CONTENTS LISTS

JOURNAL OF ENGINEERING PHYSICS

(Published in the U.S.S.R. in Russian with English abstracts)

Volume XXVI, No. 1 January,	1974
	Page
G. P. NIKOLAEV and YU. K. TOKALOV: Boiling crisis on porous-coating surfaces	1 age
V. S. Salov and O. L. Danilov: Condensation of binary mixture of non-mixable fluid vapours on a nonisothermal	
surface	10
A. V. Luikov: Systems of differential heat- and mass-transfer equations in capillary-porous bodies	18
I. F. PIKUS and V. D. KONONENKO: Thermophysical properties of pressurized multilayer condenser dielectric	26
V. K. GRISHIN and A. D. SAVELIEV: Mass transfer in the high-vacuum system "camera-test object-pumping device"	35
A. P. Bibic, I. V. Litvinenko and I. V. Radchenko: Thermal conductivity of heavy oxygen-18 water	42
R. E. Krzhizhanovsky, N. P. Sidorova and I. A. Bogdanova: Experimental investigation of electric resistance of some molten binary alloys of bismuth-tin and of thermal conductivity of bismuth, tin and bismuth-tin eutectic	46
I. Ya. Bitsyutko, G. I. Bobryakov, N. S. Klebanov, V. P. Kozhin and G. A. Fateev: Heat exchange between	70
thermoreactive mixtures and a heated surface	51
P. A. NOVIKOV, G. L. MALENKO and L. YA. LYUBIN: Pressure distribution between parallel plates in a	
molecular-viscous flow with ice sublimation	58
G. A. AKSELRUD, A. I. DUBYNIN, YA. M. GUMNITSKY and M. ZELINSKY: Mass transfer in chemical interaction of	
a solid and moving liquid with gaseous phase generation	64
G. D. RABINOVICH: Concentration asymmetry effect on the efficiency of thermodiffusion columns	68
B. V. BERG, E. A. KONDRATIEV and A. P. BASKAKOV: Some problems of fluidized bed application for muffle	70
heating in furnaces I. A. CHEREPENNIKOV: Molecular characteristic in application to calculation of mineral solution viscosity	79 85
V. I. MARON: Dispersion model with account for different viscosity of media	90
V. K. LYAKHOV: Hydraulic resistance, heat and mass transfer with a turbulent flow over surfaces of small roughness	97
B. M. Berkovsky and A. K. Sinitsin: Thermoconvective waves in a layer with free boundaries	104
Yu. K. Bratukhin and L. N. Maurin: Hydrodynamic phenomena accompanying melting in one partial case	112
O. M. ALIFANOV: Regularization schemes for approximate solution to nonlinear reverse heat conduction problem	116
A. D. SUKHOBOKOV, E. A. TURKIN, S. V. SHALAEV and G. I. SHCHERBAKOV: Experimental investigation of	
temperature fields and heat fluxes in the chamber of an electric-arc heater	122
N. M. DRACHEV, V. I. MOROZKIN and I. N. POTAPOV: Semiempirical relations for the depth and diameter of crater	129
with high-speed particle penetration into solid obstacles V. E. PROKOFIEV: Electric models in application to solution of inverse unsteady-state heat conduction problems	134
	137
Survey	
A. A. Andreevsky, B. M. Borishansky, V. N. Fromsel and B. S. Fokin: Analysis of the relationship for calculation of heat-transfer coefficients with fluid flows up to the saturation temperature in vapour-generating channels	142
Chronicle	
V. G. KAMENSKY: Information	165
Reader's Guide	
Contents of the International Journal of Heat and Mass Transfer, Vol. 16, Nos. 7, 8, 1973	177
Heat and Mass Transfer Bibliography	167 174
	174
JOURNAL OF ENGINEERING PHYSICS	
(Published in the U.S.S.R. in Russian with English abstracts)	
Volume XXVI, No. 2 February,	107/
volume AAVI, 140. 2	Page
V. K. SHCHUKIN, A. A. KHALATOV and YU. F. GORTYSHEV: Mass transfer from initial length of tube to partially	- ugc
swirled flow	197
N. V. BULANOV, E. D. NIKITIN and V. P. SKRIPOV: Thermal conductivity of metastable-state fluids	204
S. P. Rusin: Analysis of radiation heat transfer in nonisothermal cavities using integral equations	208
L. S. SLOBODKIN and YU. M. SOTNIKOV-YUZHIK: Investigation of primary thermoradiation characteristics of	215
materials by measuring semispherical transmitting powers V. S. GOLUBKOV and N. A. PANKRATOV: Optimum dimensions of suspension tube in nonnitrogen helium cryostats	215 220
V. S. KIROV, YU. D. KOZHELUPENKO and S. D. TETELBAUM: On determination of heat-transfer coefficient of gas	220
mixtures with helium and hydrogen	226

348 Contents Lists

	Page
N. I. GAMAYUNOV, R. A. ISPIRYAN and D. M. STOTLAND: Methods of experimental determination of the Kossovich	220
number for frozen ground thawing G. V. MCHEDLIDZE: Experimental investigation of heat transfer of electrically heated thin vertical wires under	229
free convection V. I. Shcherbinin, A. Kh. Bokovikova and F. R. Shklyar: Radiation and convection with combined heat transfer	233
in a short channel	238
V. I. VISHNYAKOV and K. B. PAVLOV: Peristaltic non-Newtonian fluid flow of power-law rheology in a slot channel	245
G. S. ANTONOVA: Motion and thermodynamic instability of fluid in a capillary of variable cross-section	252
E. M. Greshillov and N. L. Shirokova: Effect of polymer additives on wall turbulence	260
N. KH. ZINNATULLIN, I. V. FLEGENTOV and F. A. GARIFULLIN: Thin-layer flow of nonlinear visco-elastic fluid	200
in a field of centrifugal forces	266
E. G. VORONTSOV and O. M. YAKHNO: Peculiarities of gravity flow of nonuniformly distributed thin liquid layers	272
V. L. KOCHEROV, YU. E. LUKACH and E. A. SPORYAGIN: On polymer melt behaviour in rotation-type devices of	***
plane-plane and cone-cone type	280
A. A. SEMERCHYAN, M. A. PLOTNIKOV and A. A. ANTONOVICH: Gaseous outflow under high pressure through nozzle with small orifice	286
O. N. Kashinsky and V. A. Mukhin: Experimental investigation of a turbulent flow in a flat diffuser by an	200
electrochemical method	293
YU. E. KARYAKIN and V. G. SHAROV: Finite-difference method of calculation of a turbulent boundary layer of	200
incompressible fluid	298
V. N. Kalugin and G. A. Chechko: Viscous instability of incompressible flat jet	305
A. F. BABITSKY: Experimental study of internal cavitation flows	309
G. D. RABINOVICH and V. P. IVAKHNIK: The effect of heat-transfer conditions on the efficiency of liquid thermo-	
diffusion columns	314
V. A. MALKOY: Thermal resistance of contacts with low thermal conductivity material coatings	324
G. E. Gorelik, N. V. Pavlyukevich and T. L. Perelman: Possible effect of atom self-diffusion on solid mass	J 1
entrainment in case of surface reaction	332
I. E. ZINO and YU. A. SOKOVISHIN: Steady-state heat conduction problem in a double cylinder	339
O. M. ALIFANOV: Determination of boundary heat regime from solution of an inverse heat conduction problem	349
V. A. Bubnov: On a correlating function of molecules distribution with respect to velocities	359
L. K. Tsabek: Nonisothermal sorption kinetics in porous grains	367
Reader's Guide	
	272
Contents of the International Journal of Heat and Mass Transfer, Vol. 16, No. 9, 1973	372
JOURNAL OF ENGINEERING PHYSICS	
(Published in the U.S.S.R. in Russian with English abstracts)	
(Published in the U.S.S.R. in Russian with English abstracts)	1974
(Published in the U.S.S.R. in Russian with English abstracts) Volume XXVI, No. 3 March,	19 74 Page
(Published in the U.S.S.R. in Russian with English abstracts) Volume XXVI, No. 3 March, 1. S. BOROVKOV, A. P. BYRKIN, I. D. VERSHININ and V. M. SANKOVICH: Experimental study and calculations of a	Page
(Published in the U.S.S.R. in Russian with English abstracts) Volume XXVI, No. 3 March, 1. S. BOROVKOV, A. P. BYRKIN, I. D. VERSHININ and V. M. SANKOVICH: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls	
(Published in the U.S.S.R. in Russian with English abstracts) Volume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting	Page 389
(Published in the U.S.S.R. in Russian with English abstracts) Volume XXVI, No. 3 March, I. S. BOROVKOV, A. P. BYRKIN, I. D. VERSHININ and V. M. SANKOVICH: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions	<i>Page</i> 389 396
(Published in the U.S.S.R. in Russian with English abstracts) Volume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions	Page 389
(Published in the U.S.S.R. in Russian with English abstracts) Volume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar	<i>Page</i> 389 396
(Published in the U.S.S.R. in Russian with English abstracts) Volume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions	<i>Page</i> 389 396
(Published in the U.S.S.R. in Russian with English abstracts) Wolume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall	989 396 403
(Published in the U.S.S.R. in Russian with English abstracts) Volume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar	989 396 403
(Published in the U.S.S.R. in Russian with English abstracts) Volume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall Yu. I. Lysikov and O. A. Ponomarev: Viscosity of co-polymer high-concentration solution near the point of ion cluster formation	Page389396403411420
(Published in the U.S.S.R. in Russian with English abstracts) Volume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall Yu. I. Lysikov and O. A. Ponomarev: Viscosity of co-polymer high-concentration solution near the point of ion cluster formation L. B. Gavin and Yu. P. Lunkin: Nonequilibrium ionized viscous shock layer near stagnation point	Page 389 396 403 411 420 424
(Published in the U.S.S.R. in Russian with English abstracts) Nolume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall Yu. I. Lysikov and O. A. Ponomarev: Viscosity of co-polymer high-concentration solution near the point of ion cluster formation L. B. Gavin and Yu. P. Lunkin: Nonequilibrium ionized viscous shock layer near stagnation point E. I. Sokolov and V. N. Uskov: Wave structure of impinging supersonic underexpanded jets	9403 389 396 403 411 420 424 429
(Published in the U.S.S.R. in Russian with English abstracts) Wolume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall Yu. I. Lysikov and O. A. Ponomarev: Viscosity of co-polymer high-concentration solution near the point of ion cluster formation L. B. Gavin and Yu. P. Lunkin: Nonequilibrium ionized viscous shock layer near stagnation point E. I. Sokolov and V. N. Uskov: Wave structure of impinging supersonic underexpanded jets G. D. Rabinovich: Soret coefficient determination by an unsteady-state method in a thermodiffusional column	Page 389 396 403 411 420 424
(Published in the U.S.S.R. in Russian with English abstracts) Nolume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall Yu. I. Lysikov and O. A. Ponomarev: Viscosity of co-polymer high-concentration solution near the point of ion cluster formation L. B. Gavin and Yu. P. Lunkin: Nonequilibrium ionized viscous shock layer near stagnation point E. I. Sokolov and V. N. Uskov: Wave structure of impinging supersonic underexpanded jets G. D. Rabinovich: Soret coefficient determination by an unsteady-state method in a thermodiffusional column V. G. Chernyak, B. T. Porodnov and P. E. Suetin: Variational method in application to the problem of	9 389 396 403 411 420 424 429 436
(Published in the U.S.S.R. in Russian with English abstracts) Wolume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall Yu. I. Lysikov and O. A. Ponomarev: Viscosity of co-polymer high-concentration solution near the point of ion cluster formation L. B. Gavin and Yu. P. Lunkin: Nonequilibrium ionized viscous shock layer near stagnation point E. I. Sokolov and V. N. Uskov: Wave structure of impinging supersonic underexpanded jets G. D. Rabinovich: Soret coefficient determination by an unsteady-state method in a thermodiffusional column V. G. Chernyak, B. T. Porodnov and P. E. Suetin: Variational method in application to the problem of thermomolecular pressure difference in a cylindrical channel	9403 389 396 403 411 420 424 429
(Published in the U.S.S.R. in Russian with English abstracts) Nolume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall Yu. I. Lysikov and O. A. Ponomarev: Viscosity of co-polymer high-concentration solution near the point of ion cluster formation L. B. Gavin and Yu. P. Lunkin: Nonequilibrium ionized viscous shock layer near stagnation point E. I. Sokolov and V. N. Uskov: Wave structure of impinging supersonic underexpanded jets G. D. Rabinovich: Soret coefficient determination by an unsteady-state method in a thermodiffusional column V. G. Chernyak, B. T. Porodnov and P. E. Suetin: Variational method in application to the problem of thermomolecular pressure difference in a cylindrical channel V. G. Davydenko, E. P. Kharitonov, I. S. Shapiro and V. D. Shimanovich: Anode spot kinetics in plasma	Page 389 396 403 411 420 424 429 436
(Published in the U.S.S.R. in Russian with English abstracts) Wolume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall Yu. I. Lysikov and O. A. Ponomarev: Viscosity of co-polymer high-concentration solution near the point of ion cluster formation L. B. Gavin and Yu. P. Lunkin: Nonequilibrium ionized viscous shock layer near stagnation point E. I. Sokolov and V. N. Uskov: Wave structure of impinging supersonic underexpanded jets G. D. Rabinovich: Soret coefficient determination by an unsteady-state method in a thermodiffusional column V. G. Chernyak, B. T. Porodnov and P. E. Suetin: Variational method in application to the problem of thermomolecular pressure difference in a cylindrical channel V. G. Davydenko, E. P. Kharitonov, I. S. Shapiro and V. D. Shimanovich: Anode spot kinetics in plasma cutting of metals	9 389 396 403 411 420 424 429 436
(Published in the U.S.S.R. in Russian with English abstracts) Wolume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall Yu. I. Lysikov and O. A. Ponomarev: Viscosity of co-polymer high-concentration solution near the point of ion cluster formation L. B. Gavin and Yu. P. Lunkin: Nonequilibrium ionized viscous shock layer near stagnation point E. I. Sokolov and V. N. Uskov: Wave structure of impinging supersonic underexpanded jets G. D. Rabinovich: Soret coefficient determination by an unsteady-state method in a thermodiffusional column V. G. Chernyak, B. T. Porodnov and P. E. Suetin: Variational method in application to the problem of thermomolecular pressure difference in a cylindrical channel V. G. Davydenko, E. P. Kharitonov, I. S. Shapiro and V. D. Shimanovich: Anode spot kinetics in plasma cutting of metals	Page 389 396 403 411 420 424 429 436
(Published in the U.S.S.R. in Russian with English abstracts) March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall Yu. I. Lysikov and O. A. Ponomarev: Viscosity of co-polymer high-concentration solution near the point of ion cluster formation L. B. Gavin and Yu. P. Lunkin: Nonequilibrium ionized viscous shock layer near stagnation point E. I. Sokolov and V. N. Uskov: Wave structure of impinging supersonic underexpanded jets G. D. Rabinovich: Soret coefficient determination by an unsteady-state method in a thermodiffusional column V. G. Chernyak, B. T. Porodnov and P. E. Suetin: Variational method in application to the problem of thermomolecular pressure difference in a cylindrical channel V. G. Davydenko, E. P. Kharitonov, I. S. Shapiro and V. D. Shimanovich: Anode spot kinetics in plasma cutting of metals L. V. Kacharskaya: Turbulent diffusion and aerosol model	Page 389 396 403 411 420 424 429 436 446 451
(Published in the U.S.S.R. in Russian with English abstracts) Nolume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall Yu. I. Lysikov and O. A. Ponomarev: Viscosity of co-polymer high-concentration solution near the point of ion cluster formation L. B. Gavin and Yu. P. Lunkin: Nonequilibrium ionized viscous shock layer near stagnation point E. I. Sokolov and V. N. Uskov: Wave structure of impinging supersonic underexpanded jets G. D. Rabinovich: Soret coefficient determination by an unsteady-state method in a thermodiffusional column V. G. Chernyak, B. T. Porodnov and P. E. Suetin: Variational method in application to the problem of thermomolecular pressure difference in a cylindrical channel V. G. Davydenko, E. P. Kharitonov, I. S. Shapiro and V. D. Shimanovich: Anode spot kinetics in plasma cutting of metals L. V. Kacharskaya: Turbulent diffusion and aerosol model M. A. Abdrakhmanov: On solution to the problem of conjugation of two equations	Page 389 396 403 411 420 424 429 436 446 451 457
(Published in the U.S.S.R. in Russian with English abstracts) Nolume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall Yu. I. Lysikov and O. A. Ponomarev: Viscosity of co-polymer high-concentration solution near the point of ion cluster formation L. B. Gavin and Yu. P. Lunkin: Nonequilibrium ionized viscous shock layer near stagnation point E. I. Sokolov and V. N. Uskov: Wave structure of impinging supersonic underexpanded jets G. D. Rabinovich: Soret coefficient determination by an unsteady-state method in a thermodiffusional column V. G. Chernyak, B. T. Porodnov and P. E. Suetin: Variational method in application to the problem of thermomolecular pressure difference in a cylindrical channel V. G. Davydenko, E. P. Kharitonov, I. S. Shapiro and V. D. Shimanovich: Anode spot kinetics in plasma cutting of metals L. V. Kacharskaya: Turbulent diffusion and aerosol model M. A. Andreway: Vu. 1. Nyashin and A. N. Skorokhodov: The variational method of transient temperature field	Page 389 396 403 411 420 424 429 436 446 451 457 462
Volume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall Yu. I. Lysikov and O. A. Ponomarev: Viscosity of co-polymer high-concentration solution near the point of ion cluster formation L. B. Gavin and Yu. P. Lunkin: Nonequilibrium ionized viscous shock layer near stagnation point E. I. Sokolov and V. N. Uskov: Wave structure of impinging supersonic underexpanded jets G. D. Rabinovich: Soret coefficient determination by an unsteady-state method in a thermodiffusional column V. G. Chernyak, B. T. Poroddnov and P. E. Suetin: Variational method in application to the problem of thermomolecular pressure difference in a cylindrical channel V. G. Davydenko, E. P. Kharitonov, I. S. Shapiro and V. D. Shimanovich: Anode spot kinetics in plasma cutting of metals L. V. Kacharskaya: Turbulent diffusion and aerosol model M. A. Abdrakhmanov: On solution to the problem of conjugation of two equations I. N. Anniev, Yu. I. Nyashin and A. N. Skorokhodov: The variational method of transient temperature field calculation	Page 389 396 403 411 420 424 429 436 446 451 457 462
(Published in the U.S.S.R. in Russian with English abstracts) Nolume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall Yu. I. Lysikov and O. A. Ponomarev: Viscosity of co-polymer high-concentration solution near the point of ion cluster formation L. B. Gavin and Yu. P. Lunkin: Nonequilibrium ionized viscous shock layer near stagnation point E. I. Sokolov and V. N. Uskov: Wave structure of impinging supersonic underexpanded jets G. D. Rabinovich: Soret coefficient determination by an unsteady-state method in a thermodiffusional column V. G. Chernyak, B. T. Porodnov and P. E. Suetin: Variational method in application to the problem of thermomolecular pressure difference in a cylindrical channel V. G. Davydenko, E. P. Kharitonov, I. S. Shapiro and V. D. Shimanovich: Anode spot kinetics in plasma cutting of metals L. V. Kacharskaya: Turbulent diffusion and aerosol model M. A. Abdrakhmanov: On solution to the problem of conjugation of two equations I. N. Ananiev, Yu. I. Nyashin and A. N. Skorokhodov: The variational method of transient temperature field calculation G. I. Bobrova and G. I. Zhuravsky: Temperature distribution in a porous skeleton-liquid system	Page 389 396 403 411 420 424 429 436 446 451 457 462
(Published in the U.S.S.R. in Russian with English abstracts) Nolume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall Yu. I. Lysikov and O. A. Ponomarev: Viscosity of co-polymer high-concentration solution near the point of ion cluster formation L. B. Gavin and Yu. P. Lunkin: Nonequilibrium ionized viscous shock layer near stagnation point E. I. Sokolov and V. N. Uskov: Wave structure of impinging supersonic underexpanded jets G. D. Rabinovich: Soret coefficient determination by an unsteady-state method in a thermodiffusional column V. G. Chernyak, B. T. Poroddonov and P. E. Suetin: Variational method in application to the problem of thermomolecular pressure difference in a cylindrical channel V. G. Davydenko, E. P. Kharitonov, I. S. Shapiro and V. D. Shimanovich: Anode spot kinetics in plasma cutting of metals L. V. Kacharskaya: Turbulent diffusion and aerosol model M. A. Abdrakhmanov: On solution to the problem of conjugation of two equations I. N. Ananev, Yu. I. Nyashin and A. N. Skorokhodov: The variational method of transient temperature field calculation G. I. Bobrova and G. I. Zhuravsky: Temperature distribution in a porous skeleton—liquid system S. A. Tanaeva and I. P. Vasilenko: Determination of capillary conductivity of nonsaturated capillary-porous	Page 389 396 403 411 420 424 429 436 446 451 457 462 470 477
(Published in the U.S.S.R. in Russian with English abstracts) Volume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall Yu. I. Lysikov and O. A. Ponomarev: Viscosity of co-polymer high-concentration solution near the point of ion cluster formation L. B. Gavin and Yu. P. Lunkin: Nonequilibrium ionized viscous shock layer near stagnation point E. I. Sokolov and V. N. Uskov: Wave structure of impinging supersonic underexpanded jets G. D. Rabinovich: Soret coefficient determination by an unsteady-state method in a thermodiffusional column V. G. Chernyak, B. T. Poroddon and P. E. Suetin: Variational method in application to the problem of thermomolecular pressure difference in a cylindrical channel V. G. Davydenko, E. P. Kharitonov, I. S. Shapiro and V. D. Shimanovich: Anode spot kinetics in plasma cutting of metals L. V. Kacharskaya: Turbulent diffusion and aerosol model M. A. Abdrakhmanov: On solution to the problem of conjugation of two equations I. N. Ananek, Yu. I. Nyashin and A. N. Skorokhodov: The variational method of transient temperature field calculation G. I. Bobrova and G. I. Zhuravsky: Temperature distribution in a porous skeleton-liquid system S. A. Tanaeva and I. P. Vasilenko: Determination of capillary conductivity of nonsaturated capillary-porous bodies	Page 389 396 403 411 420 424 429 436 446 451 457 462 470 481
(Published in the U.S.S.R. in Russian with English abstracts) Volume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall Yu. I. Lysikov and O. A. Ponomarev: Viscosity of co-polymer high-concentration solution near the point of ion cluster formation L. B. Gavin and Yu. P. Lunkin: Nonequilibrium ionized viscous shock layer near stagnation point E. I. Sokolov and V. N. Uskov: Wave structure of impinging supersonic underexpanded jets G. D. Rabinovich: Soret coefficient determination by an unsteady-state method in a thermodiffusional column V. G. Chernyak, B. T. Porodnov and P. E. Suetin: Variational method in application to the problem of thermomolecular pressure difference in a cylindrical channel V. G. Dayydenko, E. P. Kharitonov, I. S. Shapiro and V. D. Shimanovich: Anode spot kinetics in plasma cutting of metals L. V. Kacharskaya: Turbulent diffusion and aerosol model M. A. Abdrakhmanov: On solution to the problem of conjugation of two equations I. N. Ananeva and G. I. Zhuravsky: Temperature distribution in a porous skeleton-liquid system S. A. Tanaeva and I. P. Vasilenko: Determination of capillary conductivity of nonsaturated capillary-porous bodies V. P. Kovalkov: Calculation of interface motion in simple bodies with variable coefficients	Page 389 396 403 411 420 424 429 436 446 451 457 462 470 477
(Published in the U.S.S.R. in Russian with English abstracts) Volume XXVI, No. 3 March, I. S. Borovkov, A. P. Byrkin, I. D. Vershinin and V. M. Sankovich: Experimental study and calculations of a laminar compressible gas flow in short channels with cooled walls V. B. Nesterenko, V. E. Tverkovkin, G. A. Pleshchankov and T. I. Mikryukova: Laminar chemically reacting gas flow heat transfer in a flat tube at the second-kind boundary conditions G. N. Dulnev and N. V. Pilipenko: Dynamic calorimeter heat conditions V. M. Kapinos, A. F. Slitenko and I. L. Volovelsky: Temperature gradient effect on heat transfer at laminar free convection at a vertical wall Yu. I. Lysikov and O. A. Ponomarev: Viscosity of co-polymer high-concentration solution near the point of ion cluster formation L. B. Gavin and Yu. P. Lunkin: Nonequilibrium ionized viscous shock layer near stagnation point E. I. Sokolov and V. N. Uskov: Wave structure of impinging supersonic underexpanded jets G. D. Rabinovich: Soret coefficient determination by an unsteady-state method in a thermodiffusional column V. G. Chernyak, B. T. Poroddon and P. E. Suetin: Variational method in application to the problem of thermomolecular pressure difference in a cylindrical channel V. G. Davydenko, E. P. Kharitonov, I. S. Shapiro and V. D. Shimanovich: Anode spot kinetics in plasma cutting of metals L. V. Kacharskaya: Turbulent diffusion and aerosol model M. A. Abdrakhmanov: On solution to the problem of conjugation of two equations I. N. Ananek, Yu. I. Nyashin and A. N. Skorokhodov: The variational method of transient temperature field calculation G. I. Bobrova and G. I. Zhuravsky: Temperature distribution in a porous skeleton-liquid system S. A. Tanaeva and I. P. Vasilenko: Determination of capillary conductivity of nonsaturated capillary-porous bodies	Page 389 396 403 411 420 424 429 436 446 451 457 462 470 481

Contents	Lists	349

	Page
L. A. BRICHKIN, YU. V. DARINSKY and L. M. PUSTYLNIKOV: Analysis of a hyperbolic heat conduction process for	
a hollow cylinder heated with a mobile source N. V. Antonishin, M. A. Geller and A. L. Parnas: A hyperbolic heat conduction equation for disperse systems V. E. Minashin, V. N. Rumyantsev and V. N. Levchenko: An approximate analytic calculation of the temperature	495 503
of a rod-type fuel cell with defects in a contact layer	509
Yu. I. Babenko: Heat transfer into nonuniformly cooled rod	516
O. V. KOROBKO and T. L. PERELMAN: Temperature distribution in a human body with overall deep hyperthermia N. V. KOMAROVSKAYA: Experimental investigation of radiation heat transfer in fibre-loose heat insulator of different	523
optical density P. P. Yushkov: Higher-accuracy difference schemes as applied to solution of the third boundary-value problem for	529
a heat-conduction equation S. I. Prokopets: Perturbation method in solution of a boundary-value problem for a nonlinear differential equation	533 539
Abstracts of Deposited Papers	
I. M. ASTRAKHAN, S. M. GADIEV and B. A. KRASOVITSKY: Vibration effect on soil freezing around a well	544
Z. P. Gorbis, G. F. Smirnov and G. A. Savchenko: Heat transfer at liquid boiling in a disperse material layer I. N. Kogan and N. N. Kartashev: On the possibility of continuous measurement of plastic viscosity by	544
attenuating translatory fluctuations of a plate in liquid R. S. KUZNETSKY: To temperature distribution in a flat conductor with alternating current and temperature	545
dependent conductivity V. M. Sonyy and A. J. Engy ev. According liquid film flow and another action of a social data of a so	546
V. M. SOBIN and A. I. ERSHOV: Ascending liquid film flow under the action of a swirled gas flow B. I. STRINIZA: Solution of direct and inverse problem of the plate thermal elasticity with transient functions B. N. TOKARSKY: Temperature field and pressure calculations in a pipe line by the method of time intervals with	547 548
"more strict"	549
I. G. CHUMAK and A. I. KOKHANSKY: Methods of heat- and mass-transfer coefficient determination in heat exchangers using frequency responses	550
Book Review	
B. M. SMOLSKY: Review of the book Heat Transfer by B. N. YUDAEV, izd. Vysshaya Shkola	552
Reader's Guide	
Heat and Mass Transfer Bibliography	553
JOURNAL OF ENGINEERING PHYSICS	
(Published in the U.S.S.R. in Russian with English abstracts)	1071
Volume XXVI, No. 4 April, 1	
S. I. Mantulenko, V. B. Nesterenko, B. E. Tverkovkin and A. P. Yakushev: Methods of calculation of heat	Page
transfer coefficients in a flow of chemically reacting N_2O_4 gas	581
L. I. SKURIN and E. K. STEKLYANNIKOVA: Approximate calculation of multicomponent reacting wake V. A. MOCHALOV and M. K. VERMISHEV: Numerical investigation of convective motion in a closed vertical cavity	588
with permeable side walls	594
T. L. Perelman and E. A. Romashko: On the periodicity scale of cellular structure of convective motion in a horizontal fluid layer under asymmetric boundary heat transfer conditions	602
V. I. Dubovik: Criterial equations for calculation of friction and heat transfer on a vertical porous surface at combined convection	404
M. I. TSAPLIN: Fluid flow in a gap between a rotating disk and fixed bounding wall	606 611
M. S. POVARNITSYN: Calculation of a developed temperature field for a turbulent gas flow in a flat channel with heat releasing walls	618
A. I. LAZAREV and O. E. LYSENKO: On circulatory motion of a viscous incompressible flow in an extruder channel	626
I. S. Borovkov: Operation of a simpliest gas ejector from the viewpoint of irreversible thermodynamics	630
M. Kh. Akhmadeev: On the dependence of the diffusion rate of some water-soluble surfactants on temperature G. D. Rabinovich and M. A. Bukhtilova: Determination on the Soret coefficient in a thermodiffusional column by an unsteady-state technique—II	640 643
P. S. Kuts, I. F. Pikus and L. S. Kalinina: The study of the internal mass transfer coefficient of electric insulation	
cellulose materials under vacuum and at atmospheric pressure A. M. AIZEN, I. S. REDCHITS and I. M. FEDOTKIN: On improving convergence of series entering into solutions of heat	651
conduction equations	659
N. E. KVANTALIANI: Mass transfer in heterogeneous chemical reactors under variable hydrodynamic conditions	667
V. A. ZAGORUIKO, Yu. I. KRIVOSHEEV and A. V. SOKOLOVSKAYA: The similarity method as applied to investigation of hygrothermal equilibrium of capillary-porous colloid materials	

350 Contents Lists

	Page
I. G. SHEKRILADZE and G. I. ZHORZHOLIANI: On vapour boundary layer separation conditions at condensation on a cylinder in a transverse flow	678
O. M. ALIFANOV: Solution of inverse heat conduction problem by iteration methods	682
L. K. Tsabek: Sorption dynamics in porous media	690
V. G. PRONKO: Effect of the heat transfer rate and coolant (heat transfer agent) flow parameters on the cooling and	
heating rate of bodies	696
A. M. MAKAROV, V. V. LEONOV and G. N. SHVEDOVA: Spherically symmetric Stefan problem with the boundary condition of the third kind	701
A. V. AMELIYANCHIK, I. I. MAKAROV, T. B. SHIROLAPOVA and E. A. PROKHOROVA: Electronic-digital-computer	
calculations of temperature fields at steel ingot solidification in a mold	705
D. M. YANBULATOV and N. M. TSIRELMAN: Variational solution of a heat conduction problem for regions with	
movable boundaries	714
R. G. ISAEV: Thermomechanical behaviour of multi-component continuum interacting with an electromagnetic field	720
G. N. Gusenkov and I. M. Chirkov: Solution of one nonlinear problem in thermal investigations	727
Yu. I. Babenko: Determination of variable heat transfer coefficient for a thin semi-infinite rod	732
A. G. GORELIK: On the radius of a tube with heat sources (sinks)	735
V. A. Fedosov: Determination of thermal diffusivity of pyro-electric materials	738
B. N. Babich, A. F. Zverev, A. V. Logunov and N. V. Petrushin: Thermophysical properties of disperse-forced nickel	742
A. A. Voloshko: Rate of vapour bubbles grows on a heating surface	744
Vu Zui Quang: Conjugated free-convection problem in a vertical channel with heat release from high-frequency electric current	747
LEV ABRAMOVICH VULIS	754
Chronicle	134
Z. P. SHULMAN: The conferences of the readers of the Journal of Engineering Physics in Baku and Erevan (1973) L. L. VASILIEV: First International Heat Pipe Conference	756 757

Int. J. Heat Mass Transfer. Vol. 18, p. 350. Pergamon Press 1975. Printed in Great Britain

ANNOUNCEMENTS

USE OF SI UNITS IN THE INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER

The desirability of encouraging Authors to use SI units, and of ultimately insisting on their use, has been discussed and supported at several Editors Meetings. A related article, prepared by Professor A. J. Ede, appeared in the May 1971 edition of the Journal. At

its last meeting, the Editors agreed that, from the 1st January, 1976, SI units are to be obligatory. Dimensions in other units may be published but only in addition to those in SI units.

JOINT ANNOUNCEMENT TO SUBSCRIBERS AND SUBSCRIPTION AGENCIES FROM ELSEVIER SCIENTIFIC PUBLISHING COMPANY AND PERGAMON PRESS LIMITED

Elsevier and Pergamon are pleased to announce the joint publication of a journal under the title International Journal of Multiphase Flow. This journal is the amalgamation of two separate journals recently announced: the former Elsevier journal Multi-Phase Flow (initially entitled International Journal of Multi-Phase Flow) and the former Pergamon journal The International Journal of Multiphase Flow.

The merger of the two journals has been carried out in the interests of the scientists working in the field of multiphase flow and in order to avoid unnecessary duplication.

Production and distribution of the joint journal will

be in the hands of Pergamon and all subscription orders, queries and claims should be sent to:

Circulation Department, Pergamon Press Limited, Headington Hill Hall, Oxford, OX3 0BW. (England)

Orders already received by Elsevier for their journal have been forwarded to Pergamon for processing and they will not, of course, be duplicated.