### Heat and mass transfer bibliography— Soviet works

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(Received 2 October 1987)

#### **BOOKS**

- Heat and Mass Transfer and Hydrodynamics in Furnaces, Gas Generators and Chemical Reactors, Collected Papers. Izd. ITMO AN BSSR, Minsk (1986).
- Heat and Mass Transfer Processes, Collected Papers. Izd. Naukova Dumka, Kiev (1986).
- I. N. Ilyin (Editor), Thermophysics and Hydrogasdynamics of Boiling and Condensation Processes, Proceedings of the All-Union Conference, Riga, September 1982, Vol. 4. Twophase Flows, pt. 2. Izd. Rizhsk. Polytekh. Inst., Riga (1986).
- I. A. Khripchenko, *Impulse Heating of Thin-film Units*. Izd. Voronezh. Univ., Voronezh (1986).
- Mathematical Models of Transfer Theory in Non-homogeneous and Non-linear Media with Phase Transformations, Collected Papers. Izd. ITMO AN BSSR, Minsk (1986).
- V. K. Migai and E. V. Firsova, Heat Transfer and Hydraulic Resistance of Tube Bundles. Izd. Nauka, Leningrad (1986).
- L. A. Minukhin, Calculations of Complex Heat and Mass Transfer Processes in Food Industry Apparatus. Agropromizdat, Moscow (1986).
- Modern Problems of Heat and Mass Transfer in Chemical Technology, Proceedings of the Int. School-Seminar, Minsk, 5-15 May, pt. 1. Minsk (1986).
- A. A. Samarskiy (Editor), Mathematical Models, Analytical and Numerical Methods in the Theory of Transfer, Proceedings of the Int. School-Seminar, Minsk, 15-23 October 1986, pt. 1, Minsk (1986).
- Some Problems of Heat and Mass Transfer Between Flows and Surfaces, Collected Papers. Izd. Mosk. Aviats. Inst., Moscow (1986).
- Study of Heat and Mass Transfer in Engineering Constructions, Building Materials and Natural Media, Collected Papers. Izd. Yakut. Univ., Yakutsk (1985).
- Thermal Processes in Cryogenic Systems, Collected Papers. Izd. Naukova Dumka, Kiev (1986).
- Thermodynamic Investigations of Metastable Liquids, Collected Papers. Izd. Uralsk. Nauch. Tsentra, Sverdlovsk (1986).
- Thermophysical Studies of the Elements of Power Plants, Collected Papers. Izd. Naukova Dumka, Kiev (1986).

### **HEAT CONDUCTION**

- O. M. Alifanov, Concerning the construction of the gradients of functionals when solving the extreme heat and mass transfer problems. In *Analytical Methods for Calculating Heat and Mass Transfer Processes*. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 77–78. Dushanbe (1986).
- O. M. Alifanov, V. K. Zaitsev, V. I. Gusev and V. M. Karpov, Complex determination of the heat transfer parameters. In Analytical Methods for Calculating Heat and Mass Transfer Processes, Proc. All-Union Conference,

- Dushanbe, 12-14 November 1986, pp. 79-90. Dushanbe (1986).
- E. A. Artyukhin and A. V. Nenarokomov, Solution of the inverse problem of the integral emissivity reduction for a solid body, *Teplofiz. Vysok. Temp.* 24(5), 957-961 (1986).
- S. L. Balakovskiy and Ye. F. Baranovskiy, Solution of the inverse heat conduction problem with regard for the disturbing effect of a thermocouple, *Inzh.-fiz. Zh.* 52(1), 131– 135 (1987).
- P. I. Balk, Concerning the practicable accuracy and reliability of the inverse heat conduction problems, *Inzh.fiz. Zh.* **52**(2), 316-324 (1987).
- S. I. Bartkus, R. A. Dulinskas and V. V. Lappo, Errors of temperature measurements within a body in the presence of internal heat sources, *Trudy Akad. Nauk Lit. SSR* 6(157), 73-79 (1986).
- A. B. Bartman, Operator representations and special accurate solutions of linear and non-linear problems of the transfer theory. In Mathematical Models, Analytical and Numerical Methods in the Theory of Transfer, Minsk, 15-23 October 1986, pt. 2, pp. 148-152. Minsk (1986).
- S. M. Belonosov and A. Omarov, Application of the theory of potentials to the problems of heat conduction in a cone truncated by spheres. In *Analytical Methods for Calculating Heat and Mass Transfer Processes*. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 148–149. Dushanbe (1986).
- S. P. Blokhin and A. S. Kersun, Determination of thermophysical parameters of a two-layer system. In *Thermophysics of Nuclear Power Plants*, pp. 24-30. Moscow (1986)
- M. V. Bochkov and E. V. Shilnikov, Concerning a calculational algorithm for the hyperbolic heat conduction equation, Preprint No. 112 of the Institute of Applied Mathematics of the USSR Academy of Sciences (1986).
- N. A. Bogatyryova, Mutual diffusion of binary gas systems under non-isothermal conditions. In Diffusive Convective Transfer in Gases and Liquids, pp. 42–44. Alma-Ata (1986).
- L. A. Brovkin, Concerning the concept of the thermal conductivity coefficient, *Izv. VUZov*, *Energetika* No. 11, 67–70 (1986).
- L. A. Brovkin, The temperature field of a plate in the heating regime developed under the 2nd-kind boundary conditions. In *Mathematical and Physical Modelling of Processes in Thermotechnological Plants*, pp. 71–78. Ivanovo (1985).
- L. A. Brovkin and L. A. Guzov, A mathematical model of the temperature field of a porous plate with heat carrier percolation. In *Mathematical and Physical Modelling of Processes in Thermotechnological Plants*, pp. 20-28. Ivanovo (1985).
- E. N. But, Approximate analytical solution of the heat conduction problem with the 2nd-kind boundary conditions. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference,

- Dushanbe, 12–14 November 1986, pp. 126–127. Dushanbe (1986).
- A. Charmev, V. Malkovskiy and K. Dzhapbyev, Theoretical determination of the heat transfer coefficient for a onedimensional model, Izv. Akad. Nauk TSSR, Ser. Fiz.-Tekh., Khim Geol. Nauk No. 2, 88-91 (1986).
- G. P. Cherepanov and A. A. Buksianidze, Thermal conductivity of a wall with a thin cylindrical inclusion, Fiz.-Khim. Mekh. Mat. No. 4, 72-76 (1986).
- M. Chigarev, A system of intrawall cooling and its thermal calculation. In *Thermophysical Investigation of the Elements of Power Plants*, pp. 6-11. Kiev (1986).
- B. V. Davydenko, Calculation of the thermal state of a gas turbine blade with a generalized boundary condition of heat removal. In *Heat and Mass Transfer Processes*. Kiev (1986).
- N. V. Diligenskiy, A. G. Sanov and A. P. Efimov, Solution of the problem of heat transfer in systems of moving bodies. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 130–131. Dushanbe (1986).
- G. N. Dulnev, T. V. Dorofeyeva, D. P. Volkov and B. L. Muratova, A model of the structure and effective thermal conductivity of the Bazhenov suite, *Inzh.-fiz. Zh.* 52(1), 108-116 (1987).
- G. N. Dulnev, D. P. Volkov and A. B. Utkin, Effective thermal conductivity of wetted porous bodies, *Inzh.-fiz.* Zh. 52(2), 281–287 (1987).
- E. I. Ermolina and E. V. Kharitonov, Non-linear heat conduction problems and thermal instability in condenser dielectrics. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 36–37. Dushanbe (1986).
- S. V. Fedosov, V. A. Zaitsev, V. S. Romanov and V. N. Kiselnikov, Temperature distribution in the sphere-plate system with convective heat transfer from the plate surface, *Izv. VUZov, Khim. Tekhnol.* No. 5, 96-99 (1986).
- N. M. Fialko and G. P. Sherenkovskaya, Effect of the temperature dependence of thermophysical characteristics on the thermal state of articles during welding. In *Heat and Mass Transfer Processes*, pp. 108-114. Kiev (1986).
- V. A. Galaktionov and S. A. Posashkov, The asymptotics of the non-linear heat conduction process with absorption in the case of critical parameter, Preprint No. 71 of the Institute of Applied Mathematics of the USSR Academy of Sciences (1986).
- P. M. Gavrilov and A. V. Kuzmin, Approximate solutions of the heat conduction problem with moving boundaries. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12-14 November 1986, pp. 204-205. Dushanbe (1986).
- Yu. T. Glazunov, A variational method for calculating conductive heat and mass transfer with the dependence of transfer coefficients on potentials taken into account. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 134–135. Dushanbe (1986).
- V. T. Golovchan and A. G. Artemenko, The thermal conductivity of an orthogonally armoured composite material, *Inzh.-fiz. Zh.* 51(2), 260-267 (1986).
- L. A. Goryainov, Concerning the physical validity of mathematical models of the heat transfer process and the results of the solution of problems. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 120–121. Dushanbe (1986).
- I. S. Granik, The temperature wave front propagation in a non-linear medium with heat sink. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12-14 November 1986, pp. 13-14. Dushanbe (1986).

- V. I. Gubinskiy and O. S. Volkovskiy, Numerical-analytical solution of a heat transfer problem when cooling an infinite cylinder. In *Mathematical and Physical Modelling* of *Processes in Thermotechnological Plants*, pp. 94-99. Ivanovo (1985).
- E. M. Kartashov, Analytical methods for solving boundary-value heat conduction problems with heterogeneous boundary conditions on the lines. Review 4.1, *Izv. Akad. Nauk SSSR, Energet. Transp.* No. 5, 125-149 (1986).
- E. M. Kartashov, Analytical methods for solving mixed boundary-value problems of the heat conduction theory (Review), pt. 2, *Izv. Akad. Nauk*, *Energet. Transp.* No. 6, 116–129 (1986).
- E. M. Kartashov, The generalized integral transformation method for solving the heat conduction equation in the region with moving boundaries, *Inzh.-fiz. Zh.* **52**(3), 495–506 (1987).
- A. Khalikov and N. Mirgiyazov, Solution of the problem of steady-state heat conduction in the process of aluminium electrolysis. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 142–143. Dushanbe (1986).
- V. A. Kudinov, A technique of constructing coordinate systems for solving the problems of unsteady-state heat conduction in a multi-layered plate, *Izv. Akad. Nauk SSSR*, *Energet. Transp.* No. 5, 150–154 (1986).
- I. M. Lagun, Unsteady-state thermal regime of a construction with a variable heat transfer coefficient. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 173–174. Dushanbe (1986).
- N. I. Laguntsov, E. V. Levin and T. A. Sulaberidze, Specific features of unsteady-state mass transfer in cascades separating binary mixtures of isotopes, *Inzh.-fiz. Zh.* **50**(5), 798–803 (1986).
- T. I.-Lelekov, Concerning the approximate solution to heat and mass transfer problems, *Izv. VUZov*, *Energetika* No. 11, 107–109 (1986).
- Yu. N. Lobuncts, Technical-economical characteristics of the thermoelement with heat transfer through the side surfaces of branches, *Izv. Akad. Nauk SSSR*, *Energet. Transp.* No. 6, 97-101 (1986).
- T. K. Maomi, V. V. Ivanov and A. I. Tuzhikov, Effect of the thermal contact resistance on the dynamics of radiation—convective heating of a composite cylinder, *Izv. VUZov*, *Chyornaya Metallurgiya* No. 6, 130–133 (1986).
- L. K. Martinson, Heat localization in heterogeneous nonlinear media with volumetric absorption. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 11–12. Dushanbe (1986).
- Yu. M. Matsevityi, Quasianalogy and heat conduction problems, *Elektr. Modelir.* **8**(5), 83-87 (1986).
- Yu. M. Matsevityi and S. F. Lushpenko, Determination of the heat conduction coefficients of materials with the help of automatized solution of the internal inverse problem, *Prom. Teplotekh.* 8(4), 51-56 (1986).
- Yu. M. Matsevityi, A. P. Slesarenko and O. S. Tsakaryan, Spectral functions of the influence of boundary effects in multi-dimensional inverse heat conduction problems, Dokl. Akad. Nauk Ukr. SSR, Ser. A No. 5, 72-77 (1986).
- V. V. Mikhailov, Evaluation of the accuracy of analogcomputer simulation of heat conduction problems. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12– 14 November 1986, pp. 169–170. Dushanbe (1986).
- L. S. Milovskaya, A. A. Kosarev, N. F. Dormodikhina and E. A. Bezina, Concerning the particular class of non-identifiable inverse three-parametric contact heat-conduction problems. In *Analytical Methods for Calculating Heat and Mass Transfer Processes*. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 92–93. Dushanbe (1986).

- G. A. Nesenenko, The radial asymptotic method in the analytical theory of unsteady-state heat and mass transfer. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 223–224. Dushanbe (1986).
- N. I. Nikitenko, The improvement of the convergence of series for the solution of heterogeneous heat transfer problems. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12-14 November 1986, pp. 63-64. Dushanbe (1986).
- Z. Nuritdinov and V. Madzhidov, A method for predicting the thermophysical properties of liquid and gaseous phthalates. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 190–191. Dushanbe (1986).
- M. I. Pak, S. V. Panchenko, V. V. Stoyak and N. N. Tyan, Determination of the conductive component of heat transfer in a reacting mixture. In *Diffusive-Convective Transfer* in Gases and Liquids, pp. 38-41. Alma-Ata (1986).
- V. A. Pestryakov and L. A. Ishchenko, Algorithm for calculating non-ideal heat transfer in a system of heat conducting elements, Preprint No. 38 of the Physical-Technical Institute for Low Temperatures of the Ukranian Academy of Sciences (1986).
- G. B. Petrazhitskiy, A. M. Pylayev and O. Yu. Stekolshchikov, Analytical calculation of temperature and pressure fields in rectangular rods with periodical variation of the environment temperature. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 163–164. Dushanbe (1986).
- Ya. S. Podstrigach and Yu. M. Kolyano, Thermophysics of bodies with discontinuous parameters. In *Analytical Methods for Calculating Heat and Mass Transfer Processes*. *Proc. All-Union Conference*, Dushanbe, 12–14 November 1986, pp. 9–10. Dushanbe (1986).
- Yu. S. Postolnik, The method of equivalent sources in nonlinear heat conduction problems. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12-14 November 1986, pp. 32-33. Dushanbe (1986).
- N. R. Rabedzhanov and M. Kh. Gafurov, Integration of partial equations over independent variables. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12-14 November 1986, pp. 144-145. Dushanbe (1986).
- N. P. Radzhabov and K. S. Boltayev, A method for analytical representation of solutions for the heat transfer equations. In *Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference*, Dushanbe, 12–14 November 1986, pp. 144–145. Dushanbe (1986).
- V. L. Rvachev, T. P. Manko, N. D. Sizova and N. A. Safonov, Increase of the "POLE-3" system for solving unsteady-state heat transfer problems, Preprint No. 224 of the Institute of the Problems of Mechanical Engineering of the Ukranian Academy of Sciences (1986).
- V. I. Ryndyuk and A. D. Chernyshov, The use of an improved integral method of straight lines for solving boundary-value heat conduction problems, *Inzh.-fiz. Zh.* 52(2), 297-301 (1987).
- V. M. Sedelkin and V. F. Nikishov, Mathematical simulation of the thermal operation of thermotechnological plants. In Mathematical and Physical Modelling of Processes in Thermotechnological Plants, pp. 11-14. Ivanovo (1985).
- S. A. Sergeyev, Self-oscillations in systems for controlling heat transfer processes. In *Heat and Mass Transfer Processes*, pp. 121–128. Kiev (1986).
- Yu. S. Shatalov, Calculation of the temperature integrators of spherical and cylindrical surfaces, *Izv. VUZov*, *Energetika* No. 11, 63-67 (1986).

- A. A. Shmukin, O. A. Levkovich and V. M. Lebedeva, On the construction of approximate analytical solutions of multidimensional stationary heat conduction problems. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12– 14 November 1986, pp. 152–153. Dushanbe (1986).
- A. B. Sibikin and A. A. Shershnyov, Prediction of temperature fields for solidifying ingot, *Ogneupory* No. 12, 30-34 (1986).
- A. P. Slesarenko, Integral transformations and regional-structural method in direct three-dimensional non-stationary heat conduction problem for heterogeneous bodies. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12-14 November 1986, pp. 30-31. Dushanbe (1986).
- M. S. Smirnov, I. A. Soloviyov and V. I. Lysenko, Self-similar wave solution of the heat conduction equation in a medium with a moving boundary. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 7–8. Dushanbe (1986).
- I. A. Soloviyov and M. S. Smirnov, Highly unsteady-state heat and mass transfer in the region with a moving boundary in the case of unknown kinetic equations, *Inzh.-fiz. Zh.* 51(2), 317-321 (1986).
- Yu. G. Stoyan, V. P. Putyatin and B. S. Elkin, Optimization of the assignment of heat sources in the region with different thermophysical characteristics, Preprint No. 215 of the Institute of the Problems of Mechanical Engineering of the Ukrainian Academy of Sciences (1986).
- S. R. Svirshchevskiy, Group properties of a system of hyperbolic-type heat conduction equations, Preprint No. 20 of the Institute of Applied Mathematics of the USSR Academy of Sciences (1986).
- A. I. Tarasov and V. I. Chelak, Specific features of the solution of unsteady-state heat conduction problems by the finite elements method, *Energ. Mashinostr.* (*Kharkov*) No. 42, 94-101 (1986).
- V. V. Teryaev, O. I. Shanin and Yu. I. Shanin, Unsteadystate heat transfer in cooled multi-layered piles. In *Ther*mophysics of *Nuclear Power Plants*, pp. 88-91. Moscow (1986).
- V. P. Timoshpolskiy and D. G. Sedyako, Bilateral radiative heating of a thick wall pipe, *Izv. VUZov*, *Energetika* No. 7, 74-79 (1986).
- N. M. Tsirelman, The group analysis of a heat conduction equation in displacements of isothermal surfaces. 1. Derivation of invariant solutions, *Inzh.-fiz. Zh.* 51(5), 836–840 (1986).
- P. A. Vakulchik and I. S. Shchukina, About the iterative methods for solving an implicit difference scheme for a system of heat conduction equations, *Dokl. Akad. Nauk* SSSR 30(9), 783-786 (1986).
- V. P. Vavilov and S. V. Finkelshtein, Calculation of the active heat control sensitivity on the basis of one-dimensional solution of the problem of three-layer plate heating by a constant heat flux, *Defektoscopiya* No. 6, 73-79 (1986).
- A. I. Vetrov, O. G. Kozhemyakina and A. L. Parnas, Effective thermal conductivity of a heterogeneous medium involving two-dimensional orthogonal inclusions. In *Transfer Processes in Apparatus with Dispersed Systems*, pp. 26-30. Minsk (1986).
- V. M. Vigak and V. L. Falkovskiy, A parametric method for solving an incorrect inverse heat conduction problem as applied to the optimization of thermal operating conditions, *Inzh.-fiz. Zh.* 51(4), 668-673 (1986).
- V. M. Vigak, V. L. Falkovskiy and Yu. P. Yarmolyuk, Non-classical heat conduction problems. In *Mechanics of Inhomogeneous Structures. Proc. 1st All-Union Conference*, Lvov, September 1983, pp. 27–34. Kiev (1986).
- N. P. Voronova, Calculation of temperature fields in two-

- layered bodies in heating. In Mathematical Models of Transfer Theory in Nonhomogeneous and Non-linear Media with Phase Conversions, pp. 112-116. Minsk (1986).
- Yu. A. Zagromov and M. D. Kats, Toward the determination of thermophysical characteristics of coatings applied to metal substrates at high temperatures. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12-14 November 1986, pp. 202-203. Dushanbe (1986).
- V. S. Zarubin, Variational methods for solving heat conduction problems. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 104–105. Dushanbe (1986).
- P. F. Zilberman, P. A. Savintsev and R. M. Gazaryan, Study of concentration distribution during contact melting in the temperature gradient field, *Inzh.-fiz. Zh.* 51(5), 822-824 (1986).

#### THERMODYNAMIC PROPERTIES

- D. G. Amirkhanov and A. G. Usmanov, Thermal diffusivity of carbon dioxide in the near-critical region, *Inzh.-fiz. Zh.* 52(1), 106-108 (1987).
- E. I. Levanov and E. N. Sotskiy, Some properties of the heat transfer process in a fixed medium with the heat flux relaxation taken into account, *Inzh.-fiz. Zh.* 50(6), 1017–1024 (1986).
- A. G. Shashkov, V. I. Krylovich and A. S. Konovalov, Methods for studying thermophysical properties of substances and thermal phenomena based on unsteady-state frequency measurements. 1. Step methods, *Inzh.-fiz. Zh.* 52(3), 415–421 (1987).

### HEAT AND MASS TRANSFER BETWEEN A SOLID BODY AND A FLUID

- V. P. Afonina and A. M. Makarov, Investigation of temperature fields in heat exchangers with a cylindrical working process. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 184–185. Dushanbe (1986).
- O. M. Alifanov, A. P. Tryanin and N. L. Lozhkin, Experimental investigation of the method for determining the coefficient of internal heat transfer in a porous body from the inverse problem solution, *Inzh.-fiz. Zh.* 52(3), 476–485 (1987).
- A. A. Andreyevskiy, M. Ye. Lebedev, G. I. Novosyolova and Ye. V. Firsova, Heat transfer of sodium flow in a complex-shaped channel. In *Heat Transfer in the Equip*ment on Nuclear Power Stations, pp. 34-43. Leningrad (1986).
- V. I. Anufriyev and Ye. V. Parashchenko, Toward the problem of the use of integral heat and mass transfer equations for determining the molecular characteristics of the vacuum system elements. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 100–101. Dushanbe (1986).
- Ye. L. Artyukhin and A. V. Nenarokomov, On the uniqueness of solution for the problem of identification of several heat transfer characteristics of materials interacting with gas flows. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12-14 November 1986, pp. 85-86. Dushanbe (1986).
- L. A. Ashmantas, Yu. S. Voskresenskiy, G. A. Dreitser and P. A. Saveliyev, Efficiency of heat transfer enhancement in specially shaped channels, *Vestsi Akad. Navuk BSSR*, *Ser. Fiz.-Energ. Navuk* No. 3, 53-56 (1986).
- V. V. Balashov and S. V. Yakimenko, Unsteady-state heat transfer over the heat stabilization length in a flat channel.

- In Some Problems of Heat and Mass Transfer Between Flows and Surfaces, pp. 3-7. Tallin (1986).
- V. S. Berdnikov and V. A. Markov, Heat transfer and statistic characteristics of temperature field in a horizontal liquid layer heated from below, *Vestsi Akad. Navuk BSSR*, *Ser. Fiz.-Energ. Navuk* No. 1, 96-102 (1986).
- V. A. Bogachyov and V. M. Yeroshenko, On the generality of equations for mixed-convective heat transfer to supercritical pressure liquids in vertical tubes, *Inzh.-fiz. Zh.* 50(6), 946-951 (1986).
- Ye. K. Borisov, A boundary layer near a charged flat plate. In Experimental and Theoretical Problems of Applied Physical Studies, pp. 42-44. Moscow (1985).
- I. I. Borisov and V. P. Kubaichuk, Local heat transfer of a high-temperature gas flow in a slot channel. In *Thermo*physical and *Physicochemical Processes in Power Plants*, pp. 12-15. Minsk (1986).
- V. T. Borukhov, Classification of the inverse problems of mathematical physics within the framework of the abstract theory of systems. In *Mathematical Models of the Theory of Transfer in Heterogeneous and Non-linear Media with Phase Changes*, pp. 46-61. Minsk (1986).
- V. N. Brashko and N. N. Shkirin, Heat transfer on cones with isoentropic compression surface, *Uchen. Zapiski TsAGI* 17(2), 106-111 (1986).
- V. A. Bubnov, Convective turbulent heat transfer in vortical flows. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12-14 November 1986, pp. 69-70. Dushanbe (1986).
- V. I. Bubnovich and P. M. Kolesnikov, Conjugate laminar natural convection unsteady-state heat transfer in a horizontal circular gap, *Inzh.-fiz. Zh.* 51(4), 576-588 (1986).
- S. F. Chekmaryov, Flow and heat transfer in the liquid oil film falling down the wall of a vapour-jet vacuum pump. In *The Gasdynamics of the Processes of Jet-vacuum Exhaustion*, pp. 137–145. Novosibirsk (1985/1986).
- Ye. M. Chizhevskaya and Yu. M. Brodov, Heat transfer of water flow in shaped twisted tubes, *Izv. VUZov*, *Energetika* No. 11, 110–111 (1986).
- O. I. Didenko and O. D. Lipovetskaya, Calculation of longitudinal flow past fins in the case of unsteady-state heat transfer, *Prom. Teplotekh.* 8(6), 48-53 (1986).
- G. A. Dreitser, A. I. Tikhonov and Ye. N. Abashichev, Toward the calculation of a shell-and-tube recuperator. In Some Problems of Heat and Mass Transfer Between Flows and Surfaces, pp. 10-15. Moscow (1986).
- Ye. P. Dyban and A. I. Mazur, The generalized method for calculating local heat transfer on the wall of a flat channel blown by a system of jets, *Prom. Teplotekh.* 8(4), 3-10 (1986).
- A. N. Dzhanumov, The influence of the gas fuel combustion heat on heat transfer in gas combustion chambers, *Teploenergetika* No. 8, pp. 59-61 (1986).
- V. V. Faleyev, V. V. Shitov and A. Ya. Terleyev, The thermal state of a porous plate under the conditions of coolant percolation, *Inzh.-fiz. Zh.* **51**(5), 748-752 (1986).
- V. N. Fedoseyev and O. I. Shanin, Hydraulic resistance and convective transfer in longitudinal flows around thin packed beds of spheres, *Inzh.-fiz. Zh.* 50(6), 900-908 (1986).
- V. N. Fedoseyev and O. I. Shanin, Statistical characteristics of a convective volume in a stationary granular bed, *Inzh.fiz. Zh.* **51**(2), 194–198 (1986).
- A. V. Fedotov and Yu. S. Chumakov, A turbulence model for a free-convective boundary layer, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 1, 85-91 (1986).
- Ye. P. Fyodorov, L. S. Yanovskiy, Ye. V. Kuznetsov and A. S. Myakochin, Stability analysis of supercritical pressure hydrocarbon flows in heated pipes. In Some Problems of Heat and Mass Transfer Between Flows and Surfaces, pp. 79–86. Moscow (1986).
- B. M. Galitseiskiy, A. L. Lozhkin and A. N. Ushakov, Heat

- transfer and hydrodynamics in a porous medium with a vibrating gas flow, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 2, 101-104 (1986).
- B. M. Galitseiskiy and G. A. Solokhina, Semi-empirical method for calculating the wall flow layer velocity during jet impingement onto the channel surface. In Some Problems of Heat and Mass Transfer Between Flows and Surfaces, pp. 42-46. Moscow (1986).
- P. I. Geshev and M. V. Lubkov, Calculation of steady-state heat transfer for a friction film probe, *Izv. SO AN SSSR*, *Ser. Tekh. Nauk* 16(3), 30–37 (1986).
- G. A. Glebov and A. P. Trunov, Numerical study of supersonic incompletely expanded chemically reacting jets. In Some Problems of Heat and Mass Transfer Between Flows and Surfaces, pp. 39–42. Moscow (1986).
- V. I. Goldin, N. A. Goryacheva, V. S. Zhurilov and Yu. N. Mikhailov, Modelling of heat and mass transfer processes under the conditions of the medium with varying thermophysical properties. In Modelling and Control of Chemical-Technological Processes, pp. 21-24. Kalinin (1987).
- V. G. Gorobets, Convective conjugated heat transfer of coated plate fins. In *Heat and Mass Transfer Processes*, pp. 150-155. Kiev (1986).
- S. R. Gorodkin, Turbulent flow and heat transfer of a magnetorheological suspension (MRS). In *Thermophysics and Physicochemical Processes in Power Plants*, pp. 52-57. Minsk (1985).
- V. D. Grachyov, Application of the final elements method for calculating temperature fields in rod arrays with nonuniform heat supply, Atomnaya Energiya 61(5), 340-343 (1986).
- O. A. Grechannyi, Z. I. Nagolkina and V. A. Senatov, Heat transfer of a jet-cooled moving continuous plate, *Prom. Teplotekh.* 8(6), 3-10 (1986).
- V. L. Gryaznov and V. I. Polezhayev, The structure and regimes of heat convection in a vertical layer. In *The Prob*lems of Viscous Fluid Dynamics. Proc. All-Union School-Seminar, 25 September-4 October 1984, pp. 117-120. Novosibirsk (1986).
- N. A. Grosheva and G. A. Kirsanov, Natural convection heat transfer in water from the side surface of a vertical cylinder and in the gap formed by the side attachment to the cylinder, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 1, 110-114 (1986).
- G. I. Isayev and M. A. Allakhverdiyev, Heat transfer to some hydrocarbons at postcritical pressures, *Izv. VUZov*, *Neft Gaz No.* 7, 64–66 (1986).
- N. S. Ivanov, Concerning the methods of physical modelling of the convective heat transfer processes in spatial constructions. In Application of the Thermodynamics of Solid Media to the Thermal Protection of Engineering Constructions and Natural Objects, pp. 3-17. Yakutsk (1986).
- S. G. Ivanushkin and A. V. Starchenko, Calculation of unsteady-state conjugated heat transfer of a turbulent flow over initial lengths of channels on the basis of differential models of turbulent heat and momentum transfer, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 1, 60-66 (1986).
- Z. A. Kabilov and V. P. Tsoi, Unsteady-state temperature fields of the heat carrier flow in a flat channel and a round tube of asymmetrically heated solar-heat collectors. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12– 14 November 1986, pp. 51–52. Dushanbe (1986).
- N. L. Kafengauz and V. A. Gladkikh, A specific feature of heat transfer to organic heat carriers, *Inzh.-fiz. Zh.* 51(4), 601-603 (1986).
- Ye. I. Kalinin and Yu. N. Kuznetsov, Unsteady-state convective heat transfer in annular channels. In Thermohydraulic Processes in the Equipment of Nuclear Power Stations, pp. 12-20. Moscow (1986).
- B. Ye. Kaupas, The influence of the variability of physical properties of air on heat transfer during laminar to tur-

- bulent flow transition in a tube. In *Thermophysical and Physico-chemical Processes in Power Plants*, pp. 69-73. Minsk (1986).
- P. L. Kirillov and Ye. D. Fedorovich, Problems of hydrodynamics and heat transfer of two-phase flows in atomic power engineering. In *Heat Transfer in Power Equipment* of Atomic Power Stations, pp. 118-121. Leningrad (1986).
- P. L. Kirillov, A. A. Kolosov, E. N. Petrova, A. M. Smirnov and O. A. Sudnitsyn, Temperature distribution in a turbulent water flow at supercritical pressures (a round pipe), Preprint No. 1766 of the Physical and Power Engineering Institute, Obninsk (1986).
- N. N. Klimov, N. V. Kurayeva and V. S. Protopopov, Natural convection heat transfer of carbon dioxide of supercritical pressure under the conditions of cooling, *Vestsi Akad. Navuk BSSR*, Ser. Fiz.-Energ. Navuk No. 1, 106–110 (1986).
- A. A. Kochubei and A. A. Ryadno, A packet of applied programmes for calculating heat and mass transfer processes in complex-shaped channels, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 2, 60-63 (1986).
- P. M. Kolesnikov, Analytical methods for solving non-linear equations of the theory of transfer. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 156–158. Dushanbe (1986).
- P. M. Kolesnikov, Variational methods in the theory of transfer. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12-14 November 1986, pp. 159-160. Dushanbe (1986).
- P. M. Kolesnikov and V. I. Bubnovich, Unsteady-state conjugated natural convection heat transfer in horizontal cylindrical coaxial channels. In *Mathematical Models of the Theory of Transfer in Heterogeneous and Non-linear Media with Phase Changes*, pp. 25–45. Minsk (1986).
- A. S. Kopelevich, Calculation of heat and mass transfer processes in piston compressors, *Izv. VUZov*, *Energetika* No. 9, 80-84 (1986).
- B. P. Korolkov and E. A. Tairov, The dynamics of heat transfer in a heated channel with a continuously varying heat-carrier flow rate, *Vestsi Akad. Navuk BSSR*, *Ser. Fiz.-Energ. Navuk* No. 1, 28–32 (1986).
- V. N. Korovkin and S. L. Syomin, Mixed convection in laminar vertical jets, *Vestsi Akad. Navuk BSSR*, *Ser. Fiz.-Energ. Navuk* No. 2, 77-83 (1986).
- K. G. Kostarev and A. F. Pshenichnikov, Influence of free convection on thermodiffusion in a liquid mixture filling an inclined rectangular cavity, Zh. Prikl. Mech. Tekh. Fiz. No. 5, 73-76 (1986).
- L. A. Kozdoba, Interrelation of analytical and numerical methods in the computational thermophysics. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12-14 November 1986, pp. 114-115. Dushanbe (1986).
- E. L. Kritsuk, L. V. Mishina and L. N. Shegidevich, Heat and mass transfer of a turbulent chemically non-equilibrium flow in a pipe with second-kind boundary conditions. The stabilized heat and mass transfer length, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 2, 42-49 (1986).
- G. M. Krylov, Modelling of the process of high-temperature laminar jet agitation with allowance for the influence of chemical reactions. In *Thermophysical and Physico-chemi*cal Processes in Power Plants, pp. 64-68. Minsk (1986).
- L. I. Kurlapov, Diffusion and convection in polyatomic gases. In *Diffusion and Convective Transfer in Gases and Liquids*, pp. 6-11. Alma-Ata (1986).
- N. I. Laguntsov, E. V. Levin and G. A. Sulaberidze, Specific features of unsteady-state mass transfer in cascades for separation of binary mixtures of isotopes, *Inzh.-fiz. Zh.* 50(5), 798-803 (1986).
- V. V. Lapin, A. A. Ryadno and A. P. Yakushev, Numerical

- study of steady-state conjugated heat and mass transfer in a laminar dissociating nitrogen dioxide flow in a bundle of fuel elements, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 3, 94-97 (1986).
- P. D. Lebedev and N. G. Nadvorskaya, Analysis of heat transfer in supersonic flows of chemically reacting gas mixtures in channels. In Some Problems of Heat and Mass Transfer Between Flows and Surfaces, pp. 70-72. Moscow (1986).
- Ye. I. Levanov and Ye. N. Sotskiy, Some properties of the process of heat transfer in a compressed gas with allowance for heat flux relaxation, *Inzh.-fiz. Zh.* 51(2), 232-240 (1986)
- A. L. Lozhkin, Investigation of heat transfer processes in a porous metal in the case of steady-state and pulsating coolant flows. In *Some Problems of Heat and Mass Transfer Between Flows and Surfaces*, pp. 69–70. Moscow (1986).
- P. D. Lebedev, N. G. Nadvorskaya and N. V. Kholodkov, Calculational study of heat transfer in an axisymmetric channel with a reacting gas flowing at supersonic velocities, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 1, 53-57 (1986).
- G. P. Nagoga, Yu. M. Anurov and A. I. Belousov, Heat transfer and resistance in channels with porous filler, *Inzh.-fiz. Zh.* 51(2), 187-194 (1986).
- V. E. Nakoryakov, M. S. Iskakov and O. N. Kashinsky, Investigation of mass transfer during turbulent agitation in an open vessel, *Izv. SO AN SSSR*, *Ser. Tekh. Nauk* No. 16/3, 9-14 (1986).
- V. V. Naumov and A. G. Trofimovich, Conjugated heat transfer of a fluctuationally non-equilibrium gas flow in a nozzle array. In *Thermophysical and Physico-chemical Processes in Power Plants*, pp. 35-39. Minsk (1986).
- Ye. V. Nomofilov, Optimization of numerical methods for solving heat and mass transfer problems. In *Heat Transfer* in *Power Equipment of Atomic Power Stations*, pp. 44–47. Leningrad (1986).
- V. A. Maltsev, The solution of the heat convection problem by the method of Legendre-Chebyshev polynomials. In *The Problems of Viscous Liquid Dynamics. Proc. 10th All-Union School*, Novosibirsk, 25 September-4 October 1984, pp. 206-208. Novosibirsk (1986).
- O. G. Martynenko and Yu. A. Sokovishin, Free-convective heat and mass transfer, *Vestsi Akad. Navuk BSSR*, *Ser. Fiz.-Energ. Navuk* No. 1, 81-85 (1986).
- V. P. Mikhalev, A. G. Reks and Ye. M. Taits, Concerning the enhancement of heat transfer through a free surface of magnetic fluid. In *Thermophysical and Physico-chemical Processes in Power Plants*, pp. 114-117. Minsk (1986).
- S. A. Mokrushin and S. A. Mikheev, The integral method for calculating turbulent heat and momentum transfer in a flow of gas with variable properties. In *Thermophysics of Nuclear Power Plants*, No. 4, pp. 135–141. Sverdlovsk (1985).
- A. M. Molchanov, A multiscale algebraic model of turbulent stresses for jets. In Some Problems of Heat and Mass Transfer Between Flows and Surfaces, pp. 21-24. Tallin (1986).
- O. E. Odishariya, Study of unsteady-state heat transfer of a real gas flow in a thermally insulated pipe-line. In *Natural Gas Transportation*, pp. 32-37. Moscow (1986).
- V. A. Orlov, The selection of convective heat flow transformation characteristics. In *Investigations in the Field of High-temperature Measurements*, pp. 67-71. Leningrad (1984).
- B. M. Pankratov, Calculation methods for the thermal design of complex technical systems. In *Analytical Methods for Calculating Heat and Mass Transfer Processes*. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 198–199. Dushanbe (1986).
- N. V. Paramonov, L. I. Druzhinina and T. N. Kravchik, Investigation of local heat transfer in eccentric annular

- channels. In Some Problems of Heat and Mass Transfer Between Flows and Surfaces, pp. 15-21. Moscow (1986).
- Yu. Ya. Pechenegov, An engineering method of numerical calculation of heat transfer and friction in a boundary layer. Laminar and turbulent flows in a tube, *Inzh.-fiz. Zh.* 52(2), 190-199 (1987).
- Yu. Ya. Pechenegov, Heat transfer of a swirled gas suspension flow in a tube, *Inzh.-fiz. Zh.* 51(2), 198–202 (1986).
- N. V. Petrovskaya, On numerical study of transitions in the Rayleigh model of convection. In *The Problems of Viscous Fluid Dynamics*. Proc. 10th All-Union School-Seminar, 25 September-1 October 1986, pp. 241-244. Novosibirsk (1986).
- O. I. Platkovskiy and V. V. Ris, Laminar flow with heat transfer in a square-section rotating channel, *Trudy LPI* No. 411, 92–96 (1985).
- A. F. Polyakov and S. A. Shindin, Turbulent momentum and heat transfer with mixed convection in vertical channels, *Teplofiz. Vysok. Temp.* **24**(5), 1031–1033 (1986).
- V. V. Prokkoyev and V. N. Yarygin, Heat and mass transfer processes in the elements of jet high-pressure chamber cryopumps. In *The Gasdynamics of the Process of Jet*vacuum Exhaustion, pp. 176-186. Novosibirsk (1985/ 1986).
- A. F. Pshenichnikov, A. Yu. Pinyagin, V. I. Polezhaev, A. I. Fedyushkin and G. F. Shaidurov, Thermoconcentrational convection in a rectangular region with side flows of heat and mass, Preprint of Ural. Scientific Center, Sverdlovsk (1985).
- A. U. Pugovkin, A. A. Builov and V. I. Stanovoy, Modelling of convective heat transfer processes in charging furnaces. In Mathematical and Physical Modelling of Processes in Thermotechnological Plants, pp. 3-10. Ivanovo (1985).
- V. V. Ris and V. V. Safonov, Heat transfer in simultaneous laminar convection over the initial length of a rotating pipe, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 1, 102-106 (1986).
- V. V. Rukhminskiy and O. M. Borisenko, Analysis of heat phenomena in a radial plain bearing with regard for the thermal conductivity of its rotating and stationary elements, *Energ. Mashinostr.* (Kharkov) No. 42, 82-89 (1986).
- A. M. Salnikov, The influence of initial turbulence and angle of attack on axisymmetric jet heat exchange with a flat barrier. In *Problems of Thermophysics in Nuclear Power Plants*, pp. 125–129. Moscow (1986).
- A. A. Saprykin, Investigation of the flow field behind the Mach disk in supersonic non-rated jets. In Some Problems of Heat and Mass Transfer Between Flows and Surfaces, pp. 31-34. Moscow (1986).
  I. V. Shcherbenko, Calculation of heat and mass transfer
- I. V. Shcherbenko, Calculation of heat and mass transfer coefficients for blowing of foreign gases into a turbulent boundary layer, *Prom. Teplotekh.* 8(6), 40–45 (1986).
- V. M. Shipilov, A difference scheme for solving the equations of hydrodynamics and convective heat transfer in a limited volume. In *Mathematical and Physical Modelling of Processes in Thermotechnological Plants*, pp. 88–93. Ivanovo (1985).
- G. G. Shklover and S. Ye. Gusev, Natural convection heat transfer in horizontal tube bundles. In *Heat Transfer in Power Equipment of Atomic Power Stations*, pp. 107-118. Leningrad (1986).
- M. S. Shmurak, Analytical method for calculating heat transfer and resistance of finned pipes in a viscous liquid flow, *Izv. VUZov*, *Energetika* No. 10, 103–106 (1986).
- V. V. Shor, A turbulent non-isothermal jet with an admixture of solid particles. In *Thermophysical and Physicochemical Processes in Power Plants*, pp. 102–105. Minsk (1986).
- N. V. Shumakov, Concerning the influence of the errors in temperature measurements on the accurate determination of the heat transfer. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 98–99. Dushanbe (1986).

- M. V. Solntsev and A. A. Nozdrin, Experimental investigation of gasdynamic interaction of a jet with a surface in the presence of a limited stalling stream. In Some Heat and Mass Transfer Problems Between Flows and Surfaces, pp. 46-50. Moscow (1986).
- I. A. Soloviyov, M. S. Smirnov and V. I. Lysenko, The study of highly unsteady-state heat and mass transfer in the initial stage. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 3–4. Dushanbe (1986).
- T. V. Tokarenko, Parametric study of the thermal range of convective heat transfer effect in a closed cavity on the temperature field of the surrounding infinite solid body, *Vestsi Akad. Navuk BSSR*, *Ser. Fiz.-Energ. Navuk* No. 2, (1986).
- M. S. Tretiyak and G. A. Surkov, Temperature distribution over the thickness of a porous cylindrical wall cooled by mass transfer. In Mathematical Models of the Theory of Transfer in Heterogeneous and Non-linear Media with Phase Changes, pp. 96-106. Minsk (1986).
- V. M. Trevgoda, Calculation of velocity and temperature of complex-shaped regions. In *Heat Transfer in the Power Equipment of Atomic Power Stations*, pp. 27–34. Leningrad (1986).
- P. V. Tsoi, Integral transformations and other accurate and approximate calculation methods for heat and mass transfer problems. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12-14 November 1986, pp. 98-99. Dushanbe (1986).
- V. N. Varapayev, Calculation of complex heat transfer in vertical layers with non-isothermal walls. In *The Problems* of the Viscous Fluid Dynamics, 25 September-4 October 1984, pp. 60-63. Novosibirsk (1986).
- V. N. Vasiliyev, G. N. Dulnev and V. D. Naumchik, Modelling of heat and mass transfer processes of optical fibre drawing. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 161–162. Dushanbe (1986).
- V. M. Yentov, K. P. Ivanov, A. A. Karpov, N. F. Morozov and V. Ya. Rivkind, On motion of liquid in channels of small flow area in the presence of heat and mass transfer and precipitation, *Dokl. Akad. Nauk SSSR* No. 3, 564– 566 (1986).
- V. M. Yepifanov, A. A. Kurakin and Yu. A. Rusetskiy, The influence of rotation on heat transfer to turbine transpiration-cooled blades, *Teploenergetika* No. 8, 55-58 (1986).
- V. N. Yudaev, Yu. I. Shunin and K. A. Kushnarev, A procedure for calculating gasdynamics and heat transfer in a supersonic impact jet. In *Hydroaeromechanics and Elasticity Theory*, No. 33, pp. 40–46. Dnepropetrovsk (1986).
- Yu. S. Yuriev, A. P. Kolmakov and A. D. Yefanov, Development of the hydrodynamic and thermal model of a porous body and its application for calculating nuclear reactors and heat exchangers. In *Heat Transfer in Power Equipment of Atomic Power Stations*, pp. 9-15. Leningrad (1986).
- N. I. Zalogina and A. M. Makarov, Analytical study of unsteady-state temperature fields in multi-band cryogenic pipe-lines. In *Analytical Methods for Calculating Heat and Mass Transfer Processes*. *Proc. All-Union Conference*, Dushanbe, 12-14 November 1986, pp. 182-183. Dushanbe (1986).
- V. I. Zuyev, Experimental investigation of the process of photoabsorption convection development, *Inzh.-fiz. Zh.* 51(4), 584–586 (1986).
- Yu. V. Zuyev, I. A. Lepeshinskiy and V. A. Sovetov, Experimental and numerical investigation of a gas-liquid polydisperse turbulent jet, *Izv. Akad. Nauk SSSR*, *Mech. Zhidk. Gaza* No. 5, 63-68 (1986).

#### RADIATIVE HEAT TRANSFER

- V. N. Adrianov, Calculation of the radiative heat transfer with regard for the anisotropy of optical characteristics, *Izv. SO AN SSSR*, *Ser. Tekh. Nauk* No. 1012, 17–23 (1986).
- S. A. Baturin and V. A. Kurochkin, The critical analysis of the approximate calculational methods for radiative heat transfer in diesels, *Trudy LPI* No. 411, 48-52 (1985).
- A. L. Burka and N. A. Savvinova, Radiative-conductive heat transfer in semi-transparent media with phase transition. In *Heat/Mass Transfer and Hydrodynamics in Furnaces, Gas Generators and Chemical Reactors*, pp. 116-123. Minsk (1986).
- B. N. Chetverushkin and E. V. Shilnikov, Concerning certain problems of mathematical simulation of complex heat transfer in dispersed media. In *Mathematical Models, Analytical and Numerical Methods in the Theory of Transfer.*Proc. Int. School-Seminar, Minsk, 15–23 October 1986, pt. 2, pp. 63–70. Minsk (1986).
- L. B. Direktor and A. N. Korotin, Optimization of regime parameters of a high-temperature plant. In *Mathematical and Physical Modelling of Processes in Thermotechnological Plants*, pp. 67–70. Ivanovo (1985).
- G. Ye. Gorelik and V. G. Leitsina, Investigation of radiative transfer through a porous layer by the Monte Carlo method. In *Mathematical Models, Analytical and Numerical Methods in the Theory of Transfer. Proc. Int. School-Seminar*, Minsk, 15–23 October 1986, pt. 2, pp. 80–87. Minsk (1986).
- G. Ye. Gorelik, V. V. Levdanskiy, V. G. Leitsina and N. V. Pavlyukevich, Concerning radiation absorption in a highporous material layer, *Inzh.-fiz. Zh.* 50(6), 999–1005 (1986).
- V. V. Ivanov and I. L. Dunin, The method of linearizing functions in the problems of non-linear transfer. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12-14 November 1986, pp. 154-155. Dushanbe (1986).
- V. V. Ivanov, I. L. Dunin and V. V. Savenko, Processes of conjugated transfer in channels with radiating external surfaces. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 55–56. Dushanbe (1986).
- Ye. S. Karasina, A. Yu. Antonov and A. A. Abryukhin, The coefficient of the absorption of rays by a dust-air flow, *Teploenergetika* No. 1, 25-30 (1987).
- A. N. Korotin and Ye. V. Yerofeyev, Modelling of heat transfer in radiative recuperators. In *Mathematical and Physical Modelling of Processes in Thermotechnological Plants*, pp. 29-32. Ivanovo (1985).
- Yu. N. Kryuchkov, A simplified technique for calculating the emissive power of semi-transparent materials, *Prom. Teplotekh.* 8(4), 29–33 (1986).
- V. I. Lebedev and Kh. K. Kurbanov, Toward the heat transfer in a directly fired glass making furnace, *Izv. Akad. Nauk TSSR*, *Ser. Fiz.-Tekh. Khim. Geol. Nauk* No. 2, 40–42 (1986).
- V. V. Levdanskiy, Toward the description of the effect of surface processes on phenomena in heterogeneous media. In Mathematical Models, Analytical and Numerical Methods in the Theory of Transfer. Proc. Int. School-Seminar, Minsk, 15-23 October 1986, pt. 1, pp. 59-66. Minsk (1986).
- Yu. V. Lipovtsev and O. N. Tretiakova, A finite-difference solution of a one-dimensional nonstationary problem of radiative conductive heat transfer, *Inzh.-fiz. Zh.* 51(5), 840-847 (1986).
- O. A. Makhotkin and V. I. Novozhilova, The method of the influence coefficients for calculating radiation heat transfer between gray surfaces. In *Methods of Statistical Modelling*, pp. 117–127. Novosibirsk (1986).

- Yu. K. Malikov, Calculation of angular radiation coefficients by the method of parallel planes, *Teplofiz. Vysok. Temp.* **24**(6), 1149–1155 (1986).
- Ye. V. Meinarovich, Non-linear problems of the steady-state radiation. Preprint No. 36 of the Institute of Mathematics of the Ukrainian Academy of Sciences (1986).
- N. V. Pavlyukevich, Models of radiation transfer in porous media. In Mathematical Models, Analytical and Numerical Methods in the Theory of Transfer. Proc. Int. School-Seminar, Minsk, 15-23 October 1986, pt. 1, pp. 23-31. Minsk (1986).
- P. V. Prosuntsov and S. V. Reznik, A mathematical model of the coefficient inverse problem of radiative-conductive heat transfer in a semitransparent dispersing medium, *Izv.* SO AN SSSR, Ser. Tekh. Nauk No. 10(2), 3-9 (1986).
- V. A. Reisich, The methods of acquisition and investigation of heat and mass transfer radiative characteristics of hightemperature chemically reacting gas media. In *Heat and Mass Transfer in Surface Combustion*, pp. 131-137. Minsk (1986).
- N. N. Rogovtsov, Concerning the calculation of radiation fluxes in scattering non-concave bodies, *Dokl. Akad. Nauk BSSR* 30(7), 609-613 (1986).
- M. N. Rolin and F. B. Yurevich, Radiative—convective heat transfer during injection of two-phase products of coating destruction into a hypersonic compressed layer, *Izv. Akad. Nauk SSSR*, *Mekh. Zhidk. Gaza* No. 6, 161–166 (1985).
- N. A. Rubtsov and Ye. P. Golova, The influence of scattering on unsteady-state radiative-conductive heat transfer in a two-layered system, *Izv. SO AN SSSR*, *Ser. Tekh. Nauk* No. 10(2), 10-16 (1986).
- N. A. Rubtsov and Ye. B. Timmerman, Unsteady-state radiative conductive heat transfer in the layer of dispersive medium, *Izv. SO AN SSSR*, *Ser. Tekh. Nauk* No. 16(3), 3–8 (1986).
- L. S. Segalovich, Radiative-conductive heat transfer in a system of two media with different optical properties. In Actual Problems of Thermophysics and of Physical Hydrodynamics. Proc. All-Union Conference, Novosibirsk, March 1985, pp. 52-58. Novosibirsk (1985).
- Yu. S. Shatalov, Solution of inverse heat and mass transfer problems on the basis of integral representations. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 81–82. Dushanbe (1986).
- N. V. Shumakov, Temperature fields of fibre optical light-guides. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12–14 November 1986, pp. 116–117. Dushanbe (1986).
- A. V. Temnikov, G. I. Aronchik and S. V. Kazachkov, Variational-type methods in the problems of complex heat transfer. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-Union Conference, Dushanbe, 12-14 November 1986, pp. 21-22. Dushanbe (1986).
- Ye. B. Timmerman, The resolvent method of calculation in the problems of unsteady-state radiative-conductive heat transfer. In Actual Problems of Thermophysics and of Physical Hydrogasdynamics. Proc. All-Union Conference, March 1985, pp. 43-47. Novosibirsk (1985).
- A. N. Timofeyev, Radiative-convective heat transfer on a plate in conjugated formulation. In Application of the Thermodynamics of Solid Media to the Thermal Protection of Engineering Constructions and Natural Objects, pp. 55-64. Yakutsk (1986).
- V. P. Timoshenko and M. G. Trenev, A method for calculating thermal regimes of multilayered semi-transparent materials, *Uchen. Zapiski TsAGI* 17(2), 83-93 (1986).
- P. V. Tsoi, N. M. Kazidzhanova and N. R. Karpeyev, Heat conduction in semi-transparent materials with allowance for transpiration cooling. In Analytical Methods for Calculating Heat and Mass Transfer Processes. Proc. All-

- Union Conference, Dushanbe, 12-14 November 1986, pp. 25-27. Dushanbe (1986).
- V. N. Vasiliyev, V. D. Naumchik and Yu. I. Lanin, Analysis of radiation heat transfer during drawing of optical fibre. In Mathematical Models of the Theory of Transfer in Heterogeneous and Non-linear Media with Phase Changes, pp. 136-150. Minsk (1986).
- L. G. Vetoshkina, T. V. Gurenkova, L. L. Suleimanova, V. N. Vetoshkin and A. G. Usmanov, Radiative-conductive heat transfer in liquid organic compounds in the temperature range 373-473 K, *Inzh.-fiz. Zh.* 52(2), 227-232 (1987).

# HEAT AND MASS TRANSFER IN PHASE AND CHEMICAL CONVERSIONS

- Sh. K. Agzamov and Sh. P. Sharipov, Film condensation heat transfer on vertical tubes. In *Processes and Appar*atuses of Chemical and Food Industries, pp. 61-63. Tashkent (1986).
- A. A. Andrizhievskiy and A. G. Trifonov, Heat and mass transfer of a droplet in a chemically reacting gas flow, Boiling Condensation (Riga) No. 10, 38-45 (1986).
- A. D. Akimenko and V. A. Uliyanov, Investigation of heat removal from a melt in enhanced solidification. In *Improvement of Continuous Steel Casting Processes*, pp. 44–48. Kiev (1985).
- G. A. Akselrud, Ya. M. Gumnitskiy and S. Mallik, Study of chemical boiling in the nucleate boiling regime, *Inzh.-fiz. Zh.* **52**(2), 205–209 (1987).
- B. P. Avksentyuk, Critical heat fluxes of boiling liquids subcooled below saturation temperature under the conditions of forced flow. In *Boiling and Condensation*, *Hydro*dynamics and Heat Transfer, pp. 52-59. Novosibirsk (1986).
- G. A. Arkhipov, D. I. Volkov, O. I. Makarov and V. A. Chistyakov, Concerning the analogy between vapour condensation on a horizontal tube bundle and on a vertical wall. In *Heat Transfer in the Power Equipment of Atomic Power Stations*, pp. 201–208. Leningrad (1986).
- K. E. Aronson, A. Yu. Ryabchikov and A. K. Shibalkin, Vapour condensation heat transfer augmentation on vertical tubes. In *Modern Problems of Thermophysics. Proc. All-Union School of Young Scientists*, Novosibirsk, March 1986, pp. 49–56. Novosibirsk (1986).
- L. Yu. Artyukh, A. T. Lukiyanov and S. Ye. Nysanbayeva, Dynamics of the thermal regime of a melt-crystal system. In *Physics of Aerodispersed Systems*, No. 30, pp. 104-108. Kiev (1986).
- V. I. Astanova, Numerical solution of the problem of multicomponent mixture evaporation from a capillary. In Enhancement of Drying-thermal Processes, pp. 140-144. Minsk (1986).
- A. A. Avdeyev and V. P. Pekhterev, Vapour condensation in non-equilibrium bubble flows, *Teplofiz. Vysok. Temp.* **24**(6), 1125–1131 (1986).
- A. A. Avdeyev and V. P. Pekhterev, Void fraction of a subcooled liquid boiling in channels with different means of heat supply, *Teploenergetika* No. 10, 57-62 (1986).
- A. A. Avdeyev and V. P. Pekhterev, Subcooled liquid boiling under the conditions of forced flow, *Teplofiz. Vysok. Temp.* 24(5), 912–920 (1986).
- N. A. Avdonin, Analytical solution of the problem of convective diffusion in growing of crystals from melts. In Mathematical Models, Analytical and Numerical Methods in the Theory of Transfer. Proc. All-Union School-Seminar, Minsk, 15–23 October 1986, pt. 1, pp. 105–115. Minsk (1986).
- B. P. Avksentyuk and Z. S. Mesarkishvili, Influence of subcooling on critical heat fluxes of liquids boiling in the region of subatmospheric pressures. In *Boiling and Con*densation, Hydrodynamics and Heat Transfer, pp. 45-51. Novosibirsk (1986).

- Yu. I. Balakleyevskiy, Hydrodynamic regimes of a condensating subsonic vapour jet. In *Boiling and Conden*sation. Hydrodynamics and Heat Transfer, pp. 110-119. Novosibirsk (1986).
- A. A. Bochkaryov, A. S. Zalkin and Yu. G. Shukhov, Differential thermoanalysis of vapour jets. In *Boiling and Condensation*. *Hydrodynamics and Heat Transfer*, pp. 102–110. Novosibirsk (1986).
- E. A. Boltenko and R. S. Pometko, Burnout heat transfer in tubes on coolant flow rate reduction at the inlet, Preprint No. 1812 of the Physical and Power Engineering Institute, Obninsk (1986).
- M. A. Brich, Self-oscillations of the dispersed liquid flow interacting with a heated surface, *Dokl. Akad. Nauk BSSR* No. 9, 806–809 (1986).
- A. M. Bubenchikov, S. G. Ivanushkin and S. N. Kharlamov, Unsteady-state heat transfer of a turbulent chemically reacting gas mixture flow in a circular tube, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 1, 44-49 (1986).
- V. M. Budov, I. A. Shemagin and V. A. Kiriyanov, The interphase surface instability for film condensation on the surface of tubes. In *Heat Transfer in the Power Equipment* of Atomic Power Stations, pp. 237-243. Leningrad (1986).
- P. S. Chernyakov, Influence of free convection on the dynamics of vapour bubbles of a liquid boiling in the field of centrifugal forces. In *Thermal Processes in Cryogenic Systems*, pp. 42-44. Kiev (1986).
- V. I. Deyev, V. N. Novikov, V. V. Arkhipov and Yu. V. Gordeyev, Critical heat fluxes of a boiling nitrogen in a vertical pipe. In *The Thermophysics of Nuclear Power Plants*, pp. 63–65. Moscow (1986).
- A. N. Devoino and S. V. Chernousov, Generalizing correlations of unsteady-state heat transfer of a turbulent chemically non-equilibrium gas flow, *Vestsi Akad. Navuk BSSR*, Ser. Fiz.-Energ. Navuk No. 2, 83-91 (1986).
- A. V. Dyomin, I. A. Zenukov and T. M. Magsumov, Evaporation model of a liquid droplet of multi-fractional composition. In *Thermal Processes in Engines and Power Plants of Flying Vehicles*, pp. 10–15. Kazan (1985).
- G. A. Frolov, V. V. Pasichnyi, Yu. V. Polezhaev and A. V. Choba, A model of thermal destruction of material heated from one side, *Inzh.-fiz. Zh.* 52(1), 33–37 (1987).
- A. A. Fursenko, Modelling of interphase interactions in bubbling and boiling. In *Boiling and Condensation*. Hydrodynamic and Heat Transfer, pp. 85-91. Novosibirsk (1986).
- V. V. Galaktionov and L. P. Trukhanova, Experimental investigation of the effect of gravitational forces on the characteristics of the vapour-gas front of a gas-controlled heat pipe, Sborn. Nauch. Trudov Mosk. Energ. Inst. No. 91, 122-128 (1986).
- A. P. Galkina and V. I. Khvostov, An analytical model of the process of liquid evaporation from a capillary-porous plate on the basis of varicapillary representation of a porous structure, Sborn. Nauch. Trudov Mosk. Energ. Inst. No. 91, 59–68 (1986).
- N. I. Gamayunov and V. A. Malyshev, The kinetics of hightemperature evaporation of binary mixtures from capillaries, *Boiling Condensation (Riga)* No. 10, 54–58 (1986).
- L. V. Gavin, S. V. Medvedev and V. A. Naumov, A model of turbulent vapour-liquid jet and its numerical study. In Thermophysics and Hydrogasdynamics of Boiling and Condensation Processes. Proc. All-Union Conference, Riga, September 1982, Vol. 4, pt. 2, pp. 41-47. Riga (1986).
- I. I. Gogonin, A. R. Dorokhov and V. I. Sosunov, Stationary freon mixture vapour film condensation on horizontal and vertical tubes, *Izv. SO AN SSSR*, *Ser. Tekh. Nauk* **16**(3), 58–61 (1986).
- I. I. Gogonin, O. A. Kabov and V. I. Sosunov, Vapour condensation heat transfer augmentation by finning the heat transfer surface. Preprint No. 134 of the Institute for Thermal Physics of the Siberian Branch of the USSR Academy of Sciences. Novosibirsk (1985).
- A. V. Gorin and A. I. Golomyanov, Experimental inves-

- tigation of gasoline condensation, Izv. SO AN SSSR, Ser. Tekh. Nauk 16(3), 26-29 (1986).
- V. V. Gorokhov, V. N. Saverin, Ye. V. Onosovskiy, S. P. Zakatov and V. I. Fedotov, The study of heat transfer in channels with natural circulation of helium—II. In Thermophysics and Hydrogasdynamics of Boiling and Condensation Processes. Proc. All-Union Conference, Riga, September 1982, Vol. 8, pt. 1, pp. 112-120. Riga (1986).
- M. A. Gotovskiy, M. Ya. Belenkiy and A. A. Malakhov, The influence of the liquid subcooling on the minimum temperature head in film boiling. In *Heat Transfer in the Power Equipment of Nuclear Power Stations*, pp. 156–165. Leningrad (1986).
- V. P. Ivanov and V. E. Levchenko, Concerning the calculation of heat transfer in sodium heat pipes, Preprint No. 1767 of the Physical and Power Engineering Institute, Obninsk (1986).
- E. K. Kalinin, V. I. Panevin and V. P. Firsov, Film boiling forced vapour-liquid flow in horizontal tubes, *Inzh.-fiz.* Zh. 50(5), 724-729 (1986).
- B. Ya. Kamenetskiy, Heat transfer rate and temperature profiles in a boiling liquid and foam layer, *Inzh.-fiz. Zh.* 51(5), 715-718 (1986).
- S. V. Kanukhina and V. M. Kashcheyev, A mathematical model of heat and mass transfer and two-dimensional calculation of vapour quality and temperature in a concentric annular channel with subcooled liquid flow. In Thermophysics and Hydrogasdynamics of Boiling and Condensation Processes. Proc. All-Union Conference, Riga, September 1982, Vol. 4, pt. 2, pp. 54-61. Riga (1986).
- A. V. Karpyshev and E. M. Nosova, Influence of the process parameters on the heat transfer mechanism in the transient boiling region. In Some Problems of Heat and Mass Transfer Between Flows and Surfaces, pp. 59-62. Moscow (1986).
- A. K. Karyshev, Investigation of the condensational spectrum of droplets in a jet mixing chamber, *Izv. VUZov*, *Energetika* No. 1, 87-89 (1987).
- E. A. Khodak and G. A. Romakhova, Evaporation of finedispersed moisture in a low-temperature gas flow, *Boiling Condensation (Riga)* No. 10, 59-66 (1986).
- D. K. Khrustalyov and S. V. Denisevich, Evaporation and condensation heat transfer in a heat pipe with a combined capillary-porous structure. In *Heat Pipes and Heat Exchangers with Capillary-porous Structures*, pp. 39-50. Minsk (1986).
- Yu. A. Kirichenko, K. V. Rusanov and Ye. G. Tyurina, Effect of the orientation of flat channels on the boiling nitrogen heat transfer crisis under the conditions of free motion, *Teploenergetika* No. 12, 59-61 (1986).
- Yu. A. Kirichenko, K. V. Rusanov and Ye. G. Tyurina, On the shape and size of vapour bubbles in boiling on a downward facing flat surface, *Inzh.-fiz. Zh.* 51(5), 709–715 (1986).
- A. V. Klimenko and A. G. Sinitsyn, Experimental investigation of film boiling on the surface of free floating spherical particles, Sborn. Nauch. Trudov Mosk. Energ. Inst. No. 91, 128-137 (1986).
- L. S. Kokorev and A. A. Smirnov, Investigation of the process of single droplet evaporation with the help of a differential calorimeter. In *The Problems of Thermophysics in Nuclear Power Plants*, pp. 123–124. Moscow (1986).
- N. Yu. Koloskova and A. I. Beloivan, Heat and mass transfer in thermosyphons with internal heat removal. In *Heat and Mass Transfer Processes*, pp. 136–141. Kiev (1986).
- A. S. Komendantov, Yu. A. Kuzma-Kichta and M. N. Burdunin, Investigation of the transitional and postcritical regions of heat transfer to a thermally non-equilibrium flow, *Teploenergetika* No. 1, 64-66 (1987).
- A. G. Konnov and P. G. Udyma, Calculation of flow and heat transfer of contacting liquids in a jet-type evaporator, Sborn. Nauch. Trudov Mosk. Energ. Inst. No. 91, 95-101 (1986).

- V. P. Korovkin, M. K. Bologa and I. K. Savin, Phase equilibrium conditions of a condensate film in an electrical field, *Izv. AN MSSR*, *Ser. Fiz.-Tekh. Mat. Nauk* No. 2, 66-67 (1986).
- N. M. Kortsenshtein, Volumetric condensation in the flow of coal combustion products. In *The Thermophysics of Energy-involving Processes*, pp. 135–140. Moscow (1985).
- G. V. Kovalenko and N. I. Kobasko, Modelling of unsteadystate boiling during quenching in water, *Prom. Teplotekh.* 8(6), 29–36 (1986).
- A. A. Kozyrev, G. N. Danilova and V. A. Dyundin, Experimental investigation of R-22 boiling heat transfer in multirow tube bundles. In *Heat Transfer in the Power Equipment of Nuclear Power Stations*, pp. 165-172. Leningrad (1986).
- V. A. Kravchenko and N. Yu. Ostrovskiy, Boiling heat transfer of mixtures. In *Heat/Mass Transfer and Hydrodynamics in Furnaces*, Gas Generators and Chemical Reactors, pp. 108-115. Minsk (1986).
- A. V. Krestinin and V. A. Kuznetsov, A model of nonisothermal homogeneous condensation in chemically reacting gases, *Phys. Aerodispersed Systems* (Kiev) No. 30, 61–67 (1986).
- A. S. Kulikov, V. Ya. Sasin and S. I. Vikulin, Hydrodynamic description of the process of vapour generation in the evaporative zone of heat pipes with homogeneous wicks, *Shorn. Nauch. Trudov Mosk. Energ. Inst.* No. 91, 115–122 (1986).
- L. N. Kurnyk, V. M. Marushkin and G. F. Smirnov, Investigation of heat transfer during overall bubbling of vapour, *Teploenergetika* No. 11, 58-61 (1986).
- N. M. Levchenko, Heat transfer rate and heat exchange regimes of boiling cryogenic liquids, Preprint No. 13 of the Physical Technical Institute for Low Temperatures of the Ukrainian Academy of Sciences (1986).
- V. V. Levdanskiy and O. G. Martynenko, Toward the problem of substance condensation from a mixture of gases, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 4, 87-90 (1986).
- V. A. Lokshin and V. A. Malkis, Heat transfer and hydraulic resistance of single-row bundle of tubes in the region of forced convection and subcooled water boiling. In *Thermohydraulic Processes in the Equipment of Nuclear Stations*, pp. 94–98. Moscow (1986).
- L. G. Lukashevich, M. V. Malko and A. Ye. Sinkevich, Heat and mass transfer of a condensing nitrogen tetraoxide with NO admixtures in the case of equilibrium chemical reactions, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 4, 53-58 (1986).
- M. O. Lutset and A. N. Tsoi, Experimental investigation of the propagation of heat pulses in a superfluid helium. In *Boiling and Condensation. Hydrodynamics and Heat* Transfer, pp. 91-101. Novosibirsk (1986).
- M. Mamedov, Theoretical analysis of simultaneous diffusive heat and mass transfer in a vapour-gas mixture in the processes of simultaneous evaporation and condensation, *Izv. Akad. Nauk TSSR*, *Ser. Fiz.-Tekh.*, *Khim. Geol. Nauk* No. 5, 12-19 (1986).
- B. A. Mamedov and Z. N. Kerimova, Experimental investigation of pool boiling heat transfer of salt solutions. In Utilization of Renewable Energy Sources and Environment Protection in Power Engineering, pp. 61-70. Moscow (1985)
- V. M. Marushkin, K. S. Strelkova, V. N. Vasilyev, G. Ye. Marushkina and A. V. Rezvov, Heat transfer to the surface of a vertical pipe in a crossflow of condensing vapour, Teploenergetika No. 4, 33–35 (1986).
- V. P. Matulevich, O. L. Danilov, O. V. Dobrocheyev and S. A. Vlasenko, Convective heat transfer in non-equilibrium vapour condensation on a plate, *Izv. VUZov*, *Energetika* No. 10, 75–79 (1986).
- O. O. Milman, Approximate modelling of a vapour condenser. In *Heat Transfer in the Power Equipment of Atomic Power Stations*, pp. 194–200. Leningrad (1986).

- O. O. Milman and V. A. Dyomochkin, Stationary steam condensation on film coated tubes. In *Heat Transfer in the Power Equipment of Atomic Power Stations*, pp. 229–233. Leningrad (1986).
- O. A. Mostovlyanskiy, V. A. Artamonov and V. S. Soldatov, Mass transfer of a precipitant through the polymer solution-precipitant interface during the formation of kapron membranes, *Dokl. Akad. Nauk BSSR* 30(8), 735-739 (1986).
- V. Ye. Nakoryakov, B. G. Pokusayev and A. V. Petukhov, Mass transfer of a plug flow in a vertical tube. In *Boiling* and Condensation. Hydrodynamics and Heat Transfer, pp. 36-45. Novosibirsk (1986).
- V. I. Nosik, A conjugated evaporation problem in a long channel at small Reynolds numbers, *Inzh.-fiz. Zh.* 52(3), 374–381 (1987).
- V. I. Nosik, Analysis of a conjugated problem of evaporation from the walls of long channel, *Inzh.-fiz. Zh.* **52**(1), 116–122 (1987).
- P. A. Novikov, A. V. Kuzmich and L. A. Sergeyeva, Investigation of the percollation of an aqueous salt solution in capillary-porous materials in the presence of phase change, *Inzh.-fiz. Zh.* 52(2), 271–276 (1987).
- V. I. Panevin and V. P. Firsov, Liquid nitrogen film boiling heat transfer on horizontal non-isothermal plates. In Some Problems of Heat and Mass Transfer Between Flows and Surfaces, pp. 62-66. Moscow (1986).
- A. N. Pavlenko and V. Yu. Chekhovich, Investigation of heat transfer crisis in the case of unsteady-state heat generation. In *Boiling and Condensation*. Hydrodynamics and Heat Transfer, pp. 66-85. Novosibirsk (1986).
- A. D. Polyanin and V. M. Shevtsova, On unsteady-state mass transfer of a drop (bubble) in a three-dimensional shear flow, *Izv. Akad. Nauk SSSR*, *Mekh. Zhidk. Gaza* No. 6, 111-119 (1986).
- D. G. Podkorytov and Ye. A. Chinnov, Experimental investigation of the rise of single steam bubbles in cryogenic liquids. In *Boiling and Condensation. Hydrodynamics and Heat Transfer*, pp. 59-65. Novosibirsk (1986).
- V. D. Portnov and T. M. Grigoriyeva, Condensation on triangular fins of channel heat pipes, Sborn. Nauch. Trudov Mosk. Energ. Inst. No. 91, 101-108 (1986).
- V. F. Prisnyakov, S. V. Tkachenko and V. N. Serebryanskiy, Experimental investigation of the pool characteristics of potassium, *Teplofiz. Vysok. Temp.* 24(6), 1112–1117 (1986).
- V. K. Pustovalov, The diffusive-conductive droplet evaporation by intensive optical radiation with allowance for temperature-dependent transfer coefficients, *Inzh.-fiz. Zh.* 50(5), 718-724 (1986).
- O. V. Remizov, V. V. Sergeyev and Yu. I. Yurkov, Post-critical heat transfer in a tube heated in step-wise fashion along the length. In *Heat Transfer in the Power Equipment of Nuclear Power Stations*, pp. 173–179. Leningrad (1986).
- O. V. Remizov, O. V. Starkov, S. K. Korotayev and N. N. Shevchenko, On temperature regime and state of vapour generating surface of a tube, *Atomnaya Energiya* 61(2), 99-103 (1986).
- V. G. Rifert and Ya. F. Vizel, The efficiency of ribs with stationary vapour condensing on them, *Prom. Teplotekh.* **8**(6), 33-40 (1986).
- K. V. Rusanov and Ye. G. Tyurina, Experimental investigation of some problems of free-convective nitrogen boiling heat transfer crisis in channels, Preprint No. 26 of the Physical-Technical Institute for Low Temperatures of the Ukrainian Academy of Sciences (1986).
- K. V. Rusanov and Ye. C. Tyurina, Investigation of freeconvective boiling heat transfer of nitrogen in plane channels with a step-wise varying gap. In *Thermal Processes in Cryogenic Systems*, pp. 35–41. Kiev (1986).
- L. T. Salekhov and I. M. Mazurin, An experimental study of sulphur hexafluoride film condensation on the finned ceiling surface, *Inzh.-fiz. Zh.* **52**(2), 199–205 (1987).

- G. A. Serebryany, Heat and mass transfer of a thermoelectrically cooled humid air flow. In *Applied Problems of Direct Energy Conversion*, pp. 65-74. Kiev (1985).
- G. G. Shklover, V. P. Semyonov and A. M. Usachyov, Study of condensation on a horizontal tube with spatially nonuniform temperature distribution. In *Heat Transfer in the Power Equipment of Atomic Power Stations*, pp. 233–237. Leningrad (1986).
- I. M. Shnaid and N. Zh. Simon, Calculation of the effect of the two-phase jet temperature distribution for a solidifying liquid phase. In *Refrigerating Technique and Technology*, No. 43, pp. 37–41. Kiev (1986).
- V. P. Skripov and M. Z. Faizullin, On the possibility for calculating melting lines by the method of thermodynamic similarity. In *Thermophysical Properties of Substance Materials* No. 23, 49-60 (1986).
- A. E. Sinkevich, Effect of vapour velocity on local heat transfer and friction parameters in film condensation of nitrogen tetraoxide in a vertical channel, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 3, 56-62 (1986).
- A. G. Temkin, Evaporation rate and pressure on the phase interface surface in vacuum, *Boiling Condensation (Riga)* No. 10, 29–31 (1986).
- V. I. Tolubinskiy and Ye. D. Domashev, Toward the calculation of boiling heat transfer crisis in channels. In *Heat and Mass Transfer Processes*, pp. 3-18. Kiev (1986).
- N. M. Turchin, A. A. Tsyganok, A. A. Gribov and G. V. Borodenko, Heat transfer and local characteristics of gasoil pool boiling, *Inzh.-fiz. Zh.* **52**(3), 383–387 (1987).
- E. G. Tutova, Intensification of heat and mass transfer of labile materials in drying. In *Enhancement of Drying-thermal Processes*, pp. 9–21. Minsk (1986).
- R. Sh. Vainberg and V. V. Grabovskiy, On the optimum combination of radiator and material characteristics in thermoradiative drying. In *Heat and Mass Transfer Pro*cesses, pp. 89-94. Kiev (1986).
- V. A. Varivoda and V. Kh. Kirillov, Frosting of a flat surface. In *Refrigeration Engineering and Technology*, No. 43, pp. 91–96. Kiev (1986).
- D. A. Vezirishvili, The study of the length of a vertical vapour jet during its condensation in the bulk of subcooled liquid. In *The Modern Problems of Thermophysics. Proc. All-Union School of Young Scientists and Specialists*, Novosibirsk, March 1986, pp. 165–166. Novosibirsk (1986).
- S. A. Vlasenko, O. L. Danilov, O. V. Dobrocheyev and V. P. Motulevich, Non-equilibrium mass transfer of a vapour-air flow in drying, *Boiling Condensation (Riga)* No. 10, 76–82 (1986).
- V. V. Vorobiyov, A. A. Mikhalevich and V. A. Nemtsev, Experimental investigation of heat transfer in the separation zone of chemically reacting heat carrier flow, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 2, 97– 101 (1986).
- V. V. Voshenskiy and A. G. Bychkov, Diffusion of vapours into air during liquid evaporation in a flat channel. In Diffusive and Convective Transfer in Gases and Liquids, pp. 3-5. Alma-Ata (1986).
- V. V. Yagov and V. A. Puzin, Experimental investigation of heat transfer and critical heat fluxes of boiling Freon-12 under the conditions of forced motion, *Boiling Con*densation No. 10, 5-15 (1986).
- S. P. Yelistratov and Yu. M. Petin, Heat transfer of a spherical particle in vapour condensation from a vapour–gas mixture in quasi-stationary conditions. In *Energy Supply in Chemical Industries*, pp. 112–118. Novosibirsk (1986).
- M. V. Zake, Ya. O. Shint and I. N. Yatchenko, The study of the kinetics of evaporation and condensation of dispersed particles in two-phase flows of a low-temperature plasma in magnetic field, *Boiling Condensation (Riga)* No. 10, 67– 75 (1986).
- S. G. Zakirov and Sh. G. Salimova, Vapour-air mixture condensation on vertical shaped tubes. In *Processes and Apparatuses of Chemical and Food Industries*, pp. 58-60. Tashkent (1986).

- A. F. Zalyotnev, A. F. Tikhonov and S. Yu. Shemyakin, The thermal regime of a hermetic evaporative cooling system. In *Processes and Apparatus of Cryogenic Tech*nology and Conditioning, pp. 118–121. Leningrad (1985).
- L. V. Zysin and Ye. A. Dorfman, Heat transfer in channels during transition from convection to developed boiling. In Heat Transfer in the Power Equipment of Nuclear Power Stations, pp. 143-149. Leningrad (1986).

## HEAT AND MASS TRANSFER IN DISPERSE AND TWO-PHASE SYSTEMS

- G. A. Aldiyarova, Heat and mass transfer in a heterogeneous system. In *Diffusive and Convective Transfer in Gases and Liquids*, pp. 31-33. Alma-Ata (1986).
- V. K. Andreyev and A. A. Rodionov, Thermocapillary convection in a liquid cylinder. In *Mathematical Modelling in Science and Technology. Proc. All-Union School-Seminar*, 9–15 June 1986, Extend. Abstr., Perm (1986).
- N. V. Antonishin and V. V. Lushchikov, Heat transfer in dispersed media. In *Transfer Processes in Apparatus with Dispersed Systems*, pp. 3-25. Minsk (1986).
- I. Sh. Akhatov, V. A. Baikov and R. A. Baikov, Propagation of non-linear waves in gas-liquid media with gas content variable in space, *Izv. Akad. Nauk SSSR*, *Mekh. Zhidk. Gaza* No. 1, 180-183 (1986).
- A. P. Arkhipov, Thermohydraulic calculation of heat generating rod assemblies cooled by single- or two-phase flows. In *Thermophysical Investigation of the Elements of Power Plants*, pp. 141–144. Kiev (1986).
- V. A. Borodulya, Yu. G. Yepanov and Yu. S. Teplitskiy, Agitation of particles and external heat transfer in a coarsely dispersed fluidized bed with horizontal tube bundles. In Heat and Mass Transfer and Hydrodynamics in Furnaces, Gas Generators and Chemical Reactors, Minsk, 1986, pp. 3-10. Minsk (1986).
- E. G. Bratusha and L. A. Zanochkin, Experimental determination of the initial velocity of drops in sprayer jets, Energ. Mashinostr. No. 42, pp. 108-112. Kharkov (1986).
- V. I. Drobyshevich, Numerical simulation of heat and mass transfer processes in reactors with a stationary catalyst bed. In *Transfer Processes in Apparatuses with Dispersed Systems*, pp. 68-74. Minsk (1986).
- I. M. Druzhininskaya, Application of the integral method to calculation of two-phase boundary layers, *Izv. Akad. Nauk SSSR*, *Energet. Transp.* No. 6, 111-115 (1986).
- V. A. Dyundin and A. G. Soloviyov, Heat transfer characteristics of enhanced surfaces in boiling of pure NH<sub>3</sub>. In *Refrigerators and Thermotransformers*, pp. 56-60. Leningrad (1985).
- B. S. Fokin, M. Ya. Belenkiy, M. A. Gotovskiy and N. L. Mikhailov, Specific features of flow structure and heat transfer in coiled vapour-generating channels, *Teplofiz. Vysok. Temp.* 24(3), 539-543 (1986).
- V. I. Fyodorov and N. G. Vorobiyova, Mathematical simulation and investigation of unsteady-state processes in the elements of a water-steam contour, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 1, 32-37 (1986).
- V. A. Gerliga and V. I. Skalozubov, Mathematical models of adiabatic boiling-up flows (Review), Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 2, 92–97 (1986).
- V. V. Gil, S. A. Kuleshov and K. A. Lopes Ruis, Velocity visualization of two-phase flows. In *Energy Transfer in Vortical and Circulating Flows*, pp. 133–138. Minsk (1986).
- L. V. Gogish and O. V. Molodykh, A quasi-homogeneous model of cavitational flows in diffuser channels, *Izv. Akad. Nauk SSSR*, *Mekh. Zhidk. Gaza* No. 5, 47-54 (1986).
- A. A. Ilchenko and A. F. Redko, Heat transfer of a horizontal longitudinally finned tube in a fluidized bed, *Izv. VUZov, Energetika* No. 9, 95–98 (1986).
- A. A. Ilchenko and A. F. Redko, Heat transfer of a horizontal tube with transverse and longitudinal finning in a

- fluidized bed. In Transfer Processes in Apparatus with Dispersed Systems, pp. 58-63. Minsk (1986).
- S. I. Ivandayev, Calculation of heat output crisis in uniformly heated pipes. In *The Thermophysics and Hydrogas*dynamics of Boiling and Condensation Processes. Proc. All-Union Conference, Riga, September 1982, Vol. 2, pt. 1, pp. 152-163. Riga (1986).
- V. M. Iyevlev, G. V. Konyukhov and A. V. Borisov, An approximate solution of the problem of heat transfer in porous systems, *Izv. Akad. Nauk SSSR*, *Energet. Transp.* No. 5, 119–124 (1986).
- V. A. Kalitko, Wear and hydrodynamic stability of disperse heat carrier circulation in radiative tubes. In *Transfer Pro*cesses in Apparatuses with Disperse Systems, pp. 102-112. Minsk (1986).
- V. A. Kalitko and M. A. Geller, Calculation of the temperature regime of radiative tubes involving a circulating dispersed heat carrier, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 3, 62-68 (1986).
- B. M. Kalmykov, S. Yu. Mikheyev and V. K. Abgaryan, Influence of absorbed films of a residual gas on mass transfer between ionized flows of medium-energy particles and the surface of constructive materials. In Some Problems of Heat and Mass Transfer Between Flows and Surfaces, pp. 57–59. Moscow (1986).
- V. Ya. Kamenetskiy, The boiling crisis at low velocities of water flow in channels. In *Thermophysics and Hydro*gasdynamics of Boiling and Condensation Processes. Proc. All-Union Conference, Riga, September 1982, Vol. 2, pt. 1, pp. 130-136. Riga (1986).
- V. Ya. Kamenetskiy, Study of film boiling characteristics in unilaterally heated channels. In *The Thermophysics and Hydrogasdynamics of Boiling and Condensation Processes. Proc. All-Union Conference*, Riga, September 1982, Vol. 2, pt. 1, pp. 105-111. Riga (1986).
- I. I. Kantorovich and V. M. Sevruk, A procedure for determining heat transfer coefficients in chemical reactors with immovable catalyst beds operating under unsteady-state conditions. In *Transfer Processes in Apparatus with Dispersed Systems*, pp. 39-46. Minsk (1986).
- S. V. Kanukhina and Yu. S. Yuriev, Numerical solution of an unsteady-state conjugated problem of heat transfer in a tube in the regime of the boiling onset. Preprint No. 3 of the Physical and Power Engineering Institute, pp. 79– 83. Obninsk (1986).
- V. M. Kashcheyev, Yu. V. Muranov and Yu. S. Yuriyev, Numerical investigation of the characteristics of vapourdroplet flow with nonuniform heat generation along the pipe length, Preprint No. 1764 of the Physical and Power Engineering Institute. Obninsk (1986).
- V. K. Kedrinskiy, V. V. Kovalyov and S. I. Plaksin, A model of bubble cavitation in a real liquid, Zh. Prikl. Mekh. Tekh. Fiz. No. 5, 81-85 (1986).
- G. I. Kelbaliyev and A. F. Guseinov, Heat transfer enhancement in the flow of dispersed systems with solid phase deposition, *Inzh.-fiz. Zh.* 52(2), 252–255 (1987).
- N. S. Khabeyev and V. Sh. Shagapov, Fluctuations of a vapour-gas bubble in an acoustic field, *Izv. Akad. Nauk SSSR*, *Mekh. Zhidk. Gaza* No. 3, 79-83 (1986).
- V. V. Kharitonov, V. F. Novikov and O. P. Yurkevich, The adsorbing ability and effective thermal conductivity of dispersed polymer materials, *Vestsi Akad. Navuk BSSR*, *Ser. Fiz.-Energ. Navuk* No. 2, 67–70 (1986).
- A. I. Kolesnik and A. P. Ivanov, The absorption effect of dispersed medium on laser radiation depolarization, *Dokl. Akad. Nauk SSSR* 30(9), 796–799 (1986).
- P. M. Kolesnikov and M. A. Brich, Numerical simulation of unsteady-state one-dimensional motions of gas and gas suspensions. In *Mathematical Modelling of the Theory of Transfer in Non-homogeneous and Non-linear Media with Phase Changes*, pp. 3–25. Minsk (1986).
- V. L. Kolpashchikov, Yu. K. Krivosheyev and A. N. Shnip, Analysis of heat and mass transfer process in chemical

- reactors for producing specimens of optic fibres. In Heat and Mass Transfer and Hydrodynamics in Furnaces, Gas Generators and Chemical Reactors, pp. 133-140. Minsk (1986)
- A. E. Kroshilin, A procedure for calculating the unsteadystate two-phase mixture flow in a heated channel, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 1, 37-44 (1986).
- A. Ye. Kroshilin, V. Ye. Kroshilin and B. I. Nigmatulin, Vapour bubble growth in the superheated liquid volume for different laws of pressure changes in it, *Teplofiz. Vysok. Temp.* **24**(3), 533–538 (1986).
- Yu. N. Kuznetsov and A. S. Devkin, Computational study of unsteady-state heat and mass transfer processes of two-phase channel flow. In *Thermophysics and Hydro*gasdynamics of Boiling and Condensation Processes. Proc. All-Union Conference, Riga, September 1982, Vol. 4, pt. 4, pp. 90-96. Riga (1986).
- Ye. P. Leschenko and A. V. Makarova, Energy and continuity equations for thermal decomposition of porous material. In Some Problems of Heat and Mass Transfer Between Flows and Surfaces, pp. 50-53. Moscow (1986).
- V. K. Maskayev, Specific features of the aerodynamics and heat transfer in a restricted boosted bed. In Heat and Mass Transfer and Hydrodynamics in Furnaces, Gas Generators and Chemical Reactors, pp. 23-32. Minsk (1986).
- A. B. Matviyenko, M. P. Kupchin and L. G. Vorona, Mass transfer in the process of extraction in the system solid body-liquid in an electric field. In *Heat and Mass Transfer Processes*, pp. 95-101. Kiev (1986).
- A. I. Miroshnichenko, A. A. Plakseyev and V. N. Fedoseyev, On forced convection liquid boiling in porous media. In Problems of Thermophysics in Nuclear Power Plants, pp. 69-74. Moscow (1986).
- D. T. Mitev and G. D. Grozdev, Heat transfer between a surface and a fluidized bed under optimum conditions, Zh. Prikl. Khim. 59(9), 2039–2043 (1986).
- F. B. Nagiyev and B. A. Kadyrov, Heat/mass transfer and dynamics of vapour bubbles in a binary solution of liquids, *Dokl. Akad. Nauk Az. SSR* **42**(4), 10–13 (1986).
- K. M. Niyazov and V. N. Mishina, Mass transfer in a liquid phase on a sieve plate. In *Processes and Apparatus of Chemical and Food Industries*, pp. 43–47. Tashkent (1986).
- A. N. Olekhnovich and Yu. Ye. Pokhvalov, Determination of the parameters of the two-phase flow distribution. In *Thermophysics of Nuclear Power Plants*, pp. 72–78. Moscow (1986).
- A. N. Olekhnovich and Yu. E. Pokhvalov, Equations for calculating the volumetric concentration of phases of a two-phase flow. In *The Problems of Thermophysics in Nuclear Power Plants*, pp. 120–122. Moscow (1986).
- A. N. Olekhnovich and Yu. Ye. Pokhvalov, Profiles of gas contents in a cocurrent descending two-phase flow. In Thermophysics of Nuclear Power Plants, pp. 69-72. Moscow (1986).
- P. P. Olodovskiy, The role of the adsorbed water structure in the formation of the filtrational properties of dispersed systems (clay soils), *Inzh.-fiz. Zh.* 50(5), 770–786 (1986).
- Yu. M. Pavlov, V. I. Antipov and V. I. Romanov, The study of heat output crises of a boiling helium flux under the conditions of pulsed heat supply. In *The Thermophysics* and Hydrogasdynamics of Boiling and Condensation Processes. Proc. All-Union Conference, Riga, September 1982, Vol. 4, pt. 1, pp. 76–85 (1986).
- Yu. Ya. Pechenegov, Comparative characteristics of heat transfer of gas combustion products of solid fuel pyrolysis, *Izv. VUZov, Energetika* No. 11, 78–81 (1986).
- V. F. Prisnyakov, Mathematical modelling of the thermohydraulic characteristics of the boiling process, Preprint No. 139 of the Institute for Thermal Physics, Siberian Branch of the USSR Academy of Sciences, Novosibirsk (1986).
- A. V. Romanovskiy and V. S. Galitskaya, Unsteady-state

- heat transfer between a fluidized bed and a submerged surface. In *Transfer Processes in Apparatus with Dispersed Systems*, pp. 52-57. Minsk (1986).
- V. I. Rosenblum, M. I. Saveliyev and A. M. Tarasenko, Some thermodynamic aspects of two-phase and cavitation flows, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 4, 61-68 (1986).
- V. V. Smagin and A. P. Khrupov, Specific features of the hydrodynamics and heat transfer of flows in channels with a porous filler, Sborn. Nauch. Trudov Mosk. Energ. Inst. No. 91, 30-36 (1986).
- V. I. Subbotin, V. I. Deyev, V. V. Arkhipov, V. V. Solodovnikov and S. V. Kvasyuk, The analysis of generalized experimental data on the helium boiling heat transfer crisis in channels, Preprint No. 137 of the Institute for Thermal Physics, Siberian Branch of the USSR Academy of Sciences, Novosibirsk (1986).
- A. I. Tamarin and L. I. Levental, Specific features of momentum between a fluidized bed and an immersed body. In Heat and Mass Transfer and Hydrodynamics in Furnaces, Gas Generators and Chemical Reactors, pp. 64-69. Minsk (1986).
- S. S. Titar and V. V. Vysochin, Specific features of heat transfer of the elements of chain screens of rotating furnaces with dispersed material, *Izv. VUZov*, *Energetika* No. 11, 104–107 (1986).
- V. B. Utkin and A. N. Hoze, The boiling crisis in two-phase thermosiphons. In *The Thermophysics and Hydro*gasdynamics of Boiling and Condensation Processes. Proc. All-Union Conference, Riga, September 1982, Vol. 2, pt. 3, pp. 14-20 (1986).
- A. V. Voloshinov, A. D. Kovalyov and G. P. Shindyapin, Influence of gas content of interacting shock waves of different intensities in a two-phase gas-liquid medium, *Izv.* Akad. Nauk SSSR, Mekh. Zhidk. Gaza No. 6, 172-174 (1986).
- V. S. Yefremtsev and V. A. Tsedik, Investigation of the effect of the means of gas supply on fluidization of finely dispersed materials. In *Heat and Mass Transfer and Hydro*dynamics in Furnaces and Chemical Reactors, pp. 58-63. Minsk (1986).
- A. G. Yegorov, Averaged description of the heat transfer process in a filtering porous medium. In *Investigations in* the Field of Underground Hydromechanics, No. 8, pp. 23– 38. Kazan (1986).
- V. N. Yermashkevich, A. B. Kachalov, Yu. A. Redin and A. A. Shleifer, Study of the kinetics of the sorbtion of gas mixtures by liquid through the phase interface, *Vestsi* Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 3, 68-72 (1986).
- V. N. Yermashkevich, A. B. Kachalov, A. A. Shleifer and Yu. A. Redin, Study of the kinetics of the desorption of gases and their mixtures through the phase interface, *Vestsi* Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 3, 72–78 (1986).
- M. S. Zaiko, Heat and mass transfer in a regenerative heat recuperator for ventilation and air conditioning systems. In Modernization of Heating and Ventilation Systems in Reconstructable Buildings, pp. 29-34. Rostov on the Don (1986).
- M. S. Zheludkevich and V. S. Nikitin, Cooling capability of liquid and water-air mixtures. In *Transfer Processes in Apparatus with Dispersed Systems*, pp. 80-85. Minsk (1986).
- I. P. Zhuk, Towards phase transitions of elements and compounds, *Inzh.-fiz. Zh.* 50(6), 1005–1007 (1986).

#### HIGH-TEMPERATURE THERMOPHYSICS

L. Yu. Artyukh, P. G. Itskova and A. T. Lukiyanov, On the stability of stationary states of a plane laminar flame in a reactive hydrogen-oxygen mixture, *Fiz. Gor. Vzryva* No. 2, 52-57 (1986).

- I. D. Emiliyanov, O. P. Korobeinichev, A. G. Tereshchenko and A. V. Kuibida, Heat transfer between a flame and a probe in the case of mass-spectrometric study of flame structure, Fiz. Gor. Vzryva No. 2, 45-52 (1986).
- V. N. Ignatiyev and A. I. Zadorin, The finite-difference method for predicting a two-dimensional laminar flame, Fiz. Gor. Vzryva No. 4, 39-42 (1986).
- D. A. Khlestkin and V. P. Kanishchev, A procedure for calculating the flow rates of a metastable fluid and of high humid vapour-liquid mixture. In *Thermohydraulic Processes in the Equipment of Atomic Power Stations*, pp. 50-59. Moscow (1986).
- V. V. Lapin, A. A. Ryadno and A. P. Yakushev, Numerical investigation of the steady-state conjugated heat and mass transfer in a laminar flow of dissociating nitrogen dioxide in a bundle of fuel elements, *Vestsi Akad. Navuk BSSR*, *Ser. Fiz.-Energ. Navuk* No. 3, 94-98 (1986).
- P. D. Lebedev, L. F. Nizovitina, V. A. Sychyov and M. Yu. Fedyayev, Heat and mass transfer between high-temperature gas flows and the elements of construction having multi-functional coatings, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 2, 64-67 (1986).
- A. A. Mamayev, S. V. Mitenkov and I. S. Radovskiy, Influence of the steam-water mixture flow crisis on the possibility for cooling a thermally stressed surface by subcooled water. In *Thermophysics of Nuclear Power Plants*, pp. 78-82. Moscow (1986).
- A. S. Nadvorskiy and D. D. Romashkova, The effect of the means of air heating on the kinetic and gasdynamic parameters of flow in a supersonic combustion chamber, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 3, 78-83 (1986).
- A. S. Pleshanov, On the influence of heterogeneous burning on heat/mass transfer and resistance of a spherical particle in steady-state flow and at small Reynolds numbers. In Thermophysics of Energy Involving Processes, pp. 53-72. Moscow (1985).
- V. K. Pustovalov and D. S. Bobuchenko, A study of nonlinear heat transfer between a spherical particle heated by optical radiation and the ambient, *Dokl. Akad. Navuk* 30(6), 513-517 (1986).
- V. L. Sergeyev, The study of unsteady-state heat transfer in the frontal part of a sphere. In *The Study of Processes in Plasma-heating Devices*, pp. 40-46. Minsk (1986).
- O. N. Shablovskiy, Toward investigation of non-linear problems of high-rate heat transfer, *Inzh.-fiz. Zh.* 52(2), 309-316 (1987).
- T. F. Zhukov, V. P. Lyagushkin and O. P. Solyanenko, An automatized experimental rig for complex investigation of high-temperature heterogeneous jets, Preprint No. 145 of the Institute for Thermal Physics of the Siberian Branch of the USSR Academy of Sciences, Novosibirsk (1986).

# HEAT AND MASS TRANSFER IN RHEOLOGICALLY COMPLEX FLUIDS

- T. P. Lyubimov, On stationary solutions of convection equations for a viscoelastic fluid heated from below with regard for the temperature dependence of rheological parameters, *Vestsi Akad. Navuk BSSR*, *Ser. Fiz.-Energ. Navuk* No. 1, 91–96 (1986).
- N. G. Khutskaya, Estimates of the correlational characteristics of a turbulent air-water steam. In *Rheophysics of Polymer and Disperse Liquids*, pp. 138-142. Minsk (1986).
- S. N. Pakhomov, Local mass/heat transfer over the development hydrodynamic length in a coiled channel. In Rheophysics of Polymer and Disperse Liquids, pp. 143-147. Minsk (1986).
- Z. P. Shulman, V. I. Kordonskiy, S. R. Gorodkin, B. Ye. Kashevskiy and I. V. Prokhorov, Energy dissipation and heat transfer in magnetorheological suspensions under the action of a rotating magnetic field, *Inzh.-fiz. Zh.* 52(1), 57-62 (1987).

E. A. Zaltsgendler, Hydrodynamic and convective heat transfer of high-setting bitumens. In *Transfer Processes in Structuring Fluids*, pp. 109–111. Minsk (1985).

### HEAT AND MASS TRANSFER IN TECHNOLOGICAL PROCESSES

- Zh. S. Akylbaev, A. O. Tseyeb and A. A. Reger, The study of heat transfer of a cylinder with high surface resolution. In *The Study of Physical Processes in Gaseous and Con*densed Systems, pp. 47-52. Karaganda (1985).
- S. M. Anisimov, N. M. Grutko, V. A. Koryaguin and L. A. Sulema, Investigation of heat and mass transfer processes in rotating air driers. In *Improvement of Heating and Ventilation Systems*, pp. 79–86. Leningrad (1985).
- Ventilation Systems, pp. 79-86. Leningrad (1985). V. A. Arkhipov, V. N. Vilyunov, V. F. Trofimov and V. S. Shishkin, Experimental investigation of gas and gas-liquid mixture flows in an isothermal countercurrent-type vortical chamber, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 1, 49-53 (1986).
- L. A. Ashmantas, Yu. S. Voskresenskiy, Yu. A. Dreitser and P. A. Saveliev, The efficiency of heat transfer enhancement in specially shaped channels, *Vestsi Akad. Navuk BSSR*, *Ser. Fiz.-Energ. Navuk* No. 3, 53-56 (1986).
- B. P. Avksentyuk and A. A. Bochkaryov, On the coalescence of liquid drops under non-isothermal conditions, *Izv. SO Akad. Nauk SSSR*, Ser. Tekh. Nauk 16(3), 38-44 (1986).
- A. I. Bakharev and G. Ya. Zakharchenko, Heat transfer between a single submerged water jet and a plate at high heat fluxes. In *Operational and Design Parameters of Thermal Metallurgical Units*, pp. 83–86. Moscow (1986).
- E. P. Dyban, Convective heat transfer under complicated conditions characteristic for the flowing part of turbomachines, Preprint No. 140 of the Institute for Thermal Physics of the Siberian Branch of the USSR Academy of Sciences, Novosibirsk (1986).
- B. V. Dzyubenko and G. A. Dreitser, Heat transfer and hydraulic resistance in helical tube bundles, *Inzh.-fiz. Zh.* 50(6), 885–892 (1986).
- G. A. Glebov and A. N. Shchelkov, Axisymmetric turbulent non-isothermal jet development in a cylindrical channel. In Heat Transfer and Friction Engines and Power Plants of Flying Vehicles, pp. 21–27. Kazan (1985).
- G. V. Gogolev, V. M. Rudenko, I. I. Sviridenko and A. K. Sukhov, Concerning the choice of a heat carrier for low-temperature heat pipes of shipborne heat exchangers, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 1, 23–28 (1986).
- M. A. Kisselman and Z. A. Orlova, Investigation of specific features of heat transfer in electric slag bimetal casting. In Thermotechnical Processes in ETO and Properties of Applicable Materials, pp. 63-67. Moscow (1986).
- V. N. Korolyov, I. A. Osintsev and N. I. Syromyatnikov, Hydrodynamics and external heat transfer in a granular bed with a rotating cylinder located in it, *Inzh.-fiz. Zh.* 52(1), 5-10 (1987).
- K. Kusaiynov and Zh. Bekturganov, The influence of outer surface pollution on circular cylinder heat transfer. In The Study of Physical Processes in Gaseous and Condensed Systems, pp. 66-72. Karaganda (1985).
- V. K. Lyakhov, K. V. Migalin and V. F. Zhmiyevskiy, An isothermal pulsating jet in submerged space. In *The Gasdynamics of Engines and Power Plants of Flying Vehicles*, pp. 19-22. Kazan (1985).
- A. B. Meltser, A procedure for determining heat losses with discharged energy carrier in reactive apparatus. In *Investigation of Heat and Mass Transfer of Capillary-porous Materials in Drying and Thermal Treatment*, pp. 153–154. Minsk (1985).
- G. A. Minayev and S. I. Tatarenko, Gas distribution in a stationary granular bed with jet gas injection, *Inzh.-fiz.* Zh. 52(1), 10-15 (1987).
- Z. Ormesh, T. Sentmaryai and K. Erdes, Drying of dispersed

- materials in fluidized and vibrofluidized beds with inert packing, *Inzh.-fiz. Zh.* **52**(2), 264–271 (1987).
- S. S. Ryzhkov, Hydrodynamics and mass transfer over the starting length of a jet-liquid system interacting with an obstacle. In *Heat and Mass Transfer and Hydrodynamics* in Furnaces, Gas Generators and Chemical Reactors, pp. 124-132. Minsk (1986).
- A. I. Rzayev and L. L. Filatov, Hydraulic resistance of tubes with coiled intensifiers of heat transfer, *Inzh.-fiz. Zh.* 50(6), 892–896 (1986).
- V. K. Samsonyuk, Investigation of the gas-liquid flow structure at the exit from the nozzle of vortical pneumatic sprayers. In *Enhancement of Drying Thermal Processes*, pp. 98-105. Minsk (1986).
- S. A. Semichev and V. V. Kuzmin, The influence of the hydrodynamic unsteady state on mean heat transfer and friction in a cylindrical channel. In *Heat Transfer and Friction in Engines and Power Plants of Flying Vehicles*, pp. 3–8. Kazan (1985).
- Yu. B. Sklovskiy, Influence of the Marangoni effect on flow and heat transfer in weightlessness. In *Thermal Processes* in *Cryogenic Systems*, pp. 9-14 (1986).
- A. I. Tamarin and L. I. Levental, Temperature conditions of stable fluidized-bed coal burning, *Inzh.-fiz. Zh.* 52(3), 429-434 (1987).
- P. N. Vabishchevich, N. B. Yesikova, O. P. Iliyev and T. O. Chernogorova, Numerical simulation of heat and mass transfer processes in steel casting. In *Mathematical Models, Analytical and Numerical Methods in the Theory of Transfer. Proc. All-Union School-Seminar*, Minsk, 15–23 October 1986, pt. 1, pp. 100–104. Minsk (1986).
- L. A. Volokhonskiy, A. N. Alekseenko and V. Yu. Sandler, Specific features of thermophysical processes in an ingot in a vacuum arc furnace. In *Thermotechnical Processes in* ETO and the Properties of Materials Employed, pp. 50– 53. Moscow (1986).
- A. B. Vorozhtsov, A. S. Zhukov, E. A. Kozlov, N. A. Obukhov and V. V. Chashechnikov, Numerical study of unsteady-state processes in semi-closed channels with blowing, Vestsi Akad. Navuk BSSR, Ser. Fiz.-Energ. Navuk No. 1, 57–60 (1986).
- G. S. Yur, Calculation of the dynamics of heat generation with allowance for the air charge turbulence. In *Maintenance and Investigation of Shipborne Power Plants*, pp. 19–22. Novosibirsk (1985).
- V. V. Zagorovskiy and O. N. Lebedev, The method of numerical analysis of heat and mass transfer of a fuel film in the combustion chamber of a diesel. In *Maintenance* and *Investigation of Shipborne Power Plants*, pp. 45–49. Novosibirsk (1985).
- T. V. Zvereva, Determination of the characteristics of liquefied hydrocarbon gases flowing along pipelines in conjugated statement of heat transfer problems, *Trudy Mosk. Inst. Neftekhim Gaz. Prom.* No. 193, 83-96 (1985).

### HEAT AND MASS TRANSFER IN BUILDINGS

- A. S. Podmazko and S. Ye. Golovskiy, Specific features of heat and mass transfer of meat processed at low temperatures. In *Refrigerating Technique and Technology*, No. 43, pp. 104–107. Kiev (1986).
- N. P. Umnyakova, Investigation of radiant heat transfer on the surface of window jambs. In *Heat Protecting Charac*teristics of Enclosing Constructions of Residential and Public Buildings, pp. 84-91. Moscow (1986).

## HEAT AND MASS TRANSFER IN THE ENVIRONMENT

- I. M. Ametov and M. G. Bernadiner, Unsteady-state operating regimes of gas wells, *Izv. Akad. Nauk SSSR*, *Mekh. Zhidk. Gaza* No. 6, 162–164 (1986).
- Ye. L. Artemiyeva and Yc. V. Stroganova, The stability of

- a non-uniformly heated fluid in a porous horizontal layer, *Izv. Akad. Nauk SSSR*, *Mekh. Zhidk. Gaza* No. 6, 3-7 (1986)
- A. V. Furman, Unsteady-state operating regimes of gas pipelines, Izv. Akad. Nauk SSSR, Energet. Transp. No. 5, 160-166 (1986).
- S. G. Gendler, Ye. L. Artemiyeva and I. A. Pavlov, The thermophysics of geothermal energy extraction. In *The* Geotechnology of Fuel-energy Involving Resources, pp. 20– 38. Kiev (1986).
- Yu. A. Gostintsev, V. V. Lazarev, A. F. Solodovnik and Yu. V. Shatskikh, A turbulent thermic in a stratified atmosphere, *Izv. Akad. Nauk SSSR*, *Mekh. Zhidk. Gaza No.* 6, pp. 141–153 (1986).
- T. S. Katsnelson and B. A. Tonkoshkurov, The thermal operating regime of a pipeline immersed in frozen ground of long standing during the starting period. In Specific Features of the Mastering of Deposits of the Tyumen Arctic Region, pp. 97–102, Tyumen (1985).
- V. A. Kissin and A. M. Prudovskiy, A procedure for experimental investigation of heat and mass transfer processes with the use of the gravitational-elastic analogy, Coll. Pap. "Hydroproject" No. 109, pp. 101-117 (1986).
- B. A. Krasovitskiy, The dynamics of freezing of an underground pipeline, *Inzh.-fiz. Zh.* 51(5), 802-809 (1986).

- Ye. L. Likhtenshtein, Concerning convective heat and mass transfer between an artificial ice and the atmosphere. In Problems of Engineering Glaciology. Proc. All-Union Conference, Irkutsk, 14-16 November 1984, pp. 10-16. Novosibirsk (1986).
- I. G. Shekriladze, The mechanism of heat and momentum transfer with phase changes in the process of hail-formation. *Boiling Condensation (Riga)* No. 10, 32–37 (1986).
- R. Shenk, Calculation of the propogation velocity of air polluting substances with allowance for friction and temperature variation. In Mathematical Models, Analytical and Numerical Methods in the Theory of Transfer taken into Account. Proc. All-Union School-Seminar, Minsk, 15– 23 October 1986, pt. 1, pp. 40–58. Minsk (1986).
- D. P. Volkov, G. N. Dulnev, B. L. Muratova and A. B. Utkin, Heat and mass transfer in oil grounds, *Inzh.-fiz. Zh.* 50(6), 939-946 (1986).
- S. B. Ukhov, E. F. Gulko and M. G. Mnushkin, Specific features of simultaneous unsteady-state temperature field and stressed state of freezing and defrosting grounds. In *Problems of Engineering Permafrostology in Hydrotechnic Construction*, pp. 96-106. Moscow (1986).
- P. A. Yanitskiy, Solution of the similarity problem of heat and moisture transfer in frozen dispersed rocks, *Inzh.-fiz. Zh.* 51(5), 809-817 (1986).