NATIONAL ACADEMY OF SCIENCES OF UKRAINE

PIDSTRYHACH INSTITUTE OF APPLIED PROBLEMS OF MECHANICS AND MATHEMATICS

APPLIED PROBLEMS OF MECHANICS AND MATHEMATICS

SCIENTIFIC PROCEEDINGS FOUNDED IN 2003

Issue 11 **Lviv** 2013

CONTENTS

Zagorodnyuk A. V., Petriv H. M. Homomorphisms of algebras of entire functions of bounded type on a Banach space 7

Lozynska V. Ya., Sharyn S. V. Polynomial ω-ultradistributions of Beurling and Roumieu type 12

Snitko H. A. Determination of the time-dependent functions in the minor coefficient in a parabolic equation in free boundary domain 21

Labachuk O. V. Multiplicative analytic mappings of Banach algebras 33

Dzhaliuk N. S., Petrychkovych V. M. The absolute factorization of matrices in the rings of block-triangular matrices 36

Zabavsky B. V., Romaniv O. M. Elementary reduction of matrices over commutative Bezout ring with N-fold stable range 2 41

Zelisko V. R., Kuchma M. I. Symmetric matrices and matrix equations over rings of quasipolynomials with involution 45

Tertychna O. M. 0-semisimple matrices and representations of g-idempotent semigroups 52

Stoika M. V. On matrix representations of cyclic two group over the domain of integrity of characteristic zero 58

Shavarovskii B. Z. Semiscalar equivalence of polynomial matrices and triangular similarity of numerical matrices 63

Shchedryk V. P. Generated set of matrices divisors and its propertiess 70

Gatalevych A. I. Unit-central rings of stable rank 1 76

Sorokin O. S. Morphic right MPI-rings 79

Kuznitska B. M. Von Neumann regular matrices over a commutative Bezout domain is unit regular matrices 82

Popovych R. B. Construction of high order elements in finite fields of general form 85

Protsyuk B. V., Gorun O. P. The thermoelastic state of a piecewise homogeneous body during the cooling down by different initial temperatures of components 90

Tokova L. P., Yasinskyy A. V. Stressed state of a multilayer inhomogeneous cylinder subjected to uniform compression on its lateral surface 101

Chekurin V. F., Sinkevych O. O. A boundary-element method for solving of 2-d steady-state problems for thermal identafication of tunel cavity in a long cylinder 108

Marchuk M. V., Tuchapskyy R. I. Some problems of cylindrical bending of long rectangular plates including transverse shear and geometrical nonlinearity 118

Kunets Ja. I., Matus V. V. Mischenko V. O., Rabosh R. V. SH-wave pulses scattering by a thin linear piezoelectric inclusion of low rigidity in elastic medium 129

Pjanylo Y. D., Sobko V. G. construction and research based biorthogonal polynomials Chebyshev polynomials 135

Chernukha O. Y., Davydok A. Y. Modeling diffusion flows in a two-phase multilayered ramdomly nonhomogeneous strip at uniform distribution of phases 142

Porokhovs'kyi Yu. V. Determining of the influence of residual stresses on the strength of welded shell machine-building structures with axial surface cracks in the weld zone 151

Shevchuk V. A. Thermoelastic problem for half-space with multilayer coating 157

Demydyuk M. V. Optimization of the parameters and control of the four-link close-chain manipulator 164

Bernakevych I. Ye., Vahin P. P., Shot I. Ya. Nonlinear deformation of thin shells compliant to shear and pressure 174

Kuzin M. O., Nykolyshyn T. M., Rostun M. Yo. Limit equilibrium of spherical shell made from functionally gradient material with internal crack arbitrary configuration 183

Flyud O. V. A priori estimates of the boundary problem solution for degenerate semilinear hyperbolic system first order in the sector 188

Malanchuk N. I. Contact stresses in solids with surface groove under sequential loading 193

Horyachko T. V., Pakosh V. S. Perturbation method for analysis of geometrically nonlinear free vibrations of anisotropic elongated cylindrical plates 199

Lesyk O. F. Influence of conditions fixing of alongated ends of orthotropic cylindrical panels on their natural frequencies 205