

VOLUME CONTENTS

VOLUME 71

2007

NUMBER 1

CONTENTS

A.P. MARKEYEV: The oscillations of a satellite about a direction fixed in absolute space	1
V.N. KOSHLyakOV and V.L. MAKAROV: Mechanical systems, equivalent in Lyapunov's sense to systems not containing non-conservative positional forces	10
N.G. KHOMASURIDZE: The symmetry principle in continuum mechanics	20
G.A. KAPANADZE: A problem of the bending of a plate for a doubly connected domain with a partially unknown boundary	30
A.YU. ZEMLYANOVA and V.V. SIL'VESTROV: The problem of the reinforcement of a plate with a cutout by a two-dimensional patch	40
V.A. ROMASHCHENKO: Solutions of dynamic problems for incompressible and slightly compressible helically orthotropic non-uniform thick-walled cylinders.	52
V.A. YEREMEYEV, A.B. FREIDIN AND L.L. SHARIPOVA: The stability of the equilibrium of two-phase elastic solids	61
A.O. VATUL'YAN, O.B. DOMBROVA and V.YE. ZHIROV: Inverse problems for non-uniformly polarized piezoelectric rods	85
O.V. SADOVSKAYA and V.M. SADOVSKII: The theory of finite strains of a granular material	93
S.YE. ALEKSANDROV and R.V. GOLDSTEIN: Plastic flow in a conical channel. Qualitative features of the solutions under different yield conditions	111
V.M. MIRSALIMOV: The solution of a problem in contact fracture mechanics on the nucleation and development of a bridged crack in the hub of a friction pair	120
M.N. PERELMUTER: A criterion for the growth of cracks with bonds in the end zone.	137
Sixth International Symposium on Classical and Celestial Mechanics. First communication and call for papers	154
Contents of next issue.	156

VOLUME 71

2007

NUMBER 2

CONTENTS

G.K. MIKHAILOV and S.YA. STEPANOV: Leonhard Euler and his contribution to the development of mechanics	157
A.D. BRUNO: Analysis of the Euler–Poisson equations by methods of power geometry and normal form.	168
L.D. AKULENKO and A.P. KOSHELEV: Time-optimal steering of a point mass to a specified position with the required velocity	200
V.I. MATYUKHIN: The control of a wheeled mechanical system	208
L.B. RAPOPORT: An estimate of the attraction domain with a specified exponential stability index in a wheeled robot control problem.	221
A.A. AZAMOV, A.SH. KUCHKAROV and B. SAMATOV: The relation between problems of pursuit, controllability and stability in the large in linear systems with different types of constraints.	229
A.R. AKHMETZHANOV and A.A. MELIKYAN: A linear differential game on a plane with a minimum-type functional	234
S.M. ZEN'KOVSKAYA, V.A. NOVOSYADLYI and A.L. SHLEIKEL': The effect of vertical vibration on the onset of thermocapillary convection in a horizontal liquid layer.	247
A.N. BOGDANOV and V.N. DIESPEROV: Tollmien–Schlichting waves in a transonic boundary layer. Excitation from the outer flow and from the surface	258
V.S. GALKIN: Transformations of the equations of the first approximation of Chapman–Enskog methods and vector transport relations for mixtures of polyatomic gases	269
A.A. KOROBKIN and T.I. KHABAKHPASHEVA: The construction of exact solutions in the floating-plate problem.	287

A.S. KRAVCHUK and P. NEITTAANMÄKI: The solution of contact problems using boundary element method . . .	295
V.M. ALEKSANDROV and N.A. BAZARENKO: The contact problem for a rectangle with stress-free side faces . . .	305
Contents of next issue	318

VOLUME 71

2007

NUMBER 3

CONTENTS

A.V. KARAPETYAN: Aleksandr Mikhailovich Lyapunov and his role in the establishment and development of stability theory	319
A.YU. ALEKSANDROV: The stability of the equilibrium positions of non-linear non-autonomous mechanical systems . . .	324
S.V. PAVLIKOV: Constant-sign Lyapunov functionals in the problem of the stability of a functional differential equation. . . .	339
B.S. KALITIN: A reduction principle for asymptotically triangular differential systems	351
R.G. MUKHARLYAMOV: Reduction of the equations of dynamics of systems with constraints to a given structure	361
A.A. KOSOV: The exponential stability and stabilization of non-autonomous mechanical systems with non-conservative forces	371
A.P. IVANOV: The stability of equilibrium in systems with friction	385
N.N. VERICHEV, S.N. VERICHEV and V.I. YEROFEYEV: The chaotic dynamics of vibrational mechanisms with energy sources of limited power.	396
M.M. ALIMOV: The reducibility of the anisotropic Hele-Shaw problem to the isotropic case	408
E.K. LAVROVSKII and V.V. FOMINYKH: The equilibrium shapes of non-uniform vortices in the ocean	415
P.YE. SPESIVTSEV and E.V. TEODOROVICH: The statistical characteristics of the displacement front in a randomly heterogeneous medium	424
A.V. KOLDOBA and YE.V. KOLDOBA: The propagation of weak concentration discontinuities in the isothermal flow of a multicomponent mixture in a porous medium with phase transitions	432
V.S. SERGEYEV: The torsion of a viscoelastic plate in an unsteady flow	438
V.A. BOROVNIKOV: The scattering of a plane flexural wave by a sector of a thin elastic plate with a supported edge	449
D.V. DOLGIKH and V.V. KISELEV: Dent patterns on the surface of a longitudinally compressed, non-linear elastic cylindrical shell	453
Obituary: Vladimir Ivanovich Mossakovskii (27.8.1919–13.7.2006)	477
Contents of next issue	479

VOLUME 71

2007

NUMBER 4

CONTENTS

Announcement	481
Irina Georgiyevna Goryacheva (On her birthday)	482
I.G. GORYACHEVA and YU.YU. MAKHOVSKAYA: Adhesive resistance in the rolling of elastic bodies	485
N.N. ROGACHEVA: The dynamic behaviour of piezoelectric laminated bars	494
L.A. ALEKSEYEVA: The dynamics of an elastic half-space under the action of a moving load	511
L.M. ZUBOV: The problem of the equilibrium of a helical spring in the non-linear three-dimensional theory of elasticity	519
N.V. BANICHUK: Optimization of axisymmetric membrane shells	527
A.A. MARKIN and M.YU. SOKOLOVA: Non-linear relations of anisotropic elasticity and a particular postulate of isotropy	536
E.A. IVANOVA, A.M. KRIVTSOV and N.F. MOROZOV: Derivation of macroscopic relations of the elasticity of complex crystal lattices taking into account the moment interactions at the microlevel.	543
V.I. KONDAUROV: The thermodynamically consistent equations of a thermoelastic saturated porous medium	562
A.I. GLUSHKO and I.I. NESHCHERETOV: An approach to constructing models of multiphase elastic porous media	580
G.V. KOSTIN and V.V. SAURIN: An asymptotic approach to the problem of the free oscillations of a beam	611

G. IOVANE, M.A. SUMBATYAN and V. TIBULLO: A mixed boundary-value problem for the wave equation in a stratified medium for high-frequency oscillations	622
I.A. SOLDATENKOV: The calculation of the energy losses in a sliding elastic contact with friction and wear (the plane problem)	632
YE.V. GLUSHKOV, N.V. GLUSHKOVA and M.V. GOLUB: Diffraction of elastic waves by an inclined crack in a layer.	643
Contents of next issue.	655

VOLUME 71

2007

NUMBER 5

CONTENTS

Leonid Ivanovich Sedov (on the 100th anniversary of his birth).	657
A.N. GOLUBYATNIKOV, S.I. ZONENKO and G.G. CHERNYI: New models of explosively accelerated projected shells	661
A.N. KRAIKO: Rapid cylindrically and spherically symmetric strong compression of a perfect gas	676
A.G. KULIKOVSKII, A.V. LOZOVSKII and N.T. PASHCHENKO: Evolution of perturbations on a weakly inhomogeneous background	690
A.P. CHUGAINOVA: Self-similar asymptotics of wave problems and the structures of non-classical discontinuities in non-linearly elastic media with dispersion and dissipation	701
O.V. VOINOV: The symmetries of slow motions and the equilibria of continua	712
V.M. ZHDANOV and G.A. TIRSKIY: A phenomenological and kinetic description of diffusion and heat transport in multicomponent gas mixtures and plasma	718
A.N. BOGDANOV and V.N. DIYESPEROV: The effect of viscosity on the free stream in transonic flow over a corner point	737
V.A. ANDRUSHCHENKO, N.G. SYZRAKOVA and YU.D. SHEVELEV: An estimate of the heat fluxes to the surface of blunt bodies moving at hypersonic velocity in the atmosphere.	747
S.M. ZEN'KOVSKAYA: Long-wave oscillatory Marangoni instability in a horizontal liquid layer	755
A.V. KISTOVICH and YU.D. CHASHECHKIN: Regular and singular components of periodic flows in the fluid interior	762
V.N. PAIMUSHIN: Problems of geometric non-linearity and stability in the mechanics of thin shells and rectilinear columns.	772
Obituary: Valentin Vital'yevich Rumyantsev (19/7/1921–10/6/2007).	806
Contents of next issue.	808

VOLUME 71

2007

NUMBER 6

CONTENTS

A.R. AKHMETZHANOV, A.A. MELIKYAN and A.L. FRADKOV: The optimality of the velocity-gradient method in the problem of controlling the escape from a potential well	809
O.I. KOSTYUKOVA and M.A. KURDINA: The construction of discontinuous controls for non-linear dynamical system with uncertainties	819
O.R. KAYUMOV: The global controllability of some mechanical systems with absolutely elastic impacts.	834
V.I. MAKSIMOV: Reconstruction of controls in exponentially stable linear systems subjected to small perturbations	851
L.D. AKULENKO: Boundary kinematic control of a distributed oscillatory system.	862
C.A. ALEKSEYEVA, V.I. VOROTNIKOV and V.A. FEOFANOVA: Problems of the partial stability and detectability of dynamical systems	869
B.S. BARDIN: The orbital stability of periodic motions of a Hamiltonian system with two degrees of freedom in the case of 3:1 resonance	880
A.A. ZEVIN and L.A. FILONENKO: A qualitative investigation of the oscillations of a pendulum with a periodically varying length and a mathematical model of a swing	892

S.V. KHIZGIYAYEV: Self-excited oscillations of a two-mass oscillator with dry “stick-slip” friction	905
S.P. SOSNITSKII: The stiffness of quasilinear gyroscopically coupled systems with respect to low and high frequency periodic perturbations	914
V.S. ASLANOV: The oscillations of a body with an orbital tethered system	926
A.D. BRUNO and V.P. VARIN: Periodic solutions of the restricted three-body problem for a small mass ratio	933
Contents of next issue	961