



Petru Maior
UNIVERSITY
of
TÎRGU - MUREȘ

SCIENTIFIC
BULLETIN OF THE
“PETRU MAIOR”
UNIVERSITY OF
TÎRGU-MUREȘ

2013
Volume 10 (XXVII) – New Series
Number 2

Published by
“Petru Maior” University Press

ISSN-L 1841-9267 (Print)
ISSN 2285-438X (Online)
ISSN 2286-3184 (CD-ROM)

**SCIENTIFIC BULLETIN
OF THE
„PETRU MAIOR” UNIVERSITY OF TÎRGU MUREŞ**

EDITOR IN CHIEF

Liviu MOLDOVAN

„Petru Maior” University of Tîrgu Mureş, Romania

SCIENTIFIC COMMITTEE

Ioan ABRUDAN

Osei ADJEI

Ketil ARNESEN

Hussein Salem BIN SALEM

Csaba BLAGA

Ejub DŽAFEROVIĆ

Maurice GRECH

Csaba GYENGE

Khalifa Abdalla M. HAMMUDA

Hanbey HAZAR

Khalil KHALILI

László KOVÁCS

Péter KÖRTESEI

Liviu MASALAR

Abd Hamid Muftah SHADI

Radu MUNTEANU

Cengiz ONER

Elena PÉREZ-BERNABEU

Horia F. POP

Costache RUSU

S. SATHISH

Cenk SAYIN

Samuel SÁNCHEZ CABALLERO

Miguel Angel SELLES CANTÓ

İlyas SOMUNKIRAN

John B. STAV

Hasham A.E. MAGD

Technical University of Cluj Napoca - Romania

University of Bedfordshire - United Kingdom

Sør-Trøndelag University College - Norway

Lyban Academy – Lyban

University of Miskolc – Hungary

University of Sarajevo – Bosnia and Herzegovina

Malta College of Arts, Science and Technology - Malta

Technical University of Cluj Napoca - Romania

Lyban Academy – Lyban

Firat University – Turkey

University of Birjand – Iran

University of Miskolc – Hungary

University of Miskolc – Hungary

University of Liege – Belgium

Lyban Academy – Lyban

Technical University of Cluj Napoca – Romania

Firat University – Turkey

Politechnical University of València – Spain

Babeş Bolyai University of Cluj Napoca – Romania

Gh. Asachi Technical University of Iaşi – Romania

Aaltn Muhamed Salegh College of Engineering – India

Marmara University – Turkey

Politechnic University of València – Spain

Politechnic University of València – Spain

Firat University – Turkey

Sør-Trøndelag University College – Norway

University of Buraimi - Sultanate of Oman

Editorial Board

Dorin BICĂ

Vasile BOLOŞ

Nicolae CHIRILĂ

Mircea DULĂU

Călin ENĂCHESCU

Bela FINTA

Lucian GRAMA

Liviu MARIAN

Alexandru MORAR

Dorin SARCHIZ

Teodor SOCACIU

Executive Editor

Dumitru BUDA

Desktop publishing:

CSIZMADIA Erzsebet

Adriana SIMON

ISSN-L 1841-9267 (Print), ISSN 2285-438X (Online), ISSN 2286-3184 (CD-ROM)

Editura Universităţii „Petru Maior” Tîrgu Mureş

e-mail: liviu.moldovan@ing.upm.ro, dumitrubuda@gmail.com

Str. Nicolae Iorga, nr. 1,

540088, Tîrgu Mureş, Romania

Tel/fax 0265-211838



“Petru Maior” University Press



ISSN-L 1841-9267 (Print)
ISSN 2285-438X (Online)
ISSN 2286-3184 (CD-ROM)

CONTENTS

ASPECTS REGARDING OF SURFACE ROUGHNESS OBTAINED FROM PROCESSING ARCHIMEDIAN WORMS ON CNC MACHINES WITH FRONTAL-CYLINDRICAL MILLING TOOL	5
<i>Sorin Cristian Albu, Vasile Boloş, "Petru Maior" University of Tîrgu Mureş, Romania</i>	
CONTACT STRESSES BETWEEN TWO CYLINDRICAL BODIES WITH PARALLEL AXES: ANALISYS BY F.E.M.	9
<i>Ligia Cristina Brezeanu, "Petru Maior" University of Tîrgu Mureş, Romania</i>	
VIBRATION MODELLING FOR SYSTEMS WITH COMPLEX STRUCTURE.....	15
<i>Ágoston Katalin, "Petru Maior" University of Tîrgu Mureş, Romania</i>	
RESEARCH ON THE WEAR AND MISCROSTRUCTURE OF AS CRANK SHAFT BEARING COATED WITH ALLOYS OF ZN-10C AND ZN-20AL-15C-5O	20
<i>Hanbey Hazar, Firat University, Elazig, Turkey</i> <i>Omer Cihan, Istanbul Technical University, Istanbul, Turkey</i>	
FIVE PHASE HYBRID STEPPING MOTOR MICROSTEPPING CONTROL	26
<i>Zsolt Albert Barabas, Alexandru Morar, "Petru Maior" University of Tîrgu Mureş, Romania</i>	
WAVELET TRANSFORM BASED NONLINEAR PREDICTION OF SIGNALS	35
<i>Zoltan German-Sallo, Horatiu-Stefan Grif, "Petru Maior" University of Tîrgu Mureş, Romania</i>	
DETERMINING OPTIMAL CAPACITY OF WIND GENERATION IN A CONVENTIONAL POWER SYSTEM.....	39
<i>Shahrokh Shojaeian, Hadi Akram, Islamic Azad University, Isfahan, Iran</i>	
IMPROVING PRODUCT RELIABILITY UNDER ACCELERATED LIFE TESTING USING MONTE CARLO SIMULATION	45
<i>Sebastian Marian Zaharia, Ionel Martinescu, Transilvania University of Braşov, Romania</i>	
HILBERT TRANSFORM ALGORITHM IN LABVIEW	49
<i>Oana Muntean, Technical University of Cluj-Napoca, Romania</i>	
EXTENSION OF HOMOTOPY DECOMPOSITION METHOD (HDM) TO COUPLED NONLINEAR VAN DER POL TYPE'S EQUATION	54
<i>Abdon Atangana, Institute for Groundwater Studies, Faculty of Natural and Agricultural Sciences, University of the Free State, South Africa</i> <i>Hasan Bulut, Faculty of Sciences, Firat University, Elazig, Turkey</i>	
ASSESSMENT OF IMPACTS ON GROUND WATER RESOURCES IN LIBYA AND VULNERABILITY TO CLIMATE CHANGE	63
<i>S.P. Bindra, UNCSO Rio+20 Focal Point, Tripoli, Libya</i> <i>S. Abulifa, A. Hamid, Ministry of Local Governance, Tripoli, Libya</i> <i>H.S. Al Reiani, Ministry of Water Resources, Tripoli, Libya</i> <i>Hammuda Khalifa Abdalla, Ministry of Labour, Tripoli, Libya</i>	
THE CSR IMPLEMENTATION.....	70
<i>Mihaela Bucur, "Petru Maior" University of Tîrgu Mureş, Romania</i>	