

HEAT AND MASS TRANSFER BIBLIOGRAPHY—SOVIET WORKS

R. I. SOLOUKHIN and O. G. MARTYNENKO
Heat and Mass Transfer Institute, Minsk, U.S.S.R.

(Received 12 November 1979)

BOOKS

- L. V. Arnol'd, G. A. Mikhailovsky and V. M. Selivestrov, *Engineering Thermodynamics and Heat Transfer*, Textbook, 2nd revised edn. Izd. Vysshaya Shkola, Moscow (1979).
V. M. Glazov and A. L. Lomov, *Thermodynamics of Voltaic Cells. Kinetics of the Electrode Processes. Electrochemistry of Semi-Conductors*, Textbook on Electrochemistry. Izd. MIET, Moscow (1978).
L. G. Golubev, B. S. Sazhin and E. R. Valashchek, *Drying in Chemico-Pharmaceutical Industry*. Izd. Meditsina, Moscow (1978).
G. E. Kanevets, *Generalized Methods of the Design of Heat Exchangers*. Izd. Naukova Dumka, Kiev (1979).
M. Kh. Karapetyants, *Chemical Thermodynamics*. Izd. Khimiya, Moscow (1978).
A. F. Krylov, Introduction to Non-equilibrium Thermodynamics, Textbook. Izd. Saratovsk. Univ., Saratov (1978).
M. V. Kulakov and B. I. Makarov, *Measurement of the Surface Temperature of Solid Bodies*, 2nd revised and augmented edn. Izd. Energiya, Moscow (1979).
S. S. Kutateladze (editor), *Investigation of Complex Heat Transfer*, Collected Papers. Izd. Inst. Teplofiz., Novosibirsk (1978).
S. S. Kutateladze (editor), *Laminar to Turbulent Boundary Layer Transition. Two-Phase Flows*, Collected Papers. Izd. Inst. Teplofiz., Novosibirsk (1978).
S. S. Kutateladze (editor), *Processing Algorithms and Means for Automation of the Thermophysical Experiment*, Collected Papers. Izd. Inst. Teplofiz., Novosibirsk (1978).
P. S. Kuts and S. M. Reprintseva (editors), *Problems of Heat Transfer in the Processes of Drying and Thermal Treatment*, Collected Papers. Izd. ITMO AN BSSR, Minsk (1978).
N. S. Pugachyov and Yu. A. Tumanov, *Thermotechnical Measurements*. Izd. Standartov, Moscow (1978).
G. A. Saltanov, *Non-equilibrium and Unsteady-state Processes in Gasdynamics of One- and Two-Phase Media*. Izd. Nauka, Moscow (1979).
V. S. Shpak (editor), *Thermodynamics and Kinetics of Chemical Processes*, Collected Papers. Izd. GIPKh, Leningrad (1978).
Z. P. Shul'man et al. (editors), *Dynamics of Transfer Processes in Rheologically Complex Media*, Collected Papers. Izd. ITMO AN BSSR, Minsk (1978).
R. I. Soloukhin (editor), *Heat and Mass Transfer: Processes and Apparatus*, Collected Papers. Izd. ITMO AN BSSR, Minsk (1978).
A. L. Suris, *Thermodynamic Analysis of High-Temperature Processes*, Textbook. Izd. MIKhM, Moscow (1978).
V. I. Tolubinsky (editor), *Heat Transfer in Energetic Equipment*, Collected Papers. Izd. Naukova Dumka, Kiev (1978).
V. I. Tolubinsky (editor), *Heat Transfer in Pipes and Channels*, Collected Papers. Izd. Naukova Dumka, Kiev (1978).
V. E. Tomilov (editor), *Heat Transfer and Hydrodynamics of Single-Phase Liquid Flows*, Collected Papers. Izd. Tomsk. Univ., Tomsk (1979).
I. P. Zhuk et al. (editors), *Heat and Mass Transfer and Transport Properties of Substances*, Collected Papers. Izd. ITMO AN BSSR, Minsk (1978).

PAPERS GENERAL

- V. N. Barykin, Derivation of the Gupta transforms, in *Methods of Investigation and Optimization of Transfer Processes* (Izd. ITMO AN BSSR) pp. 206-208, Minsk (1979).
A. M. Grishin, Mathematical simulation of conjugated problems of the reacting media mechanics, in *Numerical Methods of Solution of the Transfer Problems* (Izd. ITMO AN BSSR) pt. 2, pp. 65-85, Minsk (1979).
P. M. Kolesnikov, Variational methods in the theory of transfer, in *Methods of Investigation and Optimization of Transfer Processes* (Izd. ITMO AN BSSR) pp. 113-172, Minsk (1979).
A. N. Kraiko, Theory and numerical simulation in the continuous medium mechanics, in *Numerical Methods of Solution of the Transfer Problems* (Izd. ITMO AN BSSR) pt. 2, pp. 47-64, Minsk (1979).
G. Ya. Mironova, Yu. V. Aksel'rod, V. V. Dil'man and Yu. A. Sokolinsky, Mathematical simulation of the film mass transfer process with a complex chemical reaction, *Theor. Osnovy Khim. Tekhnol.* 13(5), 693-701 (1979).
V. I. Polezhaev, Numerical simulation of turbulent fluid flows, in *Numerical Methods of Solution of the Transfer Problems* (Izd. ITMO AN BSSR) pt. 2, pp. 86-92, Minsk (1979).

THERMODYNAMICS

- V. S. Belyanin, Matched thermodynamic parameters of the iron-water system components, *Teploenergetika* No. 10, 73-74 (1979).
L. A. Bol'shov, On the thermodynamics of solutions containing admixture atoms of intermediate size, *Zh. Fiz. Khim.* 53(9), 2204-2208 (1979).
Yu. G. El'kin, V. Z. Geller and E. G. Porichansky, Thermal properties and the state equation of Freon-23, *Izv. VUZov, Energetika* No. 9, 116-118 (1979).
A. E. Galashin and V. B. Yakovlev, Thermodynamic properties of photoexcited anthracene, *Zh. Fiz. Khim.* 53(8), 2083-2085 (1979).
A. S. Kappel, F. D. Golikov and V. F. Lebedev, Thermodynamic estimation of heat recovery in water-ammonium absorption refrigerating machines, *Kholod. Tekh.* No. 8, 27-31 (1979).
V. G. Karnaughov and I. K. Senchenkov, Thermodynamic theory of the differential-type media with internal variables, *Prikl. Mekh.* 15(8), 19-27 (1979).
B. K. Kasenov, S. M. Isaeva and A. N. Polukarov, Thermodynamic properties of alkali metal arsenides, *Zh. Fiz. Khim.* 53(9), 2173-2176 (1979).
V. I. Koschenko, A. F. Demidenko, L. D. Sabanova et al., Temperature dependence of the thermodynamic properties of gallium nitride within 5-300 K, *Izv. Akad. Nauk SSSR, Neorg. Mater.* 15(9), 1686-1687 (1979).
V. A. Lebedev, Estimation of the selectivity of electrochemical reactor fuel recovery on the basis of thermodynamic data, *Atomnaya Energiya* 47(3), 180-181 (1979).
B. V. Lebedev, T. A. Bykova, E. G. Kiparisova et al., Thermodynamic properties of copper phenylacetylene in the

- range from 0 to 330 K, *Izv. Akad. Nauk SSSR, Ser. Khim.* No. 8, 1880–1882 (1979).
- N. P. Markuzin and O. K. Mikhailova, Thermodynamic relationships for the tensimetry method I. Equations governing changes in pressure and actual composition of non-saturated associated one-component vapour, *Vestnik LGU*, No. 10, *Ser. Fiz., Khim. Vyp.* 2, 110–113 (1979).
- V. N. Nikolaevsky, Thermodynamics of the growth of cracks. Destruction of elastic, nearly elastic and viscous bodies, *Izv. Akad. Nauk SSSR. Mekh. Tryord. Tela* No. 4, 95–106 (1979).
- N. N. Novikova, E. V. Samuilov, L. A. Sin'kova *et al.*, Thermodynamic analysis of the processes of high-temperature recovery of kaolinite-containing coal-wastes, *Teplofiz. Vysok. Temp.* 17(4), 770–776 (1979).
- A. I. Rusanov, Concerning the thermodynamics of curved surfaces in the presence of an electric field. I. Surface tension, surface polarization and fundamental equations, *Kolloid. Zh.* 41(5), 903–914 (1979).
- A. I. Rusanov, Concerning the thermodynamics of curved surfaces in the presence of an electric field. II. Surface tension, surface polarization and fundamental equations, *Kolloid. Zh.* 41(5), 903–926 (1979).
- A. I. Rusanov, Concerning the thermodynamics of curved surfaces in the presence of an electric field. III. Nucleation on charged centers, *Kolloid. Zh.* 41(5), 927–933 (1979).
- Ya. S. Shenkin, On thermodynamics of three-phase-equilibrium of real binary systems, *Zh. Fiz. Khim.* 53(8), 1984–1988 (1979).
- Yu. I. Shishatsky, G. A. Bocharova, L. N. Volobueva and A. L. Alova, Thermodynamic characteristics of baking yeast, *Izv. VUZov. Pishch. Tekhnol.* No. 4, 100–102 (1979).
- L. A. Shvartsman, B. M. Mogutnov, E. F. Petrova and A. N. Tsaryova, Coupling between the thermodynamic properties of sulphur and carbon in ferrous alloys and the electronic heat capacity coefficient, *Dokl. Akad. Nauk SSSR* 248(1), 158–160 (1979).
- I. A. Vasilieva and Zh. V. Granovskaya, Thermodynamic properties and defective structure of non-stoichiometric hafnium dioxide, *Zh. Fiz. Khim.* 53(8), 2106–2108 (1979).
- Yu. V. Vinokurov and B. M. Mogutnov, Thermodynamics of hydrogen and deuterium solutions in α -zirconium, *Zh. Fiz. Khim.* 53(9), 2233–2237 (1979).
- V. V. Yastrebov, A. V. Krylov and L. L. Mkrtchyan, The thermodynamics of exchange of fragments between silicon and germanium centers, pt. 2, *Reacts. Sposobn. Organ. Soedinenii* 15(3), 342–351 (1978).

THERMOPHYSICAL (TRANSPORT) PROPERTIES

- A. G. Akhmedov, Heat capacity of alkanes at different temperatures, *Zh. Fiz. Khim.* 53(9), 2387–2389 (1979).
- L. S. Barkhatov, D. N. Kagan, V. V. Korolyova and E. E. Shpil'rain, High-temperature investigations of the enthalpy of scandium oxide solid phase, *Teplofiz. Vysok. Temp.* 17(4), 766–769 (1979).
- A. F. Begunkova, A. P. Diyachkov, V. A. Pis'menny *et al.*, Investigation of heat capacity and thermal diffusivity of neodymium-doped yttrium aluminium garnet, *Opt.-Mekh. Prom.* No. 1, 55–56 (1979).
- A. L. Berdichevsky, On the effective thermal conductivity of media with periodic inclusions, *Dokl. Akad. Nauk SSSR* 247(6), 1363–1367 (1979).
- V. Ya. Chekhovskoi, I. A. Zhukova and V. D. Tarasov, Enthalpy and heat capacity of zirconium dioxide within 1100–2500 K, *Teplofiz. Vysok. Temp.* 17(4), 754–758 (1979).
- A. I. Fesenko and V. N. Chernyshov, A technique of determining thermal diffusivity of materials and a facility for its realization, *Izv. LETI*, vyp. 240, 55–58 (1978).
- L. P. Filippov, Description of heat capacity of liquids based on the thermodynamic similarity methods, *Vestnik Moscow. Universiteta Ser. 3, Fiz., Astronom.* 20(3), 87–89 (1979).
- B. A. Grigoriev, V. G. Nemzer, G. F. Bogatov *et al.*, Investigation of thermophysical and thermal properties of oils, *Izv. VUZov. Neft Gaz* No. 8, 59–62 (1979).

S. K. Karimov, Linear expansion, heat capacity and thermodynamic properties of the CdTi₂Te₄ compound, *Teplofiz. Vysok. Temp.* 17(4), 735–739 (1979).

M. Ya. Khodos, N. I. Kourov, A. A. Fotiev and V. L. Volkov, Heat capacity and entropy of oxide vanadium bronzes of the β -type of alkali-earth metals, *Izv. Akad. Nauk SSSR. Neorg. Mater.* 15(9), 1638–1641 (1979).

A. V. Logunov, N. V. Petrushin, A. F. Zverev and N. P. Zyulina, Thermal properties of an eutectic alloy of the Co–Cr–C system in the region of high temperatures, *Teplofiz. Vysok. Temp.* 17(4), 740–747 (1979).

Yu. P. Lutsik and A. F. Bulyandra, Thermophysical properties of refined sugar, *Izv. VUZov. Pishch. Tekhnol.* No. 4, 117–119 (1979).

V. L. Mal'ter, Calculation of thermal conductivity of refractory materials in various gas media, *Trudy VNIIETO vyp.* 9, 40–49 (1979).

L. P. Mezhov-Deglin, Thermal conductivity of pure lead crystals at low temperatures, *Zh. Eksp. Teor. Fiz.* 77/2(8), 733–751 (1979).

P. M. Rashidov, Z. Salimov and A. R. Sarynsakkhozhaev, Temperature effect on the thermophysical properties of cotton wool exposed to heat-moisture treatment, *Maslo-Zhirou. Prom.* No. 2, 13 (1979).

V. V. Rodnikova and N. I. Pleyannikov, Investigation of thermophysical properties of some optical lead-containing glasses in melted state, *Steklo (Trudy NII Stekla)* No. 1, 81–84 (1978).

L. I. Safir and B. A. Grigoriev, The heat capacity maxima of cyclohexane, *Zh. Fiz. Khim.* 53(8), 2121 (1979).

A. M. Sirota, V. I. Latunin, I. I. Gol'dshtein and N. E. Nikolaeva, Experimental investigation of the thermal conductivity maxima of water in the critical region, *Teploenergetika* No. 9, 67–69 (1979).

S. N. Sokolov, Equation for calculation of the heat capacity of methane-series liquid in a wide temperature range, *Zh. Fiz. Khim.* 53(8), 2089 (1979).

A. V. Surnov and L. V. Nikitina, Determination of enthalpy in the zone of high heat capacity, *Teploenergetika* No. 9, 47–50 (1979).

A. V. Temnik, Temperature dependence of the thermophysical properties of low-alloy steels, *Izv. VUZov. Energetika* No. 8, 66–70 (1979).

V. A. Vasilyov, Heat capacity of a hypothetical ionic solution, possibilities for its calculation and regions of application, *Izv. VUZov. Khim. Khim. Tekhnol.* 22(8), 934–938 (1979).

A. I. Veinik and G. V. Markov, Complex determination of thermophysical properties of casting metals and alloys, *Metallurgiya* vyp. 13, 9–11 (1979).

N. P. Zhmakin, R. I. Es'man and V. F. Drachenov, Thermophysical aspects of the local cooling of iron moulds, *Metallurgiya (Belorus. Politekh. Inst.)* vyp. 13, 39–40 (1979).

HEAT CONDUCTION

L. M. Anishchenko and S. Yu. Lavrenyuk, Use of the system analysis methods for the solution of heat conduction problems, *Fiz. Khim. Obr. Mater.* No. 4, 27–31 (1979).

B. F. Anisimov and N. K. Nadirov, Solution of the thermal coagulation equation, *Vestnik Akad. Nauk Kaz. SSR* No. 2, 43–48 (1979).

A. N. Babin, A. I. Gribanov and Yu. A. Korolenko, Mathematical modelling of temperature fields (for anode annealing) in open type furnace chambers, *Collected Papers of the Chelyabinsk Polytechnic Institute* vyp. 213, pp. 109–112 (1978).

I. N. Bogaenko and Yu. A. Timofeyev, Calculation of the temperature field of an axially ventilated electric machine armature, *Elektricheskovo* No. 4, 753 (1979).

V. T. Borukhov, Concerning a finite-dimensional problem of controlling the heat propagation processes, in *Methods of Investigation and Optimization of Transfer Processes (Izd. ITMO AN BSSR)* pp. 202–205, Minsk (1979).

T. Brechko, Effect of changes of the viscosity coefficient in an

- alternating temperature field on the velocity field in an oil film of sliding bearing, *Teor. Prikl. Mekh.* (Belorus. Politekh. Inst.) vyp. 6, 136–141 (1979).
- E. N. Bryukhanova, An example of calculation of the temperature field in a square plate with eccentrically arranged circular holes, in *Applied Theory of Elasticity*, vyp. 2, 92–95 (1979).
- I. I. Bukshtein and G. V. Manucharova, Methods of the solution of nonlinear differential equations which describe the dynamics of heat exchangers, *Trudy VTI* vyp. 20, 11–29 (1979).
- V. P. Chepurnenko, V. V. Lisin, A. L. Tsykalo et al., Investigation of temperature fields of heat exchanging elements, *Izv. VUZov, Energetika* No. 8, 113–116 (1979).
- S. A. Dovnar and A. K. Vershina, Temperature field of a semi-infinite rod with a plating layer subjected to plastic deformation in the heat flux direction, *Vestsi Akad. Navuk BSSR, Ser. Fiz.-Tekh. Navuk* No. 3, 114 (1979).
- E. P. Dyban, B. D. Bileka and V. A. Mel'nikova, Some aspects of thermal design calculation of the systems of cooling gas-turbine blades with longitudinal grooves, *Energomashinosstroenie* No. 9, 5–7 (1979).
- N. L. Kaganov and I. M. Lobasov, Procedure of investigation of temperature fields in seam welding, *Izv. VUZov, Mashinostr.* No. 3, 129–133 (1979).
- A. S. Kalashnikov, Concerning the heat conduction remote control equation, *Diff. Uravn.* 15(9), 1653–1660 (1979).
- Yu. V. Kalyazin, A refined method of discrete satisfaction of the edge conditions for calculation of temperature fields in industrial furnaces, *Izv. VUZov, Energetika* No. 9, 67–71 (1979).
- M. A. Khailov, Calculation of heat transfer through a wall with local protrusions, *Izv. VUZov, Mashinostr.* No. 3, 66–71 (1979).
- Yu. L. Khrestovoi, V. A. Palei and T. I. Medvedeva, Solution of the symmetrical problem of heat conduction for a sphere, *Energ. Mashinostr.* (Khar'kov), vyp. 27, 65–67 (1979).
- V. M. Korovina, V. A. Gurenko, Yu. A. Bashin et al., Calculation of the temperature field of shrinkage of large cylindrical ingots on cooling, *Metallov. Term. Obrab. Metallov* No. 9, 7–9 (1979).
- L. A. Kozdoba, Numerical methods of solution of the reverse and inverse problems of transfer, in *Numerical Methods of Solution of the Transfer Problems* (Izd. ITMO AN BSSR) pt. 1, pp. 86–104, Minsk (1979).
- M. P. Lenyuk and M. I. Bukatar', Stochastic temperature fields in a solid spherical cone, *Dokl. Akad. Nauk Ukr. SSR, Ser. A, Fiz.-Mat. Tekh. Nauki* No. 2, 140–144 (1979).
- P. N. Magazii, Investigation of the temperature field and energetic parameters of mimeographing machines, *Khim. Mashinostr.* (Kiev) vyp. 29, 23–27 (1979).
- A. M. Makarov and V. R. Romanovsky, Solution of the conjugated heat conduction problem for three thin-wall bodies in case of variable non-ideal contact, *Teplofiz. Vysok. Temp.* 17(4), 822–827 (1979).
- A. I. Vakser and Yu. G. Gurevich, Boundary conditions for the equations of transfer in non-equilibrium conducting media, *Ukr. Fiz. Zh.* 24(8), 1208–1212 (1979).
- L. A. Volokhonsky, V. Yu. Sandler and A. T. Yakovlev, Calculation of temperature fields in a fused ingot with regard for convection in the melt, *Trudy VNIIETO* vyp. 9, 128–134 (1979).
- ## HYDRODYNAMICS
- ### 1. Boundary layer
- A. D. Aralov and B. N. Yudaev, Effect of the induced turbulence on hydrodynamics of a wall boundary layer, *Izv. VUZov, Mashinostr.* No. 4, 45–49 (1979).
- Sh. N. Khusnudinov, An unsteady-state turbulent boundary layer in nozzles, *Trudy Metrol. Inst. SSSR* vyp. 201, 3–9 (1978).
- V. T. Movchan and B. D. Zakharyugin, Concerning one investigation of flows of turbulent boundary layers, in *Applied Aerodynamics* (Izd. Kievsk. Inst. Inzh. Grazh. Aviats.) vyp. 4, pp. 19–25, Kiev (1978).
- A. N. Pokrovsky and V. N. Shmanenkov, Use of additional relationships to solve the problem of laminar boundary layer separation by the integral method, *Izv. Akad. Nauk SSSR, Mekh. Zhidk. Gaza* No. 4, 62–69 (1979).
- A. N. Sherstyuk and T. V. Shulgina, Calculation of boundary layer characteristics with regard for the outer flow turbulence effect, *Teploenergetika* No. 9, 43–45 (1979).
- V. G. Tsipenko, Turbulent boundary layer separation on the surfaces with the salient point, *Applied Aerodynamics* (Izd. Inst. Inzh. Grazh. Aviats.) vyp. 4, pp. 13–19, Kiev (1978).
- V. I. Zhuk and O. S. Ryzhov, Concerning the boundary layer with a self-induced pressure on a moving surface, *Dokl. Akad. Nauk SSSR* 248(2), 314–318 (1979).
- V. I. Zhuk and O. S. Ryzhov, Solutions of the dispersion equation from the theory of free interaction of boundary layer, *Dokl. Akad. Nauk SSSR* 247(5), 1085–1088 (1979).
- ### 2. Turbulent flows
- L. M. Degtyarev, Numerical modelling of the Langmuir turbulence, *Dokl. Akad. Nauk SSSR* 248(1), 70–74 (1979).
- B. N. Gabrianovich, Yu. D. Levchenko, Yu. P. Trubakov and P. A. Ushakov, Effect of the inlet conditions on the turbulent flow development along circular pipes, *Atomnaya Energiya* 47(3), 167–169 (1979).
- G. V. Ivanenkov and S. E. Karinsky, Impurity transfer under the conditions of wide spectrum of energy supply to turbulence, *Trudy Okeanogr. Inst.* vyp. 144, 82–91 (1979).
- ### 3. Kinetic theory of gases and liquids
- V. I. Kurochkin and B. M. Markeev, Concerning the problem of transfer equations for a multicomponent gas mixture, *Zh. Tekh. Fiz.* 49(8), 1772–1774 (1979).
- Yu. S. Kusner, S. S. Kutateladze, V. G. Prikhod'ko et al., Inertial gaskinetic separation of gas mixtures and isotopes, *Dokl. Akad. Nauk SSSR* 247(4), 845–848 (1979).
- G. I. Zmievskaya, A. A. Pyarnpuu and V. I. Shematovich, Modelling of physico-chemical processes in a mixture of gases, *Dokl. Akad. Nauk SSSR* 248(3), 561–564 (1979).
- ## FORCED CONVECTION
- E. N. Bogomolov, Hydraulic resistance and heat transfer in blades finned with cross-wise circular rods, *Teploenergetika* No. 10, 57–60 (1979).
- A. V. Furman and S. A. Karaush, Conjugate heat transfer with laminar liquid flow in underground ducts, *Izv. VUZov, Energetika* No. 9, 60–66 (1979).
- B. M. Galitsevsky, Heat transfer in turbulent gas flows at high-frequency pressure oscillations, *Izv. VUZov, Mashinostr.* No. 3, 72–77 (1979).
- V. V. Glazkov, M. D. Guseva and B. A. Zhestkov, Flow with jet cooling of a plate, *Izv. Akad. Nauk SSSR, Mekh. Zhidk. Gaza* No. 4, 56–61 (1979).
- V. G. Goman, G. D. Dyman and M. N. Shipunov, Characteristics of the local heat transfer during interaction of an axisymmetric jet with the side surface of a cylinder, *Izv. VUZov, Mashinostr.* No. 4, 59–63 (1979).
- M. M. Ivashchenko and E. P. Ulizko, Determination of the heat transfer coefficients in cooling large billets, *Metallov. Term. Obrab Metallov* No. 9, 9–12 (1979).
- V. M. Kapinos, V. N. Pustovalov and A. P. Rud'ko, Experimental investigation of heat transfer during medium flow in a rotating radial contractor, *Energ. Mashinostr.* vyp. 27, 59–65, Khar'kov (1979).
- A. A. Kochbein and A. A. Ryadno, Calculation of unsteady-state convective heat transfer in triangular grids of rods, in *Methods of Investigation and Optimization of Transfer Processes* (Izd. ITMO AN BSSR) pp. 190–197, Minsk (1979).
- O. N. Kostikov, E. I. Malykhin and A. I. Yakovlev, Effect of internal heat transfer on the thermal state of closed low-power electric motors, *Elektrotekh.* No. 9, 29–31 (1979).
- R. S. Kuznetsov, Calculation of liquid circulation in a closed

- heat absorbing and emitting loop, *Energ. Mashinostr.* (Khar'kov) vyp. 27, 83–92 (1979).
- V. I. Mal'kovsky and T. M. Muratova, Effect of the electric field on flow and heat transfer of a dielectric liquid in a circular channel, *Teplofiz. Vysok. Temper.* 17(14), 772–782 (1979).
- E. I. Mikulin and T. K. Danilenko, Calculation of heat transfer with regard for longitudinal thermal conductivity of the heat exchanger wall, *Trudy MVTU* No. 296, 24–31 (1979).
- A. A. Paroi and S. N. Prudnikov, Concerning the problem of heat transfer in pneumatic drives, *Izv. VUZov. Mashinostr.* No. 3, 77–82 (1979).
- A. I. Popov, Heat transfer of a film velocity converter, *Trudy Metrol. Inst. SSSR* vyp. 235, 3–10 (1979).
- E. N. Saburov and Yu. L. Leukhin, Investigation of heat transfer of cylinders displaced from the flow axis in a cyclone chamber, *Izv. VUZov. Energetika* No. 9, 162–165 (1979).
- Yu. A. Shevich and E. A. Koreneva, Analysis of the efficiency of plate-finned heat transfer surfaces, *Izv. VUZov. Mashinostr.* No. 1, 54–56 (1979).
- Yu. I. Tokarev, Experimental investigation of heat transfer in a channel of triangular cross-section, *Teploenergetika* No. 10, 45–47 (1979).

NATURAL CONVECTION

- E. Ya. Blum and G. E. Kronkalns, Free convective heat transfer on a magnetic cylinder in a homogeneous magnetic field, *Magnitn. Gidrodin.* No. 3, 43–48 (1979).
- V. R. Borovsky, V. A. Shelimanov and V. A. Kutishcheva, Laminar boundary layer on a moving surface at a combined action of free and forced convection, *Dokl. Akad. Nauk Ukr. SSR, Ser. A, Fiz. Mat. Tekh. Nauki* No. 2, 137–140 (1979).
- A. Yu. Pinyagin and A. F. Pshenichnikov, Free convection of a liquid binary mixture in an inclined rectangular cavity, *Izv. Akad. Nauk SSSR, Mekh. Zhidk. Gaza* No. 4, 176–179 (1979).
- M. A. Yurtaev, A. N. Ryzhkov and I. V. Esina, On the problem of free convection in a cylindrical cavity with a transverse partition, *Collected Papers of the Chelyabinsk Polytechnic Institute* No. 213, 115–117 (1978).

PHASE CHANGES

1. Boiling, evaporation

- M. I. Fes'kov and L. F. Dolina, Investigation of the evaporativity of liquids used to combat dust in shafts, *Izv. VUZov. Gorn. Zh.* No. 3, 72–74 (1979).

- G. G. Filippov, I. I. Malkin, L. V. Vilenkina et al., Calculation of the processes of equilibrium evaporation of multicomponent mixtures, *Teor. Osnovy Khim. Tekhnol.* 13(5), 772–775 (1979).

- A. A. Ivashkevich, Yu. S. Yuriev and E. K. Kazakov, Formula for calculation of the developed water boiling heat transfer in pipes, *Teploenergetika* No. 10, 63–64 (1979).

- B. V. Kebadze and K. A. Aleksandrov, On the reliability of detection of sodium boiling by correlating acoustic and neutron noises, *Atomnaya Energiya* 47(3), 197–198 (1979).

- S. S. Kutateladze and I. I. Gogonin, Vapour bubble growth rate and departure parameter in saturated liquid boiling under the conditions of free convection, *Teplofiz. Vysok. Temp.* 17(4), 792–797 (1979).

- V. E. Nakoryakov and I. R. Shreiber, Model of propagation of disturbances in a vapour–liquid mixture, *Teplofiz. Vysok. Temp.* 17(4), 798–803 (1979).

- V. M. Perelygin, Yu. K. Suntsov and Yu. P. Bogdanov, Boiling temperature and saturated vapour composition of binary systems of alcohol production, *Izv. VUZov. Pishch. Tekhnol.* No. 4, 138–140 (1979).

- A. I. Pustovoitenko, S. A. Panfilov and Yu. V. Tsvetkov, Calculation of particle evaporation with regard for the varificated state of the medium, *Fiz. Khim. Obr. Mater.* No. 4, 50–54 (1979).

- S. Seitturbanov and M. Akamov, Intensity of deposition of salts and the coefficient of heat transfer during scale for-

mation, *Izv. Akad. Nauk TSSR. Ser. Fiz.-Tekh. Khim. Geol. Nauk* No. 1, 98–100 (1979).

J. B. Sladkov, Calculation of the critical parameters of covalent non-organic compounds from thermodynamic characteristics at the boiling point, *Zh. Fiz. Khim.* 53(9), 2225–2227 (1979).

Ya. Tekhver and A. Tunik, Boiling on the surface with porous lining, *Izv. Akad. Nauk Est. SSR* vol. 28, *Fiz. Mat.* No. 1, 68–72 (1979).

2. Condensation

G. I. Gimbutis and S. I. Dobrovol'skis, Heat transfer with steam condensation on a supercooled water film flowing down a vertical surface, *Izv. VUZov. Energetika* No. 8, 104–107 (1979).

S. S. Kutateladze, I. I. Gogonin and V. I. Sosunov, Experimental investigation of heat transfer with stagnant vapour condensation on a packet of smooth horizontal tubes, *Teor. Osnovy Khim. Tekhnol.* 13(5), 716–721 (1979).

3. Crystallization, solidification, freezing

V. P. Begishev, S. A. Bolgov, A. Ya. Malkin et al., Heat effects in polymerization accompanied by crystallization, *Vysokomolek. Soedin.*, Ser. B 21(9), 714–718 (1979).

V. N. Bessolov, T. T. Dededkaev, I. I. Kryukov and Yu. P. Yakovlev, Aspects of crystallization of the $\text{Ga}_{1-x}\text{Al}_x\text{P}$ structures, *Zh. Tekh. Fiz.* 49(9), 1958–1961 (1979).

O. P. Chernova, N. I. Shevtsov, A. B. Blank et al., Centrifugal directional crystallization as the method of cleaning liquid crystals, *Zh. Prikl. Khim.* 52(8), 1894–1895 (1979).

O. G. Martynenko and I. A. Solov'yov, Some solutions of the one-phase and one-dimensional Stefan problem, in *Methods of Investigation and Optimization of Transfer Processes* (2d. ITMO AN BSSR) pp. 198–201, Minsk (1979).

V. D. Maslov, Yu. S. Gurinov and Yu. Ya. Kharitonov, Effect of permagnate crystallization on the kinetics of anode oxidation of potassium manganate, *Zh. Fiz. Khim.* 53(9), 2363–2364 (1979).

Yu. A. Samoilovich, Analysis of non-equilibrium crystallization of anomalous needle eutectics, *Fiz. Khim. Obr. Mater.* No. 4, 59–65 (1979).

A. I. Verigin, I. A. Shchuplyak, M. F. Mikhalev and V. N. Kulikov, Investigation of the crystallization kinetics during variation of solution temperature according to the prescribed program, *Zh. Prikl. Khim.* 52(8), 1898–1900 (1979).

4. Melting, thawing

I. R. Barabanov, L. P. Volkova, V. N. Gavrin et al., Removal of U and R microimpurities from iron by zone melting, *Atomnaya Energiya* 47(3), 195–196 (1979).

L. S. Palatnik, I. Kh. Tartakovskaya, V. P. Nikitsky et al., Facility to investigate the processes of melting and crystallization of film materials, *Izv. VUZov. Fiz.* No. 8, 126 (1979).

5. Heat pipes

P. I. Bystrov and A. N. Popov, Sonic limitation of power in high-temperature heat pipes, *Teplofiz. Vysok. Temp.* 17(4), 871–874 (1979).

I. G. Gverdtsiteli, A. G. Kalandarishvili and P. D. Chilgashvili, Caesium vapour source as a gas-controlled heat pipe for thermo-emission energy converters, *Zh. Tekh. Fiz.* 49(8), 1764–1765 (1979).

N. I. Mirmov and A. A. Nogovitsyn, Experimental investigation of the characteristics of wickless two-component heat pipes, *Izv. VUZov. Energetika* No. 9, 50–54 (1979).

RADIATION

V. K. Ablekov, V. S. Avduevsky, Yu. N. Babaev and A. M. Frolov, Aspects of substance heating by a specially shaped radiation, *Dokl. Akad. Nauk SSSR* 247(5), 1137–1140 (1979).

T. G. Adiks, Experimental investigation of the temperature dependence of induced CO_2 absorption within the band $10^0\text{--}00^0\text{O}_{1,11}$ at $7.5 \mu\text{m}$, *Optika Spektrosk.* 47(2), 301–305

- (1979).
- V. P. Kabashnikov and G. I. Kmit, Effect of turbulent fluctuations on thermal radiation, *Zh. Prikl. Spektr.* **31**(2), 226–231 (1979).
- T. A. Karpova and V. M. Petrenko, Investigation of optical characteristics of mono- and polydisperse media, in *Methods of Investigation and Optimization of Transfer Processes* (Izd. ITMO AN BSSR) pp. 98–112, Minsk (1979).
- V. N. Kovalyov and V. K. Mel'nikov, Integral emissivity of zirconium under the conditions of high-temperature heating and oxidation, *Izv. Akad. Nauk Latv. SSR, Ser. Fiz. Tekh. Nauk* No. 4, 51–57 (1979).
- V. T. Pushkin, N. I. Moskalenko and A. G. Zen'kovsky, A contribution to calculation of the radiative heat transfer in plasma furnaces, *Izv. VUZov, Chernaya Metallurgiya* No. 3, 121–124 (1979).
- T. F. Rodionova, S. F. Kravtsov and O. T. Il'chenko, Angular coefficients of radiative heat transfer of axisymmetric surface zones inside the working space of combustion chambers, *Energ. Machinostroenie (Khar'kov)* vyp. 27, 76–78 (1979).

COMBINED HEAT AND MASS TRANSFER

- A. A. Aleksashenko, A general approach to the determination of the physical characteristics of transfer, *Teor. Osnovy Khim. Tekhnol.* **13**(5), 657–662 (1979).
- A. M. Brazhnikov, E. I. Kaukhcheshvili and N. D. Malova, On the heat and mass transfer processes in the chambers of refrigerators, *Kholod. Tekh.* No. 9, 43–44 (1979).
- B. A. Kader, Heat and mass transfer from walls with two-dimensional roughness at large Reynolds and Peclet numbers, *Teor. Osnovy Khim. Tekhnol.* **13**(5), 663–675 (1979).
- B. A. Kader, Turbulent heat and mass transfer over the starting length of a straight channel with the boundary conditions of the first, second and third kinds, *Teplofiz. Vysok. Temp.* **17**(4), 878 (1979).
- B. I. Nigmatulin, A. E. Kroshilin and V. E. Kroshilin, Effect of the interaction of inclusions in a gas-liquid mixture on interphase heat and mass transfer, *Teplofiz. Vysok. Temp.* **17**(4), 804–812 (1979).
- A. M. Ostapenkov, On the solution of the problem of heat and mass transfer in a product heated in the super-frequency field, *Elektr. Obrab. Materialov* No. 4, 74–78 (1979).
- V. P. Pavlov and V. I. Kostadinova, The problem of the process of steady-state heat and mass transfer from a spherical surface to infinite surrounding medium with regard for the thermal diffusion effect, *Teor. Osnovy Khim. Tekhnol.* **13**(5), 756–759 (1979).
- V. I. Prasolov and E. M. Fyodorov, Heat and mass transfer during gas-phase deposition of compositional materials with regard for the heterogeneous reaction kinetics, *Teor. Osnovy Khim. Tekhnol.* **13**(5), 766–771 (1979).
- S. P. Radev, P. N. Gospodinov, I. P. Penchev and R. K. Rakadzhiev, Numerical solution of some problems of momentum, heat and mass transfer during liquid jet discharge into an immiscible liquid, in *Numerical Methods of Solution of the Transfer Problems* (Izd. ITMO AN BSSR) pt. 2, pp. 134–158, Minsk (1979).
- V. I. Shagparov, Account for unsteady-state heat and mass transfer in the problem of propagation of small disturbances in a bubble-rich liquid, *Izv. Akad. Nauk SSSR, Mekh. Zhidk. Gaza* No. 4, 157–162 (1979).

HIGH-TEMPERATURE THERMOPHYSICS

4. *Combustion and detonation processes*
- A. P. Aldushin, S. G. Kasparyan and K. G. Shkandinsky, Formation of a two-dimensional cellular structure in a heat-diffusion flame, *Dokl. Akad. Nauk SSSR* **247**(5), 1112–1115 (1979).
- G. P. Grachyova, V. N. Morozov, L. K. Popyalkovskaya and Yu. D. Skudaev, Investigation of the properties and possibility of application of the toluol–nitrogen oxide flame in atomic-absorptioal spectroscopy, *Zh. Prikl. Spektroskop.* **31**(2), 211–214 (1979).
- V. I. Karelin, V. I. Matyushenko, P. B. Repin and V. D. Sizov, Measurement of E/p of the quasi-stationary volumetric discharge burning in fluoride, *Pis'ma v Zh. Tekh. Fiz.* **15**(16), 965–967 (1979).
- V. N. Krivulin, E. A. Kudryavtsev, A. N. Baratov et al., Study of combustion of nearly limiting gas mixtures in weightlessness, *Dokl. Akad. Nauk SSSR* **247**(5), 1184–1186 (1979).
- A. S. Leibenzon, Combustion wave propagation in the medium with nonlinear thermal conductivity, *Izv. Akad. Nauk SSSR, Mekh. Zhidk. Gaza* No. 4, 184–188 (1979).
- A. G. Merzhanov, Processes of combustion of condensed systems. A new trend of research, *Vestnik Akad. Nauk SSSR* No. 8, 10–18 (1979).
- E. P. Polevichek, Effect of the temperature expansion of burning gases on the rate of flame front propagation in a combustion chamber of oscillating type, *Samolyotostr. Tekh. Vozdush. Flota vyp.* 45, 15–20 (1979).
- A. I. Rozlovsky, A. V. Steblev and Yu. E. Frolov, Specificity of combustion of alkane–chloride mixtures, *Dokl. Akad. Nauk SSSR* **248**(1), 150–154 (1979).
- E. A. Zakarin, V. P. Kashkarov, V. F. Kramar and E. A. Shtessel', Numerical analysis of non-symmetrical ignition of a reacting fluid under the conditions of natural convection, *Izv. Akad. Nauk SSSR, Mekh. Zhidk. Gaza* No. 4, 10–15 (1979).
- N. S. Zakharov and V. P. Korobeinikov, Self-similar motion of gas with local mass and energy supply in a combustible mixture, *Izv. Akad. Nauk SSSR, Mekh. Zhidk. Gaza* No. 4, 70–77 (1979).

2. Shock waves

- L. V. Evdokimova and A. F. Kharshiladze, Concerning turbulent acceleration of active particles in interplanetary shock waves, *Geomagnetizm Aeronomiya* **19**(2), 353–355 (1979).
- I. K. Favorskaya and S. G. Zaitsev, The theory of plasma flow produced by a shock wave in a magnetogasdynamical channel, *Shorn. Trudov Energ. Inst. im. Krzhizhanovskogo* vyp. 68, 5–25 (1978).
- M. M. Golomazov and A. P. Zyuzin, On the behaviour of sonic lines in a shock layer behind the receded shock wave, *Izv. Akad. Nauk SSSR, Mekh. Zhidk. Gaza* No. 4, 143–145 (1979).
- E. A. Kuznetsov, M. D. Spektor and G. E. Fal'kovich, On the stability of weak shock waves, *Pis'ma v Zh. Eksp. Teor. Fiz.* **30**(6), 328–330 (1979).
- N. N. Sysoev and F. V. Shugaev, Non-stationary reflection of a shock wave from a sphere and a cylinder, *Vestnik Moskov. Universiteta, Ser. 3, Fiz. Astronom.* **20**(3), 90–91 (1979).
- Ya. B. Zel'dovich, A. P. Genich and G. B. Manelis, Certain aspects of the translational relaxation at the shock wave front in gas mixtures, *Dokl. Akad. Nauk SSSR* **248**(2), 349–351 (1979).

3. Low-temperature plasma

- Yu. R. Alanakyan, The function of distribution of electrons in a free high-frequency plasma cord, *Fiz. Plazmy* **5**(4), 902–911 (1979).
- N. L. Aleksandrov, Three-body sticking of electrons to O_2 in a gas discharge of the $CO_2-N_2-He-O_2$ mixture, *Zh. Tekh. Fiz.* **49**(8), 1649–1653 (1979).
- N. A. Arkhangelsky, Comparison between the predicted and experimental data in simulation of the spark breakdown dispersion in air on an electronic computer, *Izv. Akad. Nauk SSSR, Mekh. Zhidk. Gaza* No. 4, 182–184 (1979).
- L. K. Auzinya and V. E. Liepinya, Spectral diagnostics of a stabilized argon–air arc, *Izv. Akad. Nauk Latv. SSR, Ser. Fiz. Tekh. Nauk* No. 4, 68–72 (1979).
- K. V. Baiadze, V. M. Vetsko, S. A. Zhdanok et al., Abnormal arc heating of nitrogen, *Fiz. Plazmy* **5**(4), 923–928 (1979).
- F. G. Bakht, A. A. Kostin, A. M. Martinovsky and V. G. Yuriev, Heating of plasma by an electron beam and the

- specific features of the mechanism of ionization in a Knudsen arc, *Pis'ma v Zh. Tekh. Fiz.* **5**(15), 905–910 (1979).
- I. M. Belousova, O. B. Danilov, P. N. Dashuk *et al.*, Investigation of dynamic and light characteristics of a powerful converging discharge produced by sliding sparks, *Zh. Tekh. Fiz.* **49**(8), 1630–1637 (1979).
- Yu. A. Berezin, Combined numerical plasma models, in *Numerical Methods of Solution of the Transfer Problems* (*Izd. ITMO AN BSSR*) pt. 2, pp. 159–169, Minsk (1979).
- V. A. Bernstein, V. P. Zaitseva, V. V. Nikitin and V. A. Zharov, On the effect of a glow discharge on the surface of glass, *Fiz. Khim. Obr. Mat.* No. 4, 147–150 (1979).
- A. M. Dykhne and A. P. Napartovich, On the electrode instability of a gas discharge plasma, *Dokl. Akad. Nauk SSSR* **247**(4), 837–840 (1979).
- D. V. Fedoseyev, Yu. N. Tolmachev, V. L. Bukhovets and S. P. Vnukov, On the kinetics of diamond and graphite oxidation in a glow discharge, *Zh. Fiz. Khim.* **53**(8), 2129 (1979).
- M. V. Gerasimenko, G. I. Kozlov, V. A. Kuznetsov and V. A. Masyukov, A continuous optical discharge in the laser plasmatron mode, *Pis'ma v Zh. Tekh. Fiz.* **5**(15), 954–957 (1979).
- E. P. Glotov, V. A. Danielychev, V. N. Kotov and A. M. Soroka, Effect of the negative cathode drop of potential in electro-ionizing discharges, *Pis'ma v Zh. Tekh. Fiz.* **5**(16), 972–975 (1979).
- V. M. Gol'dfarb, A. V. Donskoi, S. V. Dresvin and V. A. Rezvov, Some characteristics of a low-frequency discharge in a transformer plasmatron, *Teplofiz. Vysok. Temper.* **17**(4), 698–702 (1979).
- E. F. Gorbunova, A. N. Ezubchenko, A. I. Karchevsky *et al.*, Separation of isotopes of inert gases in a stationary high-frequency discharge with a travelling magnetic field, *Zh. Tekh. Fiz.* **49**(9), 1872–1878 (1979).
- A. V. Gurevich and Ya. N. Istomin, Thermal escape and convective heat transfer on rapid electrons in plasma, *Zh. Eksp. Teor. Fiz.* **77**(3)(9)/, 933–945 (1979).
- A. B. Karasev, T. V. Kondranin and I. N. Kuz'minsky, On calculation of the selective radiation transfer in an inhomogeneous plasma, *Izv. Akad. Nauk SSSR. Mekh. Zhidk. Gaza* No. 4, 129–136 (1979).
- O. V. Kurko, The processes of mass separation in a rotating weakly ionized plasma, *Fiz. Plazmy* **5**(4), 912–919 (1979).
- B. V. Kuteev and A. S. Smirnov, Superheating-ionizational instability in a discharge with the rotational electric field, *Zh. Tekh. Fiz.* **49**(8), 1615–1619 (1979).
- M. I. Madin and V. M. Perevertun, Energetic and spectroscopic characteristics of a low-voltage pulse discharge in vacuum, *Zh. Prikl. Spektrosc.* **31**(3), 409–413 (1979).
- A. I. Maksimov, L. S. Polak, A. F. Sergienko and D. I. Slovensky, Mechanism of excitation of the electronic states of carbon oxide molecules in a glow discharge, *Optika Spektrosk.* **47**(3), 451–456 (1979).
- A. A. Prokofiev, L. V. Spiridonova, E. S. Zhurkin and V. K. Potapov, Low-temperature discharge source of heavy and cluster ions, *Khim. Vysok. Energ.* **13**(5), 413–415 (1979).
- V. N. Skrebkov and A. I. Eikhval'd, Investigation of acoustic waves in a disintegrating argon plasma of a pulse discharge, *Teplofiz. Vysok. Temp.* **17**(4), 711–716 (1979).
- V. V. Vainer, I. G. Ivanov and M. F. Sem, Specific features of the helium-cadmium vapour mixture excitation in a hollow cathode discharge, *Zh. Tekh. Fiz.* **49**(8), 1604–1608 (1979).
- I. D. Zimina, V. I. Svetsov and A. N. Trostin, Mass-spectrometric investigation of Freon-14 and Freon-113 decomposition in a glow discharge, *Izv. VUZov. Khim. Khim. Tekhnol.* **22**(8), 944–946 (1979).
- (1979).
- V. F. Babich, L. M. Sergeyeva, N. I. Korzhuk *et al.*, Investigation of the temperature dependence of visco-elastic properties of interpenetrating polymer grids based on polyurethane and polyurethaneacryl, *Vysokomolek. Soedin. Ser. B*, **21**(9), 673–677 (1979).
- Kh. D. Beech and S. I. Meerson, Effect of a disperse filler on the thermodynamic properties of polyethyleneterephthalate, *Vysokomolek. Soedin. Ser. B*, **21**(9), 690–694 (1979).
- A. T. Bedina, L. D. Bubis, Yu. V. Ovchinnikov and D. N. Emelyanov, Abnormal-viscous properties of polymethylmethacrylate suspensions in phthalic acid ethers, *Kolloid. Zh.* **41**(5), 972–975 (1979).
- E. V. Belyaia, A general characteristics of the rheological properties of soft tissues of a human being from the data of measurements by the method of local cyclic loading and the simplest phenomenological model of these properties, *Mekh. Kompositn. Mater.* No. 4, 737–741 (1979).
- I. A. Fedorina and G. I. Braginsky, Rheological characteristics of film-forming highly-concentrated solutions of cellulose triacetate, *Trudy Leningrad. Inst. Kinoinzh.* vyp. 32, 74–79 (1979).
- A. G. Gagarin, On film flow of visco-plastic and nonlinear-viscous fluids, *Sborn. Nauch. Trudov. Vsesoyuz. Neftegazov. NII* vyp. 66, 79–85 (1978).
- A. A. Ivanov, L. A. Ivanov and Yu. V. Vasilevskiy, The procedure of determining the rheological coefficients in the presence of inertial masses in the system of loading, *Izv. VUZov. Tekhnol. Tekst. Prom.* No. 1, 85–87 (1979).
- A. Kh. Kim and G. N. Alekhnikov, Non-Newtonian fluid flow in the gap between a pin and the support body, *Teor. Prikl. Mekh. (Belorussk. Politekh. Inst.)* vyp. 6, 77–82 (1979).
- A. Kh. Kim and M. B. Sugak, Concerning the problem of the use of variational methods in rheodynamics, *Teor. Prikl. Mekh. (Belorussk. Politekh. Inst.)* vyp. 6, 11–117 (1979).
- A. S. Kondratiev, A contribution to the hydrodynamic calculation of container pipeline systems in non-Newtonian fluids, *Izv. Akad. Nauk SSSR. Energet. Transp.* No. 4, 66–72 (1979).
- Yu. S. Lipatov, V. F. Shumsky and I. P. Getmanchuk, Rheological properties of amorphous and crystalline polymer mixtures with the mixture of polyamide and acrylonitrile with styrol copolymer used as an example, *Vysokomolek. Soedin. Ser. A*, **21**(9), 2093–2098 (1979).
- R. M. Mamedov, Ya. M. Rasizade and T. M. Nagiev, On the choice of a rheological model for the solution of convective heat transfer problems, in *Proceedings of the All-Union Research Oil-Gas Institute*, vyp. 66, 70–78 (1978).
- I. M. Morozov, On the problem of plastic metal flow initiation during cyclic loading, *Vestsi Akad. Navuk BSSR. Ser. Fiz.-Tekh. Navuk* No. 3, 104–108 (1979).
- U. K. Nigul, Correct application of the method of contour deformation integration in the Laplace transform conversion in the problems of visco-elastic wave propagation, *Dokl. Akad. Nauk SSSR* **248**(I), 56–59 (1979).
- I. A. Novokhatksky, V. I. Arkharov and V. I. Ladiyanov, On viscous flow of metallic melts at large superheats, *Dokl. Akad. Nauk SSSR* **247**(4), 849–851 (1979).
- Yu. M. Pikus, Effect of dissipative heat release and of the variable rheological properties of the fluid on some characteristics of laminar slot flow, *Teor. Prikl. Mekh. (Belorussk. Politekh. Inst.)* vyp. 6, 91–101 (1979).
- I. B. Rabinovich and B. V. Lebedev, Difference between the Gibbs enthalpy and energy of the glass-like and crystalline states of a number of polymers, *Vysokomolek. Soedin. Ser. A*, **21**(9), 2025–2030 (1979).
- R. A. Turusov and G. D. Andreyevskaya, Isothermal relaxation of temperature stresses in rigid polymers, *Dokl. Akad. Nauk SSSR* **247**(6), 1381–1383 (1979).
- I. I. Vorovich, N. I. Minakova and V. G. Shepeleva, Some problems of the stability of visco-elastic and visco-plastic systems, a Mises' girder used as an example, *Izv. Akad. Nauk SSSR. Mekh. Tverd. Tela* No. 4, 120–132 (1979).

RHEOPHYSICS

K. S. Akhverdiev, On the developed motion of an incompressible visco-plastic fluid between two eccentric cylinders with one in screw motion, *Izv. VUZov. Neft Gaz* No. 8, 52–58

HEAT AND MASS TRANSFER IN TECHNOLOGICAL PROCESSES

1. Drying

- E. I. Akhmina, E. A. Tsyganov, V. P. Shlinichenko and E. B. Kaz'mina, Technology and equipment for drying coarsely granulated lignin after moist molding, *Sbornik Trudov VNII Gidrolyza Rast. Materialov* vyp. 28, 110–118 (1978).
- A. Sh. Asaturyan, V. A. Ivanov and S. T. Yarymbash, On the mechanism of drying power transformer insulation in the vapour of a heat carrier, *Elektromashinostroenie Elektrooborudovanie* vyp. 28, 101–105 (1979).
- A. I. Belous, V. E. Sorokin and V. A. Falin, Kinetic laws governing the processes of drying of chemical reagents, *Reaktiv Osobo Chist. Veshchestva* vyp. 40, 158–162 (1978).
- V. N. Bulych'yov, V. V. Suvorov and T. M. Sas, Drying of ammonium fluoride in a pneumatic drier, *Reaktiv Osobo Chist. Veshchestva* vyp. 40, 163–165 (1978).
- V. A. Davidyak, Some experience in adjustment and maintenance of sublimation drying equipment, *Kholod. Tekh.* No. 9, 45–48 (1979).
- V. V. Drob'tko, F. S. Bolotnikov and V. A. Yarygin, Equation of the kinetics of drying a photoimpacting layer: First period of drying, *Trudy Leningrad. Inst. Kinoinzh.* vyp. 32, 123–128 (1979).
- V. D. Gerber, O. I. Sedova, A. V. Lysenko and B. N. Grafkin, Pulse-radiation dried polyester materials for trimming wood articles, *Lakokras. Mat. Ikh Primen.* No. 5, 61–62 (1979).
- L. A. Kabanov, V. G. Popovsky and B. V. Karabulya, Kinetics of the roll-drying of fruit puree, *Konser. Ovoshcheshushil. Prom.* No. 2, 27–29 (1979).
- I. E. Karnaukhov, A contribution to determining the duration of food waste residence in a drum drier, *Trudy VSKhIZO* vyp. 151, 39–42 (1978).
- A. D. Kartoshkin and O. G. Shapovalova, Investigation of the 'flare-screen' zone in a drum granulator-drier, *Teor. Osnovy Khim. Tekhnol.* 13(5), 681–685 (1979).
- Z. Yu. Mazyak, A mathematical model of the process of convective drying in a counter-current apparatus under the second period conditions, *Teor. Osnovy Khim. Tekhnol.* 13(5), 760–762 (1979).
- O. P. Rodionova, G. A. Troshina, I. G. Fyodorova and M. M. Shvartsman, Specific features of drying of polishing silicon carbon-based powders in a high-frequency electromagnetic field, *Elektron. Obrabot. Materialov* No. 4, 70–72 (1979).
- L. Ya. Shapiro, Temperature transducer of drying drums of planishers, *Mekhaniz. Avtomatiz. Proizvodstva* No. 4, 25 (1979).
- A. I. Vil'shansky, V. G. Kuz'min, L. L. Pavlovsky and V. V. Stepanova, Development of the technology of simultaneous drying and disaggregation of chemically deposited chalk and powdered silica gel pastes, *Polimer. Stroit. Mater.* vyp. 49, 132–141 (1978).

2. Heat and mass exchangers

- A. M. Arkharov and I. N. Krivonosov, Choice and justification of the modes of loading air-air heat exchangers when conducting accelerated service-life tests, *Trudy MVTU* No. 296, 3–17 (1979).
- R. R. Avezov and N. A. Kakharov, Study of heat transfer and efficiency of tubular heat collector screens of low-temperature solar water heaters, *Geliotekhnika* No. 1, 35–38 (1979).
- V. I. Filippov, M. B. Gutman, G. K. Rubin and M. G. Pron'ko, Modern methods of calculation of resistance furnaces, *Elektronika* No. 8, 25–28 (1979).
- B. T. Gusev, Flushing of greasy cavities of heat exchangers (used for cooling diesel locomotive engines) with an organic solvent, *Trudy VNII Zhel.-Dor. Transp.* vyp. 603, 121–125 (1979).
- A. A. Kalashnikova, Yu. A. Tsirlin, K. P. Emeliyanova and N. S. Lukonenko, A horizontal rectifier with mass transfer of phases in an ascending vortical straight flow. Efficiency of mass transfer elements, *Sborn. Trudov VNII Gidrolyza Rast. Mater.* vyp. 28, 72–80 (1978).

- B. Khariddinov, T. Sodikov and A. Vardiashvili, Investigation of heat transfer in a pebble bed of an accumulator and solar energy accumulation, *Geliotekhnika*, No. 1, 54–56 (1979).
- L. F. Krasnoshchekov, Use of the mean-arithmetic temperature head in check calculations of recuperative heat exchangers, *Teploenergetika* No. 9, 69–71 (1979).
- N. S. Leleyev and L. N. Shmarin, Heat carrier mass velocity oscillation in separators-vapour superheaters, *Izv. VUZov, Energetika* No. 8, 60–66 (1979).
- B. A. Makarov, Integration of equations of the dynamics of a cross-current heat exchanger with a gas heat carrier, *Trudy MVTU* No. 296, 32–39 (1979).
- D. G. Metreveli, A contribution to the problem of optimization of the projective system parameters. The problem on the choice of parameters of atomic power station heat exchange apparatus, *Soobshch. Akad. Nauk GSSR* 92(3), 597–600 (1978).
- E. N. Mikulin and Yu. A. Shevich, Concerning the analysis of geometrical parameters of perforated plates of matrix heat exchangers, *Trudy MVTU* No. 296, 18–23 (1979).
- M. V. Polikovsky, Calculation of heat transfer in ball packing of high-temperature heaters, *Teplofiz. Vysok. Temp.* 17(4), 842–848 (1979).
- O. G. Zubrii and Yu. M. Tananaiko, Heat transfer in a rotor film apparatus in the absence of contact between blade and liquid, *Khim. Mashinostroenie* (Kiev) vyp. 29, 41–44 (1979).
- 3. Dispersed systems**
- I. I. Abarzhi, E. S. Malkin and S. S. Dukhin, Adsorption kinetics in some bi-porous media under non-isothermal conditions, *Kolloid. Zh.* 41(5), 959–962 (1979).
- M. M. Alekseyev, F. S. Bolotnikov and V. M. Yarygin, Technicoeconomical characteristics of a rapid mass exchanger with an ascending straight flow of phases, *Trudy Leningrad. Inst. Kinoinzh.* vyp. 32, 108–110 (1979).
- B. M. Azizov, I. I. Ponikarov and N. I. Bagautdinov, Investigation of hydrodynamics and mass transfer of a contact apparatus with colliding flows escaping from conical channels, *Zh. Prikl. Khim.* 52(8), 1918–1919 (1979).
- A. A. Baran, I. M. Solomentseva and N. M. Semenikhin, Determination of the thickness of adsorptive layers of non-charged polymers on the surface of colloid particles by the method of electrophoresis, *Kolloid. Zh.* 41(5), 835–841 (1979).
- V. G. Batrakov, O. P. Gen' and F. M. Ivanov, On interrelation between adsorptive characteristics of polyorganosilicates and technical properties of concrete mixtures and concretes, *Kolloid. Zh.* 41(5), 842–848 (1979).
- A. A. Belyi, A. A. Ovchinnikov and S. F. Timashev, On mass transfer through the media interface, *Zh. Tekh. Fiz.* 49(9), 1987–1992 (1979).
- T. M. Borisenco and V. P. Vodyanitsky, Estimation of the possible means for increasing the economic efficiency of remote hydraulic coal transportation systems, *Izv. Akad. Nauk SSSR, Energet. Transp.* No. 4, 37–46 (1979).
- B. I. Brounshtein, I. A. Vikhoreva and O. S. Lukovsky, Mass transfer in two-phase chemical reactors in the kinetic region, *Teor. Osnovy Khim. Tekhnol.* 13(5), 763–765 (1979).
- I. S. Burov, Concerning calculation of heat transfer of dispersed material particles with plasma jets, *Fiz. Khim. Obr. Mater.* No. 4, 42–49 (1979).
- A. Char'ev and A. Kochmuradov, Velocity distribution of drops in a gas counter-current flow in contact heat exchangers, *Izv. Akad. Nauk TSSR, Ser. Fiz.-Tekh., Khim. Geol.* Nauk No. 1, 60–69 (1979).
- A. Chernov and I. A. Aizenberg, Inception of naphthalene crystals on microcrystals of anthracene suspended in a vapour-gas stream, *Dokl. Akad. Nauk SSSR*, 248(1), 90–93 (1979).
- V. A. Chernysh'yov, I. O. Protodiyakonov, P. G. Romankov and L. P. Razmalodin, Linear mathematical model of the transitional modes of absorption in a column tray apparatus, *Zh. Prikl. Khim.* 52(8), 1807–1811 (1979).

- Yu. I. Daskal, Kinetic equation for a discrete phase of two-phase media, *Izv. Akad. Nauk SSSR, Energet. Transp.* No. 4, 139–149 (1979).
- S. Ya. Dobromyslova, I. A. Burovoi and B. L. Genin, Mathematical description of the unsteady-state processes of annealing in a fluidized bed, *Teor. Osnovy Khim. Tekhnol.* **13**(5), 709–715 (1979).
- V. A. Dovgalo, Yu. V. Klimashevsky and O. R. Yurkevich, On the role of static electrification during fluidization of powdered polymers, *Lakokras. Mat. Ikh Primen.* No. 5, 25–27 (1979).
- L. Druge and V. Pantya, Optimization of heating during thermal treatment in a fluidized bed, *Metalloveden. Term. Obr. Metallov* No. 8, 14–16 (1979).
- N. S. Eryomina, T. S. Minakova and G. A. Kataev, Absorption of water vapour on berillium oxide, *Zh. Fiz. Khim.* **53**(9), 2365–2366 (1979).
- N. I. Gel'perin, G. I. Lapshenkov and V. V. Gormai, Desublimation of naphthaline in a fluidized bed, *Khim. Promysh.* No. 9, 562–563 (1979).
- V. A. Glinsky, I. O. Protodiyakonov and N. A. Martsulevich, Experimental investigation of some hydrodynamic characteristics of a liquid–solid body system, *Zh. Prikl. Khim.* **52**(8), 1786–1789 (1979).
- V. A. Gol'dade, Investigation of the process of triboelectrification of dispersed polymers in a spiral gas flow, *Vestsi Akad. Navuk BSSR, Ser. Fiz.-Tekh. Navuk* No. 3, 118 (1979).
- N. I. Gorbach and V. V. Nevelichuk, Theoretical investigation of the motion of solid particles in a free air jet, *Teor. Prikl. Mekh. (Belorusk. Politech. Inst.)* vyp. 6, 125–132 (1979).
- Z. R. Gorbis, F. E. Spokoiny and G. V. Derevyanko, Method of calculation of the interphase heat transfer with estimation of the longitudinal non-uniform motion of solid particles in gas suspension apparatus, *Khim. Promysh.* No. 8, 488–490 (1979).
- E. A. Isaev, On the solution of the problem of free motion of a pellet in a granulator, *Prikl. Mekh.* **15**(8), 93–98 (1979).
- P. R. Khlopchenko and N. K. Zaitseva, Enhancement of mass transfer by violating the gas–liquid equilibrium state, *Zh. Prikl. Khim.* **52**(8), 1789–1795 (1979).
- P. M. Kolesnikov and T. A. Karpova, Wave processes in gas–liquid systems, in *Numerical Methods of Solution of the Transfer Problems (Izd. ITMO AN BSSR)* pt. 1, pp. 123–139, Minsk (1979).
- A. E. Kostanyan, V. L. Peblak and T. K. Pelevina, A physical model of longitudinal agitation in the columns with vibrating trays, *Teor. Osnovy Khim. Tekhnol.* **13**(5), 624–627 (1979).
- E. B. Kremer and R. F. Nagaev, On interaction of a particle with a spherical bubble at low Stokes numbers, *Prikl. Mat. Mekh.* **43**(4), 657–663 (1979).
- G. V. Kryukov, O. V. Gabeskiriya, M. V. Lykov et al., The pattern of material motion in a fluidized bed apparatus of rectangular cross-section, *Khim. Promysh.* No. 8, 498–499 (1979).
- M. I. Kurochkina, V. D. Lukin and P. G. Romankov, On determination of the efficiency of separation of dust–gas streams by a new moist method, *Zh. Prikl. Khim.* **52**(8), 1795–1798 (1979).
- R. I. Kuryaeva, A. F. Makhotkin and A. D. Sapozhnikov, Cleaning waste gases of nitric acid vapours and mist with the aid of polypropylene filters, *Khim. Promysh.* No. 8, 485–487 (1979).
- N. G. Kuz'min, V. N. Bogatyryov and V. A. Stogar', Heating-up of the reactors of synthesis of organofluorosilanes in a fluidized bed, *Khim. Promysh.* No. 9, 563–565 (1979).
- A. G. Kvashin, On one cellular model of suspension of spherical particles, *Izv. Akad. Nauk SSSR, Mekh. Zhidk. Gaza* No. 4, 154–157 (1979).
- T. K. Lukyanovich and T. V. Sokol, A contribution to calculation of dedusters, *Trudy Nauch. Issl. Proekt. Inst. Osnovy Khim.* **47**, 60–64 (1978).
- O. V. Muratov, I. O. Protodiyakonov and P. G. Romankov, A mathematical model of adsorption in sorbent-fluidized bed apparatus with non-ideal mixing of phases, *Teor. Osnovy Khim. Tekhnol.* **13**(5), 676–680 (1979).
- V. E. Nakoryakov, Wave processes in two-phase media, in *Numerical Methods of Solution of the Transfer Problems (Izd. ITMO AN BSSR)* pt. 2, pp. 117–133, Minsk (1979).
- E. A. Nepomnyashchy and V. V. Pavlovsky, Calculation of velocities in a hydrocyclone on the basis of the laminar analog of an averaged turbulent flow, *Teor. Osnovy Khim. Tekhnol.* **13**(5), 787–790 (1979).
- E. P. Olofinsky, Problems of hydromechanics of pipeline systems of hydraulic transportation of solid materials, *Izv. Akad. Nauk SSSR, Energet. Transport.* No. 4, 29–36 (1979).
- F. B. Petlyuk, V. Ya. Kievsky and I. A. Serafimov, Composition rectification products of polyageotropic mixtures, *Teor. Osnovy Khim. Tekhnol.* **13**(5), 643–649 (1979).
- A. D. Polyanin, On mass transfer of a moving chain of absorbing drops with regard for the saturation effect, *Prikl. Mat. Mekh.* **43**(4), 647–656 (1979).
- B. G. Popov and A. G. Ovcharenko, Electrottransmission during gravitational motion of dispersed material in a contracting channel, *Teor. Osnovy Khim. Tekh.* **13**(5), 783–786 (1979).
- N. K. Radyakin, Norman vibrations of a rotating liquid drop, *Izv. Akad. Nauk SSSR, Mekh. Zhidk. Gaza* No. 4, 78–87 (1979).
- I. M. Razumov, N. I. Terekhov, V. V. Manshilin et al., Structure of the ascending gas and fine-dispersed solid catalyst flow, *Teor. Osnovy Khim. Tekhnol.* **13**(5), 722–726 (1979).
- G. A. Saltanov, Non-one dimensional and unsteady-state problems of the mechanics of two-phase media and their numerical solution, in *Numerical Methods of Solution of the Transfer Problems (Izd. ITMO AN BSSR)* pt. 2, pp. 93–116, Minsk (1979).
- V. A. Sednin and V. N. Romanyuk, Analysis of dispersed adsorbent interaction with the channel walls during pneumatic transportation, *Nauch. Prikl. Problemy Energetiki* vyp. 6, 34–37 (1979).
- E. B. Semyonov and V. A. Karamzin, Calculation of the coefficient of suspension brightening for a cleaning centrifuge with a screw pusher, *Teor. Osnovy Khim. Tekhnol.* **13**(5), 744–748 (1979).
- S. S. Sermanizov, E. Ya. Tarat, O. S. Balabekov et al., Industrial testing of an apparatus with a suspended wetted spherical packing for cleaning waste gases of fluoride compounds, *Khim. Promysh.* No. 8, 483–485 (1979).
- E. R. Shchukin, Yu. K. Ostrovsky and M. F. Baranova, On the problem of capture of aerosol particles in coaxial channels of different temperatures, *Teplofiz. Vysok. Temp.* **17**(4), 877–878 (1979).
- E. M. Shlain, A. A. Evstratov, O. S. Kovalyov and G. V. Cherepkov, Hydrodynamic aspects of treatment of sulphuric acid in a foam apparatus with tubular grids and a foam layer stabilizer, *Izv. VUZov. Khim. Khim. Tekhnol.* **22**(8), 1014–1015 (1979).
- V. Yu. Shuvalov, V. S. Barbolin, B. V. Berg and A. P. Baskakov, Analysis of some means of decreasing the critical height of overbed region in a fluidized bed apparatus, *Izv. Akad. Nauk SSSR, Energet. Transport.* No. 4, 154–158 (1979).
- B. I. Sokolov, V. P. Pilyavsky, I. I. Vasileva et al., Algorithmic aspects of calculation of gas–liquid equilibrium, *Zh. Prikl. Khim.* **52**(8), 1798–1802 (1979).
- S. V. Somova and A. P. Nesenchuk, Criteria extrema of thermodesorption in a flow of solid adsorbent, *Nauch. Prikl. Probl. Energetiki* vyp. 6, 39–42 (1979).
- V. A. Sukhanov, A. V. Katalymov and P. I. Lukyanov, A contribution to calculation of the residence time of solid particles in an apparatus with a moving granular bed, *Khim. Tekhnol. Topliv. Masel* No. 9, 15–17 (1979).
- M. V. Sushchikh, On hydraulic resistance of a granular bed in the presence of active ventilation, *Kholod. Tekh.* No. 9, 41–43 (1979).

- V. K. Temnov and E. K. Spiridonov, A contribution to the theory of a liquid-gas ejector with an intermittent jet, *Izv. VUZov, Energetika* No. 8, 76–78 (1979).
- Yu. B. Timofeyev and G. I. El'kin, Heat exchanging capacity of a counter-current gas suspension with non-uniform distribution of components, *Izv. VUZov, Khim. Khim. Tekhnol.* 22(8), 999–1003 (1979).
- D. P. Timofeyev, G. K. Krushinskaya and G. I. Ladygina, Two-stage continuous process of cleaning gases of sulphur dioxide by active coal, *Zh. Prikl. Khim.* 52(8), 1896–1898 (1979).
- O. M. Todes and S. P. Nalimov, Air separation of loose materials of different density in a curvilinear field (during enrichment), *Fiz.-Tekh. Problemy Razrab. Polez. Iskop.* No. 2, 95–99 (1979).
- A. A. Torunyan, On gravitational escape of loose materials exposed to electric field, *Uchen. Zapiski Estestv. Nauki* (Erevansk. Univ.) No. 3, 133–138 (1978).
- A. A. Tsyganok, Yu. P. Dzhusov, N. N. Mityaev and A. A. Gribov, On the interaction of vapour bubbles with a probe in two-phase flows, *Teploenergetika* No. 9, 50–53 (1979).
- V. V. Ushakov, Kinetics of the change of polydisperse aerosol in a one-dimensional electrogasdynamic flow, in *Applied Aerodynamics* (Izd. Kievsk. Inst. Inzh. Grazhd. Aviats.) vyp. 4, pp. 107–115, Kiev (1978).
- V. D. Varsanofiev and V. P. Seryogin, New vibration hopper facilities, *Khim. Promysh.* No. 8, 499–502 (1979).
- A. A. Vasin, P. A. Lupanov, I. Ya. Gorodetsky et al., Mass transfer in extractors with vibrating packing, *Khim. Promysh.* No. 9, 559–561 (1979).
- I. P. Vereshchagin, V. A. Zhukov and V. S. Morozov, Calculation of the strength of medium resistance to particles of various shapes moving at the Reynolds numbers higher than unity, *Izv. Akad. Nauk SSSR, Energet. Transp.* No. 4, 127–138 (1979).
- K. I. Vershinina, E. K. Lugovskaya, V. F. Vikulov et al., Filtering cloth from glass fibers for separating aerosol in production of methylfluorosilanes, *Khim. Promysh.* No. 8, 493–495 (1979).
- Yu. I. Yalamov, E. R. Shchukin and Yu. K. Ostrovsky, On the effect of thermophore forces on the capture of aerosol particles by a cylindrical surface, *Teplofiz. Vysok. Temp.* 17(4), 813–818 (1979).
- N. D. Zaleskova and G. M. Stepanova, The results of investigation of a test air-disturbing grid for a fluidized bed separator, *Nauch. Trudy Vsesoyuz. Nauch. Issl. Proekt. Inst. Asbest. Prom.* vyp. 20, 81–86 (1978).