, *Fiz. Aerodispers. Sistem* No. 34, 3–9 (1991).
- A. M. Kaimov, Calculation of the optimal thickness thermal insulation, *Izv. VUZov, Stroit. Arkhit.* No. 10, 91–93 (1990).
- V. N. Kosolapov, V. A. Chugunov, V. P. Chernyak and Yu. I. Zolotarenko, Heat transfer in underground energy-saving systems of mine air conditioning, *Prom. Teplotekh.* 13(2), 50–58 (1991).
- Yu. A. Popov, V. M. Korostelev and V. V. Berezin, Thermophysical investigations of rocks and ores, *Sov. Geolog.* No. 6, 43–48 (1991).
- A. B. Vardiyashvili and M. O. Muradov, Dynamics of moisture regimes of hothouse soils with thermal irrigation inside soils, *Geliotekhnika* No. 1, 78–82 (1991).