

4th International Conference on Mechanical Engineering and Automation Science (ICMEAS 2018)

IOP Conference Series: Materials Science and Engineering
Volume 470

Beijing, China
12 – 14 October 2018

ISBN: 978-1-5108-8097-9
ISSN: 1757-8981

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 3.0 International Licence. Licence details:
<http://creativecommons.org/licenses/by/3.0/>.

Printed by Curran Associates, Inc. (2019)

For permission requests, please contact the Institute of Physics
at the address below.

Institute of Physics
Dirac House, Temple Back
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481
Fax: 44 1 17 920 0979

techtracking@iop.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: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

Table of contents

Volume 470

2018 4th International Conference on Mechanical Engineering and Automation Science (ICMEAS 2018)

12–14 October 2018, Beijing, China

Accepted papers received: 23 November 2018

Published online: 24 January 2019

Preface

[2018 4th International Conference on Mechanical Engineering and Automation Science \(ICMEAS 2018\)](#)

[Committees](#)

[Peer review statement](#)

Papers

[Investigation of the Propulsion Properties of an M-shaped Bending-surface Feather Fan under Different Wind Velocities](#)

Luo Qing, Nie Xiaofang and Zhou Ximing.....1

[Improved Heat Transfer Correction Method for Turbocharger Compressor Performance Measurements](#)

Liyong Huang, Chaochen Ma, Yanzhao Li, Jianbing Gao and Mingxu Qi.....11

[Clutch Control Strategy of Driving Mode Transition for P2 Hybrid Electric Vehicle](#)

Shuhan Wang, Yanjing Liu and Tianyuan Cai.....19

[Finite Difference Method for Simulating Transverse Forced Vibration of Vertical Rope with Multi-Rope Winding Hoister](#)

Guoying Wang, Xingming Xiao, Yansong Ma, Xiao Di and Kaixuan Wang.....25

[Multi-body Dynamic Analysis of the Braking Process for Megawatt Wind Turbine Disc Brake](#)

S Zhang, C Xue, J Yin, Z Sha, F Ma, D Yang and Y Liu.....31

[Analysis on Vibration Characteristics of the Stringed Bead Wire of an Underwater Diamond Wire Saw](#)

L Zhang, M Liu, L Liu, G L Zhang, S H Gao and L Q Wang.....37

[Fault Diagnosis for Brake System in High-Speed Trains Using the Phased Features and Multi-layer Perceptron](#)

Changzheng Fang, Xiaoyong Zhang, Yijun Cheng, Shengnan Wang, Li Zhang and Yingze Yang.....44

[Unmanned Powered Paraglider Flight Path Control Based on PID Neural Network](#)

S T Qu.....50

[Effect of Pendulum Parameters on Performance of Electromagnetic Energy Harvester](#)

Hongyan Wang, Fengjuan Miao, Liying Zou and Tao Zhou.....60

[Effect of Surface Waviness on Aerostatic Bearing with Speed](#)

Chou Fan, Shanghan Gao and Zhuang Ni.....66

[Failure Strain Measurement of the Piping System of a Nuclear Power Plant Using Image Signals](#)

S W Kim, B G Jeon, D U Park and D W Yun.....75

[Finite Element Analysis for the Lifting Platform of a Self-Propelled Multi-Functional Machine Used in Orchard](#)

Bai Zongchun, Lv Xiaolan and Xia Liru.....82

[Performance Differences of a Solid Attitude Control Thruster under Different Working Media](#)

Zhong Yang, Hongwei Yan, Quanzhong Zhang and Wubin Li.....90

[Influence of Yield Stress Mismatch on the Creep Stress Field around Crack Tip of Stress Corrosion Cracking](#)

Zhang Jianlong and Xue He.....96

[The Study of Imperfect Maintenance Strategy based on Improved Age Reduction Factor](#)

Duan Junhang, Zhu Ling and Cao Li.....102

[Multi-objective Optimization of the Rapidly Assembled Helipad Deck](#)

Dan Wei, Xudong Deng, Lixun Zhang and Jiru Gong.....112

[On-Policy Learning for the Swing Process Control of a Cutter Suction Dredger](#)

Changyun Wei, Xiujing Chen and Fusheng Ni.....122

[A Path Planning Method for Robotic Wire and Arc Additive Manufacturing of Thin-Walled Structures with Varying Thickness](#)

Guocai Ma, Gang Zhao, Zhihao Li and Wenlei Xiao.....128

[Optimization of Key Parameters of Two-way Inner and Outer Tube Differential Pressure Flowmeter](#)

Bao-tong Fan and Jiang Meng.....136

[Applications of Spray Cooling Technology in Aerospace Field](#)

Ran Liu, Lei Zhang and Xian Zhang.....142

[Simulation Study on the Influence Law of Two-body Wear in Sliding Guide Ways](#)

Shengfang Zhang, Qiang Hao, Zhihua Sha, Yu Liu, Jian Yin, Fujian Ma and Dapeng Yang.....149

[Backlash Analysis of Compound Planetary Gear Set in Rotary Actuators](#)

Y Wang and F Yang.....155

[Simulation Calculation of Flow Characteristics of Air Separation System Based on Flowmaster](#)

Yu Zeng, Bing Sun and Haoyang Sun.....161

[Modal Analysis of Double-Bolted Connection under Different Operating Conditions](#)

Chao Cao, Xueyan Zhao, Weikang Du, Shourong Liu and Dehao Wu.....170

[Flexible Assembly Tooling Structure and Positioning Accuracy Analysis of Aircraft Fuselage Framework](#)

Q Bai, W Tian, Z H Shi, Y J Sun, J X Shen, W H Liao and H B Shi.....177

[Influence of Micro-texture Parameters on Bone Drilling Force and Torque: A Finite Element Model](#)

Yahui Hu, Xiangjun Li, Chuncheng Chen, Lili Su and Qingchun Zheng.....186

[Estimation of Grinding Force with Consideration of Rupture Factor](#)

Jianliang Guo, Jun Chi and Lianqing Chen.....195

[Effect of the Aging Treatment on the Tensile Strength and Impact Toughness of Friction Welded Super304H Joints](#)

Lu Yuan, Zhang Jianlong, Li Debiao, Bi Cheng and Ning Tao.....204

[Effect of the Aging Treatment on the Precipitates and Vickers Hardness of Friction Welded Super304H Joints](#)

Lu Yuan, Li Debiao, Zhang Jianlong, Shang Kang, Yang Yang and Cao Bo.....209

[Optimized Control Based on Nonlinear Modelling and Parameter Estimation of the Electro-Hydraulic Servo System](#)

Meng Li and Yong Zhang.....215

[Adaptive Neuro-Fuzzy Inference System Based Orientation Control of an Intra-operative Ultrasound Robot](#)

Shuangyi Wang, James Housden, Davinder Singh and Kawal Rhode.....225

[Research of High Precision Humidity Fuzzy Control Algorithm of One Kind Humidity Verification Device](#)

Guangda Lu, Qiuyue Zhang, Tongtong Qie and Qihui Feng.....231

[A Robot Odor Source Localization Strategy Based on Bionic Behavior](#)

Guangda Lu, Qiuyue Zhang, Tongtong Qie and Qihui Feng.....239

[A Modeling Method for Abrupt Change Shafts in Gearboxes and Experiment Verification](#)

Z C Liu, W Song and Q Lu.....247

[Fault Diagnosis Method of Autonomous Underwater Vehicle Based on Deep Learning](#)

Yushan Sun, Zikai Wang and Guocheng Zhang.....256

[Piezoelectric Energy Harvesting Based on Vertical Vibration of Car Body Induced by Road Surface Roughness](#)

Hongyan Wang, Fengjuan Miao, Zhilong Sun and Liqiu Jing.....262

[Friction-thermal-vibration Coupling Analysis of Large-megawatt Wind Turbine Brake](#)

S Zhang, P Xin, J Yin, Y Liu, Z Sha, F Ma and D Yang.....268

[The Longitudinal Dynamic Characteristics of a V/STOL Aircraft Based on Deflected Slipstream during the Hovering Phase](#)

Shi Chen and Weijun Wang.....274

[Adaptive Control Algorithm for Steady Flight of Mars UAV with Four Rotors](#)

Yangyang Liu, Lei Zhang and Jingyi Shao.....283

[Magnetic Circuit Design and Finite Element Analysis of Ferrofluid Seal of Engineering Machinery Hydraulic Cylinder](#)

Fan Chen, Xiaolong Yang and Shanghan Gao.....290

[Effect of Crack on Dynamic Characteristics of Simple Supported Beam](#)

Xueyan Zhao, Weikang Du, Chao Cao, Yifan Chen and Lijuan Yin.....297

[The Critical Axial Force Model in Drilling of Carbon Fiber Reinforced Composites under Different Stacking Modes](#)

M Li, W Tian, H L Sun, Z Liu, L Zhang, W H Liao and F F Hua.....304

[Design and Simulation Technology of Piezoelectric Ultrasonic Transducer with Sandwich Composite Horn](#)

Yi Xuan, Aimin Wang and Niansong Zhang.....312

[Design of Data Acquisition System for Silicon Micro Machined Resonant Accelerometer](#)

Yun Xu, Yaohui Qu and Zhihang Luo.....319

[Increase of Refueling Systems Efficiency of Rocket Launching Sites by Utilization of Cold Energy of Cryogen](#)

Daria Aksenova, Artem Novikov, Aleksandra Shimanova, Artem Shimanov and Dmitry Uglanov.....325

[Automatic Text System Based on PLC for Walk-Through Metal Detector](#)

Zheng Haidong, Jiang Lingling, Wu Jianyi, Wang Wei, Wang Xiaokan and Li Zhiguo.....333