International virtual journal for science, technics and innovations for the industry

MTM

MACHINES TECHNOLOGIES MATERIALS

YEAR VIII Issue 2 / 2014 ISSN 1313-0226



Published by
Scientific technical
Union of Mechanical Engineering

MACHINES, TECHNOLOGIES, MATERIALS

INTERNATIONAL VIRTUAL JOURNAL

PUBLISHER

SCIENTIFIC TECHNICAL UNION OF MECHANICAL ENGINEERING

108, Rakovski Str., 1000 Sofia, Bulgaria
tel. (+359 2) 987 72 90,
tel./fax (+359 2) 986 22 40**,**
nts-bg@mech-ing.com,
www.mech-ing.com/journal

ISSN 1313-0226
YEAR VIII ISSUE 2 / 2014

EDITORIAL BOARD

Editor-in-chief: Prof. Dr. Mitko Mihovski – Chairman of the Scientific Council of the STUnion of Mechanical Engineering

AKADEMIC CONCEPTIONAL BOARD
Acad. Vassil Sgurev
Acad Yachko Ivanov
Acad Vladimir Klyuev
Acad. Rivner Ganiev
Corr. mem. Georgi Mladenov
Corr. mem. Dimitar Buchkov
Corr. mem. Stefan Hristov
Corr. mem. Venelin Jivkov
Corr. mem. Anatoliy Kostin
Corr. mem. Edward Gorkunov

EDITORIAL COUNCIL
Prof. D.Sc. Georgi Popov
Prof. D.Sc. Alexander Skordev
Prof. D.Sc. Nikola Rashkov
Prof. D.Sc. Dimitar Stavrev
Prof. D.Sc. Hristo Shehtov
Prof. Dr. Todor Neshkov
Prof. Dr. Dimitar Damianov
Prof. Dr. Kiril Arnaudov
Prof. Dr. Snejana Grozdanova
Prof. Dr. Vassil Georgiev
Assoc. Prof. Lilo Kunchev

EDITORIAL BOARD – EXPERTS AND REVIEWERS

FROM BULGARIA
Prof. D.Sc. Nyagol Manolov
Prof. D.Sc. Vitan Galabov
Prof. D.Sc. Emil Momchilov
Prof. D.Sc. Emil Marinov
Prof. D.Sc. Dimitar Katzov
Prof. D.Sc. Stavri Stavrev
Prof. D.Sc. Georgi Raychevski
Prof. D.Sc. Ivan Yanchev
Prof. D.Sc. Marin Stoychev
Prof. D.Sc. Roman Zahariev
Prof. D.Sc. Vassil Mihnev
Prof. D.Sc. Valentin Abadjiev
Assoc. Prof. Dimitar Stanchev
Assoc. Prof. Milcho Angelov
Assoc. Prof. Mihail Mihovski
Assoc. Prof. Radi Radev
Assoc. Prof. Georgi Todorov
Assoc. Prof. Simeon Petkov
Assoc. Prof. Petar Dobrev
Assoc. Prof. Nikolay Piperov

FOREIGN MEMBERS
PD. D. PE Assoc. Prof D.Midaloponlas
Prof. Dr. Athanasios Mihaildis
Prof. Amos Notea
Prof. Dr. Eng. Airon Kubo
Prof. Dr. Eng Georg Dobre
Prof. Dr. Dimitrov Dimitar
Prof. Dr. Mohora Cristina
Prof. Dr. Popa Marcel
Prof. Dr. Sobczak Jerzy
Prof. Dr. Tamosiuniene Rima
Prof. Alexander Dimitrov
Prof. dr. Marian Tolnay
Prof. dr. Mikolas Hajduk

The current issue and the first issue of journal and the conditions for publication can be find on www.mech-ing.com/journal

CONTENTS

THE MOST IMPORTANT MACEDONIAN FOUNDRY COMPANIES
Cvetkovski S., D. Brkovski 3

CURRENT STATE AND PERSPECTIVES OF INCREASING OF TRIBOTECHNICAL CHARACTERISTICS OF ZINC ALLOYS
Prusov E., M. Korobkov. V. Kechin 9

FINITE ELEMENT SIMULATION OF THIN-WALLED BEAM TYPE- STRUCTURE BUCKLING UNDER CREEP REGIME
Lanc D., M. Buksa, J. Brnic. 11

COMPARISON OF THE EFFECTS OF INDIVIDUAL AND PRODUCTION ADJUSTMENT OF VEHICLES FOR LPG APPLICATION
Milovanović M., Z. Jovanović 15

COMPARATIVE ANALYSIS OF THE BODY VIBRATIONS OF NEW CARS EQUIPPED WITH THREE DIFFRENT TYPE OF ENGINES
Uzuntonev T., M. Magdziak – Tokłowicz, L. Sitnik, K. Miksiewicz, M. Reksa, M. Tkaczyk, R. S. Wróbel 19

A COMPARISON OF FUEL CONSUMPTION BETWEEN THE NEW EUROPEAN DRIVING CYCLE TEST AND THE NATURAL OPERATION OF A VEHICLE
Dimitrov R., M. Magdziak – Tokłowicz, L. Sitnik, M. Reksa , M. Tkaczyk, R. S. Wróbel 23

ROAD TRAFFIC SAFETY PERFOMANCE IN MONTENEGRO
Pajkovic V., M. Grdinic 26

DYNAMIC MODEL OF USING POWERED LITHIUM-ION BATTERIES FOR EV / HEV APPLICATIONS
Velev B., Iv. Ivanov 29

COMPARATIVE ANALYSIS OF PMAC MOTORS FOR EV AND HEV APPLICATIONS
Velev B. 32

POSSIBILITIES FOR OPTIMIZING MAINTENANCE OF MILITARY VEHICLES ON THE RESULTS OF TRIBOLOGICAL DIAGNOSTICS
Glos J.1, D. Valis, L. Zak 37

RESEARCH ON THE INFLUENCE OF THE TYPE OF MICROFILLER ON THE DAMPING CHARACTERISITCS OF POLYMER-CONCRETE COMPOSITES
Popov I.G. 40

TRACKED VEHICLE ANALYSIS WITH SIMULATION TECHNOLOGIES SUPPORT
Neumann V. 44

NEW TRENDS IN TRAFFIC SAFETY
Tomić-Petrović N. 48

TEST PLATFORM, DATA COLLECTION, SYSTEM IDENTIFICATION OF MULTICOPTER VEHICLE
Mutlu T., C. Hacızade 51

THE IMPACT ANALYSIS OF HYDROXIDE MIXTURE ADDITION ON THE COMBUSTION PROCESS IN THE DIESEL ENGINE.
Reksa M., M. Andrych, V. Mihaylov 56