



ISSN 1000-9345
CODEN CJMEER

中国机械工程学报

CHINESE JOURNAL OF MECHANICAL ENGINEERING®

<http://www.cjmenet.com>; www.cjme.com.cn; www.springer.com/10033

CJME

Vol. 28, No. 4, July 2015

Special Issue on Mechanism and Machine Science

ISSN 1000-9345



CHINESE JOURNAL OF MECHANICAL ENGINEERING

Vol. 28, No. 4, 2015

(Special Issue on Mechanism and Machine Science)

Contents

- 657 **Multi-modal Gesture Recognition using Integrated Model of Motion, Audio and Video**
GOUTSU Yusuke, KOBAYASHI Takaki, OBARA Junya, KUSAJIMA Ikuo,
TAKEICHI Kazunari, TAKANO Wataru, and NAKAMURA Yoshihiko
- 666 **Topology Search of 3-DOF Translational Parallel Manipulators
with Three Identical Limbs for Leg Mechanisms**
WANG Mingfeng and CECCARELLI Marco
- 676 **Decoding the Moon Phase Display Device over the Front Dial
of the Antikythera Mechanism**
LIN Jian Liang and YAN Hong Sen
- 684 **Optimal Dimensional Synthesis of a Symmetrical Five-Bar Planar
Upper-Extremity Neuromotor Device**
GAO Jianshe, LI Mingxiang, ALLISON Garry, and CUI Lei
- 691 **Three-dimensional Construction and Omni-directional Rolling Analysis
of a Novel Frame-like Lattice Modular Robot**
DING Wan, WU Jianxu, and YAO Yan'an
- 702 **Multi-objective Optimization of a Parallel Ankle Rehabilitation Robot
Using Modified Differential Evolution Algorithm**
WANG Congzhe, FANG Yuefa, and GUO Sheng
- 716 **Test Verification and Design of the Bicycle Frame Parameters**
ZHANG Long, XIANG Zhongxia, LUO Huan, and TIAN Guan
- 726 **Novel Design Solutions for Fishing Reel Mechanisms**
LOVASZ Erwin-Christian, MODLER Karl-Heinz, NEUMANN Rudolf,
GRUESCU Corina Mihaela, PERJU Dan, CIUPE Valentin, and MANIU Inocentiu
- 737 **Theory of Degrees of Freedom for Parallel Mechanisms with Three Spherical Joints
and Its Applications**
QU Haibo, FANG Yuefa, and GUO Sheng
- 747 **Constraint Force Analysis of Metamorphic Joints Based on the Augmented Assur Groups**
LI Shujun, WANG Hongguang, and YANG Qiang
- 756 **Large Deformation Analysis and Synthesis of Elastic Closed-loop Mechanism Made
of a Certain Spring Wire Described by Free Curves**
IWATSUKI Nobuyuki and KOSAKI Takashi

- 763 **Kinematic Geometry for the Saddle Line Fitting of Planar Discrete Positions**
WU Yu, WANG Delun, WANG Wei, YU Shudong, and XU Wenji
- 769 **Compliant Mechanism Synthesis by Using Elastic Similitude**
HANKE Uwe, HAMPEL Peter, COMSA Andrei, MODLER Niels, and MODLER Karl-Heinz
- 776 **Stiffness Analysis of Corrugated Flexure Beam Used in Compliant Mechanisms**
WANG Nianfeng, LIANG Xiaohe, and ZHANG Xianmin
- 785 **Numerical Modeling of a Spar Platform Tethered by a Mooring Cable**
ZHU Xiangqian and YOO Wan-Suk
- 793 **Three-degree-of-freedom Parallel Manipulator to Track the Sun
for Concentrated Solar Power Systems**
ASHITH SHYAM R B and GHOSAL A
- 801 **Thrust and Torque Characteristics Based on a New cutter-head Load Model**
LIU Jianqin, REN Jiabao, and GUO Wei
- 810 **Planetary Gear Profile Modification Design Based on Load Sharing Modelling**
IGLESIAS Miguel, FERNÁNDEZ DEL RINCÓN Alfonso, DE-JUAN Ana Magdalena,
GARCIA Pablo, DIEZ Alberto, and VIADERO Fernando
- 821 **Stability Analysis for a Planar Parallel Manipulator with the Capability
of Self-Coordinating the Load Distribution**
KONG Lingyu, WANG Hao, ZHANG Pu, ZHAO Yong, CHEN Genliang, ZHAO Longhai
- 830 **Dimensional Synthesis of a 3-DOF Parallel Manipulator with Full Circle Rotation**
NI Yanbing, WU Nan, ZHONG Xueyong, and ZHANG Biao
- 841 **Comparison of Parallel Kinematic Machines with Three Translational Degrees
of Freedom and Linear Actuation**
PRAUSE Isabel, CHARAF EDDINE Sami, and CORVES Burkhard
- 851 **Type Synthesis for 4-DOF Parallel Press Mechanism Using G_F Set Theory**
HE Jun, GAO Feng, MENG Xiangdun, and GUO Weizhong
- 860 **Automatic Method for Synchronizing Workpiece Frames in Twin-robot
Nondestructive Testing System**
LU Zongxing, XU Chunguang, PAN Qinxue, MENG Fanwu, and LI Xinliang