

## CONTENTS LISTS

### JOURNAL OF ENGINEERING PHYSICS

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

Volume XVII, No. 2

August, 1969

	Page
Y. A. KIRICHENKO, A. I. CHARKIN, I. V. LIPATOVA and V. L. POLUNIN: The study of heat transfer for boiling under the conditions imitating weak gravity fields	201
V. D. BORISOV, V. P. LOGVINYUK, V. V. MARTYNYENKO and V. V. MASLOV: Formation of gas bubbles in oversaturated fuel	210
G. N. DULNEV and A. I. KAIDANOV: Approximate analysis of natural convection in a flat channel with a stabilized fluid flow	216
P. M. BRDLIK: Heat and mass transfer of a binary turbulent boundary layer with natural convection on a vertical surface	226
E. A. ROMASHKO: Stability of motion of homogeneous fluid at free convection in a horizontal slit at various heat transfer conditions on the bounding surface	233
L. A. VULIS, V. G. ZHIVOV and L. P. YARIN: Transient flow region in a free jet	239
V. S. NIKITIN and N. V. ANTONISHIN: Heat transfer in a disperse filling	248
A. G. TSUBANOV: Effect of pressure drop on the overflow of loose material over a vertical channel	254
B. N. BASKAREV, V. M. EROSHENKO, A. A. MUSHINSKY and Y. N. TERENCEV: Lasers as light sources for Mach-Zender interferometer	261
S. I. ISATAEV and N. V. MASLEEVA: Heat transfer for floating ice flow in a tube	267
A. G. GOLOVEIKO: Typical regimes of pulse surface thermal action upon metals	272
V. M. DEMENTIEV, T. I. KOLESNIK, A. N. VANZHA and L. S. BOLIKHOVA: Thermal efficiency of cross current in multi-furnaces of fluidized bed	280
A. P. BARANOV, Y. G. MANASYAN and A. E. SOLOVIEV: Theoretical study of transient processes in thermo-electric generators with the use of electronic digital computers	285
V. V. SALOMATOV: Heating of massive bodies with radiant heat source of variable intensity	292
A. F. SIDOROV and O. B. KHAIRULLIN: Calculation of temperature stresses in a hollow visco-elastic sphere	300
I. A. STRAKHOV: One steady-state heat conduction problem for a polygonal region at boundary conditions of mixed type	306
Y. M. MATSEVITY: Generalization of the method of non-linear resistances for the case of arbitrary dependence of thermal conductivity on temperature in the problems of stationary heat conduction	313
V. V. MOROZOV: An approximate analytic relationship for determination of the efficiency of a radiating thin rod	320
S. G. ILYASOV and V. V. KRASNikov: Calculation of radiation field characteristics in capillary-porous colloidal bodies	325
<i>Shorter Communications</i>	
Y. G. MINAKOV: Separation of a boundary layer in pulsating flows of incompressible fluid	332
N. E. GOROBTSOVA: An approximate method of calculation of unsteady-state fields of material moisture content in drying	337
V. I. VORONIN and A. E. BLAZHKOV: Surface flow on a permeable plate	342
O. G. MARTYNYENKO, V. L. KOLPASHCHIKOV and B. M. BERKOVSKY: Effect of longitudinal temperature gradient on light distribution in lens-like medium	346
A. V. SUDAKOV and A. S. TROFIMOV: Calculation of thermo-elastic stresses in a plate	350
G. A. GEMMERLING: An approximate method of determination of unsteady-state one-dimensional temperature fields	354
<i>Survey</i>	
B. M. SMOLSKY and L. A. SERGEEVA: Unsteady-state heat transfer	359
<i>Prominent Scientist</i>	
ERNST RUDOLF ECKERT (to his 65th Birthday)	376
<i>Book Review</i>	
V. P. DUSHCHENKO: Review of the book <i>Design of Bread-Baking and Pastry-Cooking Furnaces</i> by A. A. Mikhelev and N. M. Itskovich	380

**JOURNAL OF ENGINEERING PHYSICS***(Published in the U.S.S.R. in Russian with English abstracts)*

Volume XVII, No. 3

September, 1969

	<i>Page</i>
G. S. NAZAROV: Calculation of the parameters of a cavitation flow in hydraulic systems	397
A. V. LUIKOV, B. M. BERKOVSKY and V. L. KOLPASHCHIKOV: Convective heat and mass transfer in asymmetric fluids	407
E. B. KUDASHEV: Selectivity of an acoustic receiver in a turbulent flow	416
A. G. TSUBANOV: Operation of overflow channels in fluidized bed apparatuses	423
Y. Z. BUBNOV, M. N. LIBENSON, M. S. LURIE and G. A. FILARETOV: Motion of vapour in a quasi-closed volume with temperature gradient	429
V. F. SIVIRKIN and N. M. ROGACHEV: Theoretical and experimental study of a turbulent plasma jet	437
V. N. STROKIN and L. A. KLYACHKO: Turbulent diffusion burning of gas in a cylindrical chamber	447
A. A. AKHUNDOV and N. K. KONDUKOV: Hydraulic drag of a polydisperse fluidized bed	456
G. V. VASILIEVA: Interaction between a moist capillary-porous body and hot gas flow	463
Y. L. RASTORGUEV, B. A. GRIGORIEV and G. F. BOGATOV: Experimental study of toluene thermal conductivity	470
O. F. SHLENSKY and M. A. SHERYSHEV: Kinetics of material dehardening at unsteady heating conditions	479
SH. G. KAPLAN and R. E. TOLCHINSKAYA: Onset of high-frequency oscillations of pressure for heat transfer in forced motion of liquid	486
V. V. BANDURIN, P. M. KOLESNIKOV, O. V. KOSTIKOV, I. P. MIROSHNIK and F. F. RIMEK: Temperature field of a rotor of a thermally stressed electric machine	491
G. I. PAVLOVSKY, M. M. A. AVAD: Heat transfer of a flat plate at nonstationary surface temperature in a laminar liquid flow	499
G. N. DULNEV and A. I. KAIDANOV: Temperature field of a parallelepipedon with a volumetric energy source and internal convection	506
Y. A. POPOV: Calculation of radiation of isothermal gas-dust medium	520
A. KH. KIM and V. KH. SHULMAN: The use of operational method for solution of the problem on development of visco-elastic flow at the starting length of a cylindrical tube	526
E. N. NAFIKOV and A. G. USMANOV: Temperature dependence of gas diffusion coefficient	530
N. P. GAPONENKO and D. I. ZAKS: The method of mapping in solution of a heat conduction equation in laminated media	535
Y. P. KAMAIEV and N. V. DILIGENSKY: One method of analysis of periodic processes and its application to heat conduction problems	541
B. I. STRIKITSA: Solution of direct and reverse two-dimensional problems of unsteady heat conduction with variable boundary conditions by the method of transient functions	547
O. V. MININ and N. YA. YARYSHEV: Recovery of a temperature field in a solid body by a limited number of measurements	553
A. V. FURMAN, A. S. LYALIKOV and L. S. KONOVALOVA: On the interaction between temperatures in non-linear heat transfer phenomena in fuel elements	559
R. S. LEVITIN: The study of a critical point in one transfer equation	565
A. S. SHABOLTAS: The study of electric arc motion in a discharge chamber of a plasma generator	570

*Reader's Guide*

Contents List of the <i>International Journal of Heat and Mass Transfer</i> , Vol. 12, No. 1, 1969	575
--	-----

**JOURNAL OF ENGINEERING PHYSICS***(Published in the U.S.S.R. in Russian with English abstracts)*

Volume XVII, No. 4

October, 1969

	<i>Page</i>
G. A. AKSELRUD, YA. M. GUMNITSKII and I. N. FIKLISTOV: Kinetics of ion exchange	593
V. A. SHEIMAN and A. S. ZELEPUGA: Kinetics of disperse material heating at drying in a vibro-fluidized bed	600
F. E. SPOKOINY and Z. R. GORBIS: Turbulence intensity of disperse upflow	610
V. V. BLINOV, A. D. DVOIRIS, L. S. MIDLER and O. A. BENIAMINOVICH: Experimental study of heat transfer at n-butane boiling in vertical tubes	616
I. KUMAR: An experimental study of heat and mass transfer in laminar combustible boundary layer over a porous cylinder with propane injection	622
I. A. BELOV, I. P. GINZBURG and L. I. SHUB: The effect of the flow eddy on friction and heat transfer in application to the case of supersonic jet inflow on a barrier	633
V. D. SEROVA: Determination of potential of velocity and forces for removal of rotation heat from a flat wall	639
M. I. VERBA and G. I. SVETOSAROVA: Effect of chemical conversion heat on turbulence in homogeneous gas mixtures	648
P. A. NOVIKOV and B. G. MIKHINYUK: The study of thermal conductivity of porous metal-ceramic elements	655
K. S. PEDCHENKO, V. S. KARASEV and V. M. TRIKULA: Effect of neutron irradiation on some thermophysical characteristics of metals	665
T. A. KURSKAYA, E. P. LEVCHENKO, R. S. MIKHAL'CHENKO, A. M. RYBALKO and B. Y. SUKHAREVSKY: Thermo-resistances of multi-contact packets	673
B. Y. LYUBOV and N. I. YALOVOI: Thermal conductivity of body with variable heat transfer coefficient	679
O. T. IL'CHENKO and L. I. SHIFAN: An approximate method of numerical solution of unsteady-state heat conduction problems at variable boundary conditions of the third kind	688
V. A. DITKIN and A. P. PRUDNIKOV: Operational calculation of the functions of two variable integers and some of its applications	697
V. T. IVANOV: Solution to heat conduction problems by the method of straight lines	709
<i>Shorter Communications</i>	
I. Y. KOLESNIK: Some properties of diffusion fluxes near the surface of an evaporating drop	714
L. Y. ZHEMOIDINA: Application of partial-difference method for solution of one-dimensional unsteady-state heat conduction problems with moving boundary	719
N. L. KAFENGAUZ: Relationship between heat transfer crisis and high-frequency pressure self-fluctuations	725
D. I. CHEREDNICHENKO, V. K. ALEKSEEV and G. V. DUDKO: Temperature field of surface source on an infinite cylinder	730
V. K. SAVIN: The study of hydrodynamics in a wall boundary layer of a semi-infinite jet	733
Y. P. FINIATIEV and L. A. SHCHERBAKOV: Possibility of approximation of an underexpanded axi-symmetric jet with an elliptic arc	737
<i>Book Reviews</i>	
M. K. KLEINER: Review of the book <i>Heat Engineering of Metallurgical Processes</i> by E. M. Goldfarb	742
P. M. KOLESNIKOV and B. A. KOLOVANDIN: Review of the book <i>Shock Waves in Magnetic Hydrodynamics</i> by E. Anderson	744
<i>Chronicle</i>	
R. G. GORODKIN and A. D. MATSEPURO: Symposium on Rheology	746
<i>Reader's Guide</i>	
Contents list of the <i>International Journal of Heat and Mass Transfer</i> , Vol. 12, No. 3, 4, 1969	748
Heat and Mass Transfer Bibliography	752

## JOURNAL OF ENGINEERING PHYSICS

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

Volume XVII, No. 5

November, 1969

	<i>Page</i>
E. P. DYBAN and A. I. MAZUR: Heat transfer between a concave surface and a plane impinging air jet	785
P. N. ROMANENKO and M. I. DAVIDZON: Heat transfer to a plate in the region of an accelerated flow	791
E. G. LEONOV, Y. P. FINATIEV and L. A. SHCHERBAKOV: Some properties of underexpanded sound jet at its stagnation	799
M. V. KRISHNAMERTHY and A. RAMACHANDRAN: Effect of radiation on film boiling in a forced convection boundary layer flow	805
V. B. KHABENSKY and O. M. BALDINA: Analysis of flow rate pulsations in the system of parallel vapour generating tubes	819
Y. P. GOLOVACHEV: Laminar boundary layer with account for radiation energy transfer	829
Y. A. POPOV: Radiant heat transfer in a plane nonisothermal layer	836
V. I. TYUKAEV, A. T. NIKITIN, V. A. VINOSLAVSKY and A. G. SHASHKOV: The study of thermal diffusivity of armed plastic at high temperatures	841
Y. L. RASTORGUEV, B. A. GRIGORIEV and G. F. BOGATOV: Experimental study of thermal conductivity of toluene at high pressures	847
P. A. NOVIKOV and E. A. VAGNER: Rate of ice sublimation at low pressures	856
P. M. KOLESNIKOV and N. N. STOLOVICH: Electrodynanic plasma acceleration	861
N. M. BRATASYUK and A. P. GRITSENKO: Analytic estimation of the sensibility of dilatocondensor receiver of thermal radiation	866
V. A. MALKOV and P. A. DOBASHIN: Effect of coatings and liners of mild metals on contact thermal resistance	871
R. S. MINASYAN: Periodic heat conduction problem in a hollow infinite cylinder	880
Y. M. KOLYANO and M. V. KHOMYAK: Temperature stresses in thin viscoelastic plates with heat transfer	892
A. N. TEMCHIN: The Boltzmann equation and Newton method	900
E. N. BUKHARKIN: Heat and mass transfer in cooling saturated vapour-gas mixtures	908
A. N. LUPPOV and B. G. OGLOBLIN: An approximate solution of some non-linear heat conduction problems	913
R. A. PAVLOVSKY: Modelling of non-linear boundary conditions on electric grids	918
Y. A. MELNIKOV and A. K. TSOKUR: Calculation of temperature fields in multiple heating by electronic digital computers	926
F. N. LISIN and A. S. NEVSKII: Dissolution of semi-infinite steel body in iron-carbonic melt	931
B. V. ZHELEZNY: Comparison of ice in freezing of over-cooled water in capillaries	936
A. T. USOV: Calculation of temperature stresses in a cylinder and sphere with variable surface temperature	944
V. A. MALKOV: Contact thermal resistance under vacuum	951
V. G. LEITSINA: Rarefied gas mixture flow between two parallel plates with sine distribution of concentration at the boundary	958
L. S. STERMAN, A. V. NEKRASOV and N. G. STYUSHIN: The study of critical heat fluxes in tubes with boiling water	962
<i>Book Review</i>	
V. K. BENZAR: Review of the book <i>High-Frequency Heating</i> by G. Pushner	964
<i>Reader's Guide</i>	
Contents list of the <i>International Journal of Heat and Mass Transfer</i> Vol. 12, No. 5, May 1969	966

**JOURNAL OF ENGINEERING PHYSICS***(Published in the U.S.S.R. in Russian with English abstracts)**Volume XVII, No. 6**December, 1969*

	<i>Page</i>
G. M. PANCHENKOV and L. K. TSABEK: Mixing liquid in a strong external electric field	981
YU. P. KOROTAEV and A. A. TOCHIGIN: Effect of a gas flow on wavy motion of thin layers of viscous fluid	989
L. F. SOKIRYANSKY, S. S. MOZHAEV and N. F. KHARLAMOVA: Methods of determination of parameters of diffusional saturation of solid bodies	995
E. N. BUKHARKIN: The study of heat and mass transfer dynamics in adiabatic evaporation	999
E. E. PROKHACH: Unstationary heat transfer to the walls of a cylinder filled with liquid	1005
M. E. DEICH and V. F. STEPANCHUK: The mechanism of condensation jump formation	1010
M. F. MIKHALEV, V. G. PRAVDIN and YU. A. PETROV: Transverse non-uniformity of inhomogeneity distribution in fluidized bed apparatuses	1016
V. I. GORSHKOV, V. N. VEREVKIN and B. G. POPOV: Experimental study of particle collision against walls of pneumatic transport conduits	1021
V. A. BUBNOV: A problem of three-dimensional boundary layer in generalized Stokes fluid	1027
N. V. ANTONISHIN and A. I. MURAVIEV: Intensification and increasing uniformity of drying of thin stems and textile fibres	1035
P. V. SERGEEV and G. A. SHEPEL: Density of current of arc electrode spots	1041
V. A. SHUVALOV: The study of parameters of low-density non-equilibrium plasma with a thermoanemometer	1050
P. M. KOLESNIKOV and N. N. STOLOVICH: Estimation of effect of intensive mass transfer on integral characteristic of moving plasma with electrodynamic acceleration	1058
YU. M. KOLYANO: Heating of conjugated orthotropic heat transfer plates by heat sources	1067
M. G. KOGAN: Thermal conductivity of an elliptic cylinder	1076
V. P. KOZLOV, A. G. SHASHKOV and G. M. VOLOKHOV: Analysis of two-dimensional temperature field of a finite cylinder without internal heat sources at boundary conditions of the first kind	1084
D. P. KOLODNYI: Transformation of thermodynamic equations	1092

*Shorter Communications*

V. G. PAVLOVSKY and YU. M. DEDUSENKO: Heat transfer and hydraulic drag in a short plane-parallel channel with rough walls	1098
I. A. CHEREPENNIKOV: Determination of heat transfer intensity in boiling of salt solutions on the basis of the similarity and molecular characteristics theory	1102
I. A. BELOV and V. S. TERPIGORIEV: Account for turbulence in calculation of heat transfer at the stagnation point of jet interacting with a flat obstacle along the normal	1106
G. P. ISUPOV and V. A. MAMAEV: Wave processes in a gas-liquid flow	1110
A. S. IVANOV: On calculation of pressure under heat-proof envelope with combined coating	1115
L. L. VASILIEV, S. A. TANAeva and A. D. SHNYREV: The method of combined study of thermophysical characteristics of substances within the temperature range of 4·2-400 K	1119
A. T. CHUB: Non-stationary distribution of concentrations in chemotronic transformer	1123
A. B. GRACHEV and B. S. VOROSHILOV: Determination of energy losses of regenerative heat transfer in a cylinder of a piston expansion cooler	1127
R. S. KUZNETSKY: Temperature distribution in a.c. cylindrical conductor	1132

*Reader's Guide*

Heat and Mass Transfer Bibliography	1135
Contents List of the Journal of Engineering Physics, Vol. 17, 1969	1158
Appendix.i, $x$ -diagram of humid air (To the paper "Projectively transformed scales of composition in charts of states of binary mixtures" by JARL SALIN, <i>J. Engng Phys.</i> <b>16</b> (1) (1969).	

**JOURNAL OF ENGINEERING PHYSICS***(Published in the U.S.S.R. in Russian with English abstracts)*

Volume XVIII, No. 1

January, 1970

	<i>Page</i>
S. P. DETKOV: Heat transfer by radiation of non-gray gas with gray surfaces	5
A. V. LUIKOV, B. M. SMOLSKY and L. A. SERGEEVA: Experimental study of unsteady heat transfer between metal spheres and liquid flow at constant temperature	12
L. A. VADACHKORIA: Some problems of screening heat radiation	21
L. A. RIGALSKAYA: Heat transfer in a cylindrical absorbing layer bounded with non-black surfaces	31
V. I. VORONIN and A. E. BLAZHKOV: Boundary layer on a heat-insulated plate	39
Z. P. GORBIS, L. P. KNYAZEV and V. V. KUKLINSKY: Heat transfer in uniform mixture of two disperse materials	45
V. A. KALENDERIAN and V. V. KORNAKAKI: Heat transfer of a transverse layer around a cylinder with annular fins	52
V. E. MASLOV and V. D. LEBEDEV: The study of gravity force effect on aerosol motion in a curvilinear gasflow	59
A. I. ZHELTOV, S. S. ZABRODSKY and V. A. BORODULYA: Electric current through a fluidized bed of conducting particles	64
G. B. FROISHTETER and E. L. SMORODINSKY: Effect of motion energy dissipation on heat transfer with laminar flow of non-Newtonian fluids in circular tubes	68
M. A. LUZHNOVA and YA. D. RAIKHBAUM: Determination of constants of metal particles evaporation in arc plasma	77
V. P. BRYKOV, G. KH. MUKHAMEDZYANOV and A. G. USMANOV: Experimental study of thermal conductivity of organic liquids at low temperatures	82
V. B. DEIMONTOVICH and I. D. RADOMYSELSKY: Determination of diffusivity by the method of integral analogs	90
B. A. KOLOVANDIN, O. G. MARTYNENKO and V. E. AEROV: Turbulent anisotropic flow of incompressible gas in a circular rotating tube	96
G. D. PETROV, R. N. SOKOLOV and V. A. VASILIEV: Distribution of particles by sizes in various regions of sprayer flame	105
A. M. GOLOVIN and E. D. SERGIEVSKY: Approximate solution of boundary layer equations with blowing	110
S. V. DENISOV: Drag coefficient in unsteady flows	118
N. A. AVDONIN, L. A. VOLOKHONSKY, G. F. IVANOVA and A. L. TSITSERMAN: Calculation of temperature field of an ingot at solidification in water-cooled crystallizer	124
V. N. KOZLOV: Solution of heat conduction problems with variable heat transfer coefficient	133
A. T. NIKITIN and V. L. BOBROV: Temperature field in polymer material with its multiple heating	139

*Shorter Communications*

L. A. GORDIEVSKY, I. B. PEREPELKIN and G. V. VINOGRADOV: Flow of dye pastes over cylindrical channels	146
V. G. LEITSINA: Account for slip and convection in gas between two parallel plates	150
A. N. REZNIKOV, L. V. BOITSOVA and A. V. TEMNIKOV: Temperature calculation in motion of a flat annular heat source (in application to diamond drilling)	154
I. M. BESKROVNY: Solution of unsteady-state transfer problems by the flow method	162
L. A. KOZDOBA: Methods of electric modelling of movable temperature fields	167
B. E. PROKOFIEV: The study of unsteady-state heat transfer on electric models	173
A. FIKIN and I. FIKINA: Calculation of duration of solid bodies cooling	177
S. I. DEVOCHKINA and L. A. BROVKIN: Temperature field of an infinite plate with variable thermal properties	180

*Reader's Guide*Contents List of the *International Journal of Heat and Mass Transfer* 12 (6,7) (1969).