

4th International Conference on Mechanics and Control Engineering (ICMCE 2015)

MATEC Web of Conferences Volume 35 (2015)

Lisbon, Portugal
23 - 25 November 2015

Editors:

**Zhihua Guo
Guanghsu Chang**

ISBN: 978-1-5108-1752-4

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

This work is licensed under a Creative Commons Attribution license:

<http://creativecommons.org/licenses/by/2.0/>

You are free to:

Share – copy and redistribute the material in any medium or format.

Adapt – remix, transform, and build upon the material for any purpose, even commercial.

The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

You must give appropriate credit, provide a link to the license, and indicate if changes were made.

You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. The copyright is retained by the corresponding authors.

Printed by Curran Associates, Inc. (2016)

For additional information, please contact EDP Sciences – Web of Conferences at the address below.

EDP Sciences – Web of Conferences
17, Avenue du Hoggar
Parc d'Activité de Courtabœuf
BP 112
F-91944 Les Ulis Cedex A
France

Phone: +33 (0) 1 69 18 75 75

Fax: +33 (0) 1 69 28 84 91

contact-edps@webofconferences.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

| | |
|--|----|
| TENSILE STRENGTH OF PHBV/NATURAL RUBBER LATEX MIXTURES | 1 |
| <i>Sarunya Promkotra, Tawian Kangsadan</i> | |
| SIGMA LEVEL VERIFICATION OF A THERMOPLASTIC INDUSTRY WITH THE SUPPORT OF DMAIC METHOD..... | 5 |
| <i>Antonio Carlos de Queiroz Santos, Danilo Praxedes Moura de Amorim, Suelyn Fabiana Aciole Morais, Helio Cavalcanti, Albuquerque Neto, Isabel Lausanne Fontgalland</i> | |
| MOLECULAR DYNAMICS SIMULATION OF COARSE-GRAIN MODEL OF SILICON FUNCTIONALIZED GRAPHENE | 10 |
| <i>Zhixin Hui, Xiaolin Liu</i> | |
| CONTACT AREA AND TEMPERATURE OF SAME-PARAMETER FRACTAL SURFACES IN SLIDING PROCESS..... | 14 |
| <i>Liu Bingbing, Zhou Chao</i> | |
| DYNAMIC ANALYSIS OF THE TITANIUM ALLOY PLATE UNDER THERMAL-AcouSTIC LOADINGS..... | 19 |
| <i>Xuefeng Zou, Dingwen Guo, Li Zhang</i> | |
| INTERFACE BEHAVIOR OF TUNGSTEN COATING ON STAINLESS STEEL BY ELECTRO SPARK DEPOSITION..... | 24 |
| <i>Yuangang Wang, Honggang Ma, Xiaopeng Li</i> | |
| MECHANICAL RESPONSE OF LOCAL RAPID COOLING BY SPRAY WATER ON CONSTRAINED STEEL FRAME STRUCTURE AT HIGH TEMPERATURE IN FIRE | 27 |
| <i>Yunchun Xia</i> | |
| EFFECT OF RARE ELEMENT CERIUM ON THE MORPHOLOGY AND CORROSION RESISTANCE OF ELECTRO-LESS NI-P COATINGS..... | 32 |
| <i>Chuan-qi Fu, Fan Yong, Siyuan Wang, Zhou Wang, Qingle Zhang, Xuliang Luo</i> | |
| THE INTELLIGENT CONTROL TECHNOLOGY OF MANUFACTURING EXECUTION PROCESS BASED ON RFID | 37 |
| <i>Ruicheng Fan, Aimin Wang, Yanpeng Lv</i> | |
| A CLASS OF GENERALIZED GOUGH-STEWART PLATFORMS USED FOR EFFECTIVELY OBTAINING DYNAMIC ISOTROPY – AN ANALYTICAL STUDY | 42 |
| <i>Behrouz Afzali-Far, Per Lidstrom</i> | |
| MODEL PREDICTIVE SPEED AND HEADWAY CONTROL WITH ENERGY OPTIMIZATION FOR A SERIES HYBRID VEHICLE WITH RANGE EXTENDER | 47 |
| <i>Liting Lu, Steffen Muller</i> | |
| CONTACT AND NON-CONTACT MEASUREMENTS OF GRINDING PINS | 52 |
| <i>Marek Magdziak, Roman Wdowik</i> | |
| THE APPLICATION OF RAPID PROTOTYPING TECHNOLOGY AND QUALITY FUNCTIONAL DEPLOYMENT (QFD) APPROACH IN ENHANCING THE ENDOTRACHEAL TUBE HOLDER MODEL IN MEDICAL APPLICATION | 57 |
| <i>Yusoff Way, Mohamad A. Hadi, Aesyahah</i> | |
| APPLICATION OF FOCUS-VARIATION TECHNIQUE IN MEASUREMENTS OF ULTRASONIC VIBRATIONS OF GRINDING PINS | 61 |
| <i>Roman Wdowik</i> | |
| CONTRIBUTION TO THE DEVELOPMENT OF SIMULATION MODEL OF SHIP TURBINE..... | 66 |
| <i>Ratko Božić, Frane Mitrović, Sandro Božić</i> | |
| A MODELING FRAMEWORK TO INVESTIGATE THE RADIAL COMPONENT OF THE PUSHRIM FORCE IN MANUAL WHEELCHAIR PROPULSION | 70 |
| <i>Marko Ackermann, Heitor Rogerio Costa, Fabrizio Leonardi</i> | |
| PREDICTION FOR OUTLET NOISE OF ROLLING PISTON COMPRESSOR..... | 78 |
| <i>Tieshan Zhang</i> | |
| RESEARCH ON THE IDENTIFICATION MODELING OF AIR-MAGNET ACTIVE VIBRATION ISOLATION SYSTEM | 84 |
| <i>Xianglong Wen, Caizhan Zhu, Rongli Hu, Chunsheng Song, Jinguang Zhang</i> | |
| RESEARCH OF AIR-MAGNET ACTIVE VIBRATION ISOLATION SYSTEM BASED ON H∞ CONTROL..... | 88 |
| <i>Xianglong Wen, Kang Yi, Rongli Hu, Chunsheng Song, Jinguang Zhang</i> | |

| | |
|--|-----|
| THE PRECISION CUTTING CONTROL RESEARCH OF AUTOMOTIVE STAINLESS STEEL THIN WALL PIPE..... | 92 |
| Lihong Jin, Shaotai Deng, Chuxiong Xie, Zhishen Wang, Chunfu Gao | |
| AN OPERATING PRECISION ANALYSIS METHOD CONSIDERING MULTIPLE ERROR SOURCES OF SERIAL ROBOTS..... | 96 |
| Cong Wei, Qingxuan Jia, Gang Chen | |
| LOW SPEED MOTION OPTIMIZATION OF SPACE MANIPULATOR BASED ON GRADIENT PROJECTION METHOD..... | 101 |
| Junjie Peng, Qingxuan Jia, Gang Chen, Yong Liu | |
| THE OPTIMIZATION OF GLOBAL FAULT TOLERANT TRAJECTORY FOR REDUNDANT MANIPULATOR BASED ON SELF-MOTION | 106 |
| Jian Zhang, Qingxuan Jia, Gang Chen, Hanxu Sun, Tong Li | |
| INTEGRATED WIRELESS MONITORING AND CONTROL SYSTEM IN REVERSE OSMOSIS MEMBRANE DESALINATION PLANTS..... | 111 |
| Ahmad Al Haji, Ali Al Odwani | |
| HYBRID MODEL PREDICTIVE CONTROL AS A LFC SOLUTION IN HYDROPOWER PLANTS | 116 |
| Emerson Donaisky, Gustavo H.C. Oliveira, Eduardo A.P. Santos, Gideon V. Leandro, Adina M. Pena, Joao A. Souza | |
| FORMALIZING REAL-TIME EMBEDDED SYSTEM INTO PROMELA..... | 121 |
| Punwess Sukvanich, Arthit Thongtak, Wiwat Vatanawood | |
| DESIGN AND APPLICATION OF LOCATION ERROR TEACHING AIDS IN MEASURING AND VISUALIZATION..... | 126 |
| Fengning Yu, Lei Li, Jian Guo, Songman Mai, Jiashun Shi | |
| DETECTION SYSTEM OF FASTENERS STATE BASED ON ZIGBEE NETWORKS..... | 131 |
| Jun-Juan Zhao, Bo Wang, Wen-Qiang Niu, Xian-Hui Li, Bin Zhang, Yue-yue Wang | |
| VACUUM SWITCHES ARC IMAGES PRE-PROCESSING BASED ON MATLAB | 135 |
| Huajun Dong, Yu Feng, Yingjie Guo, Wenyu Duan, Fangzhen Guo | |
| AN OPTIMIZATION METHOD FOR SUPPORT VECTOR MACHINE APPLIED TO SPEECH EMOTION RECOGNITION | 138 |
| Wanli Zhang, Guoxin Li, Wei Gao | |
| EFFECT OF MICROWAVE PRETREATMENT ON EXTRACTION YIELD AND QUALITY OF CATFISH OIL IN NORTHERN THAILAND..... | 142 |
| Thitiphan Chimsook, Waranya Wannalangka | |
| EFFECT OF ULTRASONIC-ASSISTED EXTRACTION ON PHENOLIC CONTENT OF FRESHWATER MACROALGAE IN NORTHERN THAILAND | 147 |
| Thitiphan Chimsook, Waranya Wannalangka | |
| SIMULATED RESEARCH ON PASSIVE SONAR RANGE USING DIFFERENT HYDROGRAPHIC CONDITIONS | 152 |
| Jing Han, Xue Gang Zhang, Chun Xia Meng, Feng Cao | |
| SYSTEM OF STRATEGIC PRIORITIES AND INDICATORS OF ECOLOGICALLY SUSTAINABLE SUBSOIL USE | 156 |
| Yuriy Lebedev, Nikolay Krupinin, Vladimir Belov, Konstantin Kokarev | |
| ERROR ANALYSIS OF TWO ROUND PLANE CIRCULAR SENSORS ARRAYS BASED ACOUSTIC POSITIONING SYSTEM | 161 |
| Lin Song Wu, Li Li, Liu, Jianxin Liu | |
| ANOMALY DETECTION BASED ON REGULARIZED VECTOR AUTO REGRESSION IN THERMAL POWER PLANT | 165 |
| Yi-Ming Wei, Hao Yu, Wen-Jun Wang, Yue-Heng Sun, Jian Wang, Zhan-Jie Song | |
| RESEARCH ON THE INFLUENCE OF DIMENSION AND LOCATION OF REFLECTIVE FILM ON THE RESONANCE FREQUENCY OF QUARTZ TUNING FORK | 169 |
| Zhoujiang Zhang, Shuhai Jia, Binshan Ma, Hualing Chen | |
| RESEARCH ON THE SYSTEM OF PULSE SYNTHESIS PRE-PUMP RAYLEIGH BOTDA TECHNOLOGY | 173 |
| Qifeng Shang, Wengang Ren, Xun Mao, Lixin Zhang | |
| NUMERICAL SIMULATIONS OF A FULLY DEVELOPED LIQUID-METAL MAGNETOHYDRODYNAMIC FLOW IN A CIRCULAR DUCT | 178 |
| Xinghui Cai, Hongfu Qiang, Sanqiang Dong, Guoliang Wang, Jiangren Lu | |
| A NUMERICAL SIMULATION ON HIGH PRANDTL NUMBER LIQUID BRIDGE | 182 |
| Shuo Yang, Ruquan Liang, Jicheng He | |
| APPLICATION OF LARGE EDDY SIMULATION IN THE PROCESS OF THE MULTI-PHYSICS FIELD COUPLING IN A COMBUSTION CHAMBER | 185 |
| Rang-Shu Xu, Kai Wang, Long Xu, Xin Yu | |
| Author Index | |