

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. 67, No. 1-2

L'viv 2024

CONTENTS

<i>Shavarovskii B. Z.</i> On the classification of one type of polynomial matrices of simple structure with respect to semiscalar equivalence	5
<i>Fedorchuk V. M., Fedorchuk V. I.</i> On the construction and classification of the common invariant solutions for the (1+3)-dimensional Euler – Lagrange – Born – Infeld and homogeneous Monge – Ampère equations	15
<i>Voznyak O. H., Medynskiy I. P.</i> The fundamental solution of the Cauchy problem for degenerate parabolic Kolmogorov-type equations of arbitrary order with degeneration on the initial hyperplane	26
<i>Pukach P. Ya., Repetylo S. M.</i> The Dirichlet – Neumann problem for partial differential equations unsolved with respect to the highest time derivative	45
<i>Savenko P. O.</i> On nonuniqueness of solutions of the nonlinear Urysohn type integral equation with three numerical parameters	57
<i>Kunynets A. V., Kutniv M. V., Khomenko N. V.</i> Algorithm for solving the Sturm – Liouville problem on the basis of the three-point difference schemes of a high order of accuracy	69

<i>Kushnir R. M., Protsiuk B. V., Protsiuk Yu. B.</i> Determination of the nonstationary temperature field of a multilayer plate under nonlinear boundary conditions	78
<i>Tokovyy Yu. V., Postolaki L. I.</i> Ensuring targeted displacements of the elastic half-plane boundary under a steady-state temperature field using force loading	89
<i>Piddubniak O. P.</i> Temperature field in a circular cylindrical channel of finite length filled with a dispersed mass transferred as a result of the rotation of an induction heated helix	103
<i>Kushnir R. M., Zhydyk U. V.</i> An analytic solution to the bending problem for an inhomogeneous orthotropic cylindrical shell under local heating and axial loading	126
<i>Horechko O. M., Zavodovska N. O.</i> Transverse vibrations of a circular plate with an elastically restrained edge	136
<i>Solyar T. Ya., Maksymovych Ya. V., Mazurak A. V.</i> Elastoplastic and residual stresses in plates under the local heating by heat sources	143
<i>Trach V. M., Podvornyi A. V., Bondarskyi O. H.</i> Thermoforce deformation of non-thin anisotropic cylindrical shells protected by a functionally graded material	153
<i>Chaplya Ye. Ya., Chernukha O. Yu., Bilushchak Yu. I.</i> Mathematical modeling of convective diffusion under conditions of nonlinear sorption in a two-layered porous body	165
<i>Ostryk V. I.</i> Boundary wedging of an elastic half-plane and a plane with a semi-infinite thin rigid inclusion	176
<i>Vasil'ev K. V., Sulym H. T.</i> Elastic equilibrium of a space with multilayer anisotropic thin band inclusion under longitudinal shear	192
<i>Popov V. G., Kyrylova O. I.</i> Iterative method for determination of the two-dimensional dynamic stress state in the presence of a system of thin rigid inclusions in an elastic body	207
<i>Maksymuk O. V., Chudyk I. I., Krechkovska H. V., Vasyilkiv I. M.</i> Contact interaction and wear of coated bodies based on a model with two bedding coefficients	217
<i>Kipnis A. L.</i> Stability of a homogeneous infinite strip under compression along an internal crack	224
NEW ITEMS and INFORMATION	
<i>Yaroslav Ivanovych Kunets' (23.08.1956–21.05.2024)</i>	233