



UDC: 621

ISSN 1451-2092

University of Belgrade
Faculty of Mechanical Engineering

FME TRANSACTIONS

New Series, Volume 45, Number 3, 2017

Editor:

Boško Rašuo
University of Belgrade

Associate Editor:

Stevanović Vladimir
University of Belgrade

Editorial Board:

Avellan François
Swiss Federal Institute of Technology, Zurich, Switzerland

Cizmas Paul
Texas A&M University, College Station, USA

Dulikravich S. George
Florida International University, Miami, USA

Đorđević Vladan
University of Belgrade

Ehmann F. Kornel
Northwestern University, Evanston IL, USA

Felix Hong
Wayne State University, Detroit, USA

Fragassa Cristiano
Alma Mater Studiorum - University of Bologna, Italy

Gabi Martin
Karlsruher Institut für Technologie (KIT), Germany

Gajić Zoran
Rutgers University, USA

Jakirlic Suad
Technische Universität Darmstadt, Germany

Jovanović Jasmina
University of Belgrade

Kartnig Georg
Technische Universität Wien, Austria

Klimenko A. Sergei
National Academy of Sciences, Kiev, Ukraine

Komatina Mirko
University of Belgrade

Meerkamm Harald
Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

Mester Gyula
University of Szeged, Szeged, Hungary

Minak Giangiacomo
Alma Mater Studiorum - University of Bologna, Italy

Nedić Novak
University of Kragujevac

Plančak Miroslav
University of Novi Sad

Putnik Goran
University of Minho, Portugal

Radovanović Miroslav
University of Nis

Sedmak Aleksandar
University of Belgrade

Soutis Constantinos
The University of Manchester, Manchester, UK

Stamenović Dimitrije
Boston University, Boston, USA

Technical Editor:

Sedmak Simon
University of Belgrade

Published by:
University of Belgrade
Faculty of Mechanical Engineering

Volume 45, No 3, 2017, pp. 315 – 458

CONTENTS

	PAGE
Giangiaco Minak, Cristiano Fragassa, Ana Pavlovic <i>Determination of Stress Distribution in Women's Shoes During High-Heeled Gait</i>	315
Dario Vangi, Antonio Virga, Michelangelo Gulino <i>Study on the Most Influential Parameters in Low-Power Laser Generation Ultrasound</i>	323
Marco Silvestri, Matteo Confalonieri, Andrea Ferrario <i>Piezoelectric Actuators for Micro Positioning Stages in Automated Machines: Experimental Characterization of Open Loop Implementations</i>	331
Giorgio Zattini, Ana Pavlovic, Cristiano Fragassa, Loris Giorgini <i>Characterization of Solid Residues Emerging During Ultrasonic Cleaning Treatments of Tyre Moulds</i>	339
Milan Sljivic, Ana Palovic, Jovica Ilic, Mico Stanojevic, Slavisa Todorovic <i>Comparing the Accuracy of Professional and Consumer Grade 3D Printers in Complex Models Production</i>	348
Ana Pavlovic, Milan Sljivic, Milija Kraisnik, Jovica Ilic, Anita Anic <i>Polymers in Additive Manufacturing: the Case of a Water Pump Impeller</i>	354
M. Ragni, D. Castagnetti, A. Spaggiari, F. Muccini, E. Dragoni, M. Milelli, S. Girlando, P. Borghi <i>Shear Strength Characterization of Metal-Elastomer Bonded Joints</i>	360
Ante Skoblar, Roberto Žigulić, Sanjin Braut, Sebastijan Blažević <i>Dynamic Response to Harmonic Transverse Excitation of Cantilever Euler-Bernoulli Beam Carrying a Point Mass</i>	367
Sebastijan Blažević, Sanjin Braut, Roberto Žigulić, Ante Skoblar <i>Electromechanical Vibrations of the Vertical Lathe Machining Centre Caused by the Fault of the Working Table Rolling Bearing</i>	374
Cristiano Fragassa, Ivan Macaluso, Massimiliano Vaccari, Giuseppe Lucisano <i>Measuring the Mechanical and Climatic Conditions Encountered by Palletized Products in Handling and Transport</i>	382
Felipe Vannucchi de Camargo, Cristiano Fragassa, Ana Pavlovic, Matteo Martignani <i>Analysis of the Suspension Design Evolution in Solar Cars</i>	394
A. Franco Bulian, Flaviano Collavini, Alessia Matellon <i>Investigating the Effects of Weathering on Wood Coatings</i>	405

(Contents continued on inside back cover)

The publication of the Vol. 45, No 3 of this Journal was fully financially supported by the Ministry of Education and Science of the Republic of Serbia. This support is gratefully acknowledged.

Printed by:
"PLANETA print", Ruzveltova 10, 11000 Belgrade

Aims and Scope:

The journal FME Transactions publishes original papers (reviewing and contributed papers, and short communications) from all fields of Mechanical Engineering, which is, as a branch of Engineering, considered in the journal in its broadest possible sense. Thus, the articles are welcome from: Applied Mechanics, Fluids Engineering, Thermodynamics, Heat and Mass Transfer, Robotics, Material Science, Tribology, Combustion, Mechanical Design and Machine Dynamics, Productional, Industrial, Agricultural, Aerospace, Processing, Railway, Biomedical and Control Engineering, Mechanization, Hydro- and Thermo-power Systems, Internal Combustion Engines and Vehicle Dynamics, Energy Resources Technology, Military Technology, Naval Architecture, and Applied and Industrial Mathematics.

Theoretical, experimental and computational analyses of various problems of Mechanical Engineering are equally welcome and acceptable for publication. In addition, there will be published book reviews, announcements of symposia, and in special issues, proceedings of selected papers from symposia organized by the Faculty of Mechanical Engineering in Belgrade.

Reviewing papers will be published by invitation only. One volume consists of four numbers.

Instructions for Authors:

A FME Transaction manuscript should be written clearly and concisely in correct English, with assumptions clearly identified, with precise logic, with relevance to practice described, and with actual accomplishments of the work plainly stated and honestly appraised.

Normally, the length of a reviewing paper is up to 12 pages, the length of a contributed paper is up to 8 pages, while the length of a short communication should not exceed 4 pages. All papers are subject to a reviewing process. During the process the names of referees will be kept confidential to authors, and also the names of authors will remain anonymous to referees. As a rule the reviewing process should be accomplished in 2-3 months. Final acceptance of a paper for publication in the Journal is based on the decision of the Editorial Board.

Template for Manuscript:

<http://www.mas.bg.ac.rs/transactions>

Submission of Papers:

Papers intended for publication in FME Transactions should be submitted to the Editor, in the electronic form, to the following address:

fme-transactions@mas.bg.ac.rs

or:

Prof. Bosko Rasuo, Editor
brasuo@mas.bg.ac.rs
Faculty of Mechanical Engineering
Kraljice Marije 16,
11120 Belgrade 35
Serbia

On line service:

<http://www.mas.bg.ac.rs/transactions>

ISSN 1451-2092

UDC: 621

Volume 45, No 3, 2017, pp. 315 – 458

CONTENTS CONTINUED

	PAGE
Rafael de Lima Lemos, Rodrigo Spotorno Vieira, Liércio André Isoldi, Luiz Alberto Oliveira Rocha, Martim dos Santos Pereira, Elizaldo Domingues dos Santos	412
<i>Numerical Analysis of a Turbulent Flow with Coanda Effect in Hydrodynamics Profiles</i>	
Bernardo M. Gontijo, Vítor I. P. P. Henriques Filho, Warley F. R. Ribeiro, Rogério Jorge Amorim	421
<i>Voltage Control of a Generator for a Hybrid Vehicle Prototype</i>	
Keith Dillian Schneider, Cassiano Cerqueira Soares, Hazim Ali Al-Qureshi	428
<i>Cracking Propagation Prediction Methodology Applied for a Bulk Carrier</i>	
S. Boria, J. Obradovic, G. Belingardi	435
<i>On Design Optimization of a Composite Impact Attenuator Under Dynamic Axial Crushing</i>	
Miloš Stanković, Miloš Ristić, Aleksandar Simonović, Miroslav Jovanović	441
<i>Buckling Behaviour of Dented Aluminium Alloy Cylindrical Shell Subjected to Uniform Axial Compression</i>	
Dejan V. Matijević, Vladimir M. Popović	448
<i>Overview of Modern Contributions in Vehicle Noise and Vibration Refinement with Special Emphasis on Diagnostics</i>	
