

Contents

Preface	IX
Some extremum and unilateral boundary value problems in viscous hydrodynamics <i>G. V. Alekseyev and A. Yu. Chebotarev</i>	I
On axisymmetric motion of the fluid with a free surface <i>V. K. Andreev</i>	13
On the occurrence of singularities in axisymmetrical problems of hele-shaw type <i>D. Andreucci, A. Fasano and M. Primicerio</i>	23
New asymptotic method for solving of mixed boundary value problems <i>I. V. Andrianov and A. O. Ivankov</i>	39
Some results on the thermistor problem <i>S. N. Antontsev and M. Chipot</i>	47
New applications of energy methods to parabolic and elliptic free boundary problems <i>S. N. Antontsev, J. I. Diaz and S. I. Shmarev</i>	59
A localized finite element method for nonlinear water wave problems <i>K. J. Bai and J. W. Kim</i>	67
Approximate method of investigation of normal oscillations of viscous incompressible liquid in container <i>M. Ya. Barnyak</i>	75
The classical Stefan problem as the limit case of the Stefan problem with a kinetic condition at the free boundary <i>B. V. Bazaliy and S. P. Degtyarev</i>	83
A mathematical model of oscillations energy dissipation of viscous liquid in a tank <i>I. B. Bogoryad</i>	91
Existence of the classical solution of a two-phase multidimensional Stefan problem on any finite time interval <i>M. A. Borodin</i>	97
Asymptotic theory of propagation of nonstationary surface and internal waves over uneven bottom <i>S. Yu. Dobrokhotov, P. N. Zhevandrov, A. A. Korobkin and I. V. Sturova</i>	105
Multiparametric problems of two-dimensional free boundary seepage <i>V. N. Emikh</i>	113
Nonisothermal two-phase filtration in porous media <i>R. E. Ewing and V. N. Monakhov</i>	121
Explicit solution of time-dependent free boundary problems <i>Yu. E. Hohlov</i>	131

Nonequilibrium phase transitions in frozen grounds <i>I. A. Kaliev</i>	141
System of variational inequalities arising in nonlinear diffusion with phase change <i>N. Kenmochi and M. Niezgodka</i>	149
Contact viscoelastoplastic problem for a beam <i>A. M. Khludnev</i>	159
Application of a finite-element method to two-dimensional contact problems <i>S. N. Korobeinikov and V. V. Alyokhin</i>	167
Computations of a gas bubble motion in liquid <i>V. A. Korobitsyn</i>	179
Waves on the liquid-gas free surface in the presence of the acoustic field in gas <i>I. A. Lukowsky and A. N. Timoha</i>	187
Smooth bore in a two-layer fluid <i>N. I. Makarenko</i>	195
Numerical calculation of movable free and contact boundaries in problems of dynamic deformation of viscoelastic bodies <i>L. A. Merzhievsky and A. D. Resnyansky</i>	205
On the canonical variables for two-dimensional vortex hydrodynamics of incompressible fluid <i>O. I. Mokhov</i>	215
About the method with regularization for solving the contact problem in elasticity <i>R. V. Namm</i>	223
Space evolution of tornado-like vortex core <i>V. V. Nikulin</i>	229
Optimal shape design for parabolic system and two-phase Stefan problem <i>S. P. Ohezin</i>	239
Incompressible fluid flows with free boundary and the methods for their research <i>A. G. Petrov</i>	245
On the Stefan problems for the system of equations arising in the modelling of liquid-phase epitaxy processes <i>A. G. Petrova</i>	253
Stefan problem with surface tension as a limit of the phase field model <i>P. I. Plotnikov and V. N. Starovoitov</i>	263
The modelization of transformation phase via the resolution of an inclusion problem with moving boundary <i>H. Sabar, M. Buisson and M. Berveiller</i>	271
To the problem of constructing weak solutions in dynamic elastoplasticity <i>V. M. Sadovskii</i>	283

The justification of the conjugate conditions for the Euler's and Darcy's equations <i>V.V. Shelukhin</i>	293
On an evolution problem of thermo-capillary convection <i>V.A. Solonnikov</i>	301
Front tracking methods for one-dimensional moving boundary problems <i>U. Streit</i>	319
On Cauchy problem for long wave equations <i>V. M. Teshukov</i>	331
On fixed point (trial) methods for free boundary problems <i>T. Tiihonen and J. Järvinen</i>	339
Nonlinear theory of dynamics of a viscous fluid with a free boundary in the process of a solid body wetting <i>O. V. Voinov</i>	351