

NATIONAL
ACADEMY
OF SCIENCES
OF UKRAINE

PIDSTRYHACH
INSTITUTE OF
APPLIED PROBLEMS
OF MECHANICS AND
MATHEMATICS

MATHEMATICAL METHODS and PHYSICOMECHANICAL FIELDS

SCIENTIFIC JOURNAL

FOUNDED IN 1975

Vol. 59, No. 1

L'viv 2016

CONTENTS

| | |
|--|-----|
| <i>Hachkevych O. R., Kushnir R. M.</i> Selected problems of mechanics of coupled fields | 7 |
| <i>Bogdanov V. L., Nazarenko V. M.</i> Analysis of non-classical fracture problems of pre-stressed bodies with interacting cracks | 25 |
| <i>Pelykh V. O., Taistra Y. V.</i> Class of general solutions of Maxwell equations in Kerr space-time | 48 |
| <i>Sukhorolsky M. A.</i> Orthogonal over the domain systems of functions and their application in boundary value problems of mathematical physics | 58 |
| <i>Lopushanska H. P., Myaus O. M.</i> Restoration of initial values in problem for a time fractional diffusion equation | 68 |
| <i>Tokibetov J. A., Abduakhitova G. E., Sarsekeyeva A. S.</i> Multidimensional analogues of the Cauchy – Riemann's system and representations of their solutions via harmonic functions | 78 |
| <i>Nemirovskii Yu. V., Babin A. I.</i> Coupled thermoelasticity problem for multilayered composite shells of revolution. I. Theoretical aspects of the problem | 86 |
| <i>Yankovskii A. P.</i> Study of the spectral stability of generalized Runge – Kutta methods applied to initial-boundary value problems for equations of parabolic type. I. Explicit methods | 99 |
| <i>Avramenko O. V., Naradovyi V. V., Selezov I. T.</i> The energy of internal and surface wave motions in two-layered hydrodynamic system | 111 |

| | |
|---|-----|
| <i>Grigorenko A. Ya., Parkhomenko A. Yu., Vasilieva L. Ya., Borisenko M. Yu.</i> Solving the problem on free vibrations of a non thin orthotropic shallow shell of variable thickness in a refined statement | 121 |
| <i>Grigorenko Ya. M., Rozhok L. S.</i> Effects of variation of orthotropic parameters on stress state of hollow cylinders with concave corrugated cross-section . | 132 |
| <i>Opanasovych V. K., Slobodyan M. S.</i> Bending isotropic plate with two equal coaxial through-thickness cracks with accounting the width of a contact zone of its faces and in the presence of plastic zones near its tips | 141 |
| <i>Solyar T. Ya.</i> Viscoelastic stresses in plates containing inclusion with crack | 150 |
| <i>Hrytsyna O. R.</i> A generalized continuum phenomenological model for viscous liquid: accounting local mass displacement | 161 |
| <i>Chekurin V. F., Boychuk Yu. V.</i> Mathematical model for IR emission tomography of temperature field in isotropic layer | 171 |