

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. 4**

L'viv 2016

---

---

## CONTENTS

<i>Baranetskij Ya. O., Kalenyuk P. I.</i> Boundary value problems with regular but not strenuously regular by Birkhoff conditions for the second-order differential operator .....	7
<i>Prokip V. M.</i> On solvability of the system of matrix equations $AX = B$ , $BY = A$ over associative rings .....	24
<i>Gutik O. V., Maksymyk K. M.</i> On semitopological bicyclic extensions of linearly ordered groups .....	31
<i>Vasil'ev K. V., Sulym H. T.</i> The method of direct cutting-out in the problems of piecewise-homogeneous bodies with interfacial cracks under longitudinal shear .....	44
<i>Ostrik V. I.</i> Asymptotic distributions of stresses and displacements in the vicinity of the edge of contact domain .....	58
<i>Chernobai V. S., Kushch V. I.</i> Antiplane shear of elastic solid with elliptical inclusions and imperfect interfaces .....	72
<i>Ganulich N. V.</i> Finite-length cylindrical shell with low shearing rigidity due to the local heat sources .....	82
<i>Bernakevych I. Ye., Vahin P. P., Koziy I. Ya., Kharchenko V. M.</i> Analysis of problem on stability of thin shells compliant to shear and compression .....	91
<i>Chernukha O. Y., Chuchvara A. Ye.</i> Modeling flows of admixture substance in a random layered strip with probable disposition of inclusions near the body boundaries .....	97

<i>Kondrat V. F., Hrytsyna O. R.</i> The equations of local gradient electromagnetothermomechanics of polarizable nonferromagnetic solids with regard for electric quadrupole moments .....	108
<i>Stelmashchuk V. V., Shynkarenko H. A.</i> Well-posedness of Lord – Shulman thermopiezoelectricity variational problem .....	116
<i>Kolyada R. A., Maksymenko-Sheyko K. V., Sheyko T. I.</i> The R-functions method in mathematical modelling of convective heat transfer in the octahedral fuel cartridge with 37 fuel rods .....	128
<i>Shatskyi I. P., Makoviichuk M. V., Shcherbii A. B.</i> Influence of flexible coating on strength of shallow cylindrical shell with a longitudinal crack .....	135
<i>Demydyuk M. V., Hoshovska N. V.</i> Parametric optimization of transport operations of two-link manipulator .....	142
NEW ITEMS AND INFORMATION	
<i>Vasyl' Stepanovych Popovych (01.08.1948–13.11.2016)</i> .....	153
ALPHABETICAL INDEX for 2016 (vol. 59) .....	157