

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. 55, No. 2**

L'viv 2012

---

---

## CONTENTS

<i>Kuchmins'ka Kh. Yo.</i> Two-dimensional regular C-fractions . . . . .	7
<i>Komatsu T.</i> On convergents of certain values of Tasoev continued fractions associated with Diophantine equations . . . . .	16
<i>Mytrofanov M. A.</i> Properties of separating polynomials and separating uniformly analytic functions . . . . .	23
<i>Konarovsky M. I.</i> On problems without initial conditions for singular parabolic systems . . . . .	30
<i>Shchogolev S. A.</i> On a special case of existence of quasilinear differential systems solutions represented by Fourier-series with slowly varying parameters . . . . .	41
<i>Sukhorolsky M. A., Dostoyna V. V.</i> One class of biorthogonal systems of functions that appears at solving Helmholtz equation in cylindrical coordinate system . . . . .	52
<i>Andreykiv A. Ye., Dolinska I. Ya., Kukhar V. Z.</i> Mathematical model for determination of life-time of plates with systems of cracks under long-term static breaking load and high temperature . . . . .	63
<i>Pasternak Ia. M., Sulym H. T.</i> Coupled 2D electric, magnetic and mechanical fields in dielectrics with cracks and thin inclusions . . . . .	71
<i>Dovbnya K. M., Dmitriyeva I. V., Yeremina N. D.</i> Study of the size of plastic zones at the crack tips in orthotropic shell with accounting material hardening . . . . .	86

<i>Loveikin A. V.</i> Feature of stress behavior in incompressible half-space with internal V-shaped crack lying in the plane perpendicular to the half-space surface and its tip reaches the surface .....	93
<i>Nazarchuk Z. T., Kuryliak D. B., Voytko M. V., Kulynych Ya. P.</i> On interaction of elastic SH-wave with interface crack in absolutely rigid joint of plate and half-space .....	107
<i>Yankovskii A. P.</i> Visco-plastic dynamics of metal-composite shells of layered-fibrous structure under loadings of explosive type. I. Formulation of the problem and method of solution .....	119
<i>Kaloerov S. A., Petrenko O. A.</i> Thermoviscoelasticity problem for piecewise homogeneous anisotropic plate.....	131
<i>Gorynin G. L., Nemirovskii Yu. V.</i> Method of rigidity functions in problems of calculation of multilayered bars at temperature loadings .....	144
<i>Fialko S. Yu., Lumelskyj D. E.</i> On numerical realization of torsion and bending problems for prismatic bars with arbitrary cross sections .....	156
<i>Belubekyan M. V., Sanoyan Yu. G.</i> To stability problem of composite plates under its heating .....	170
<i>Papkov S. O.</i> Steady-state forced vibrations of a rectangular orthotropic prism .	177
<i>Terletskii R. F., Turii O. P.</i> Modeling and investigation of heat transfer in plates with thin coatings in view of radiation effect .....	186