



EI COMPENDEX
核心期刊

ISSN 0459-1879
CN 11-2062/O3

力学学报

Chinese Journal of Theoretical and Applied Mechanics

第 51 卷 第 1 期 Vol. 51 No. 1

2019

力学学报

二〇一九年一月

第五十一卷第一期

中国力学学会·中国科学院力学研究所 主办

力学学报期刊社 出版



中国力学学会 主办
中国科学院力学研究所
力学学报期刊社 出版

万方数据



力学学报 (双月刊)
Chinese Journal of Theoretical and
Applied Mechanics

1957年 创刊
2019年
第51卷 第1期

目 次

研究综述

大型柔性航天器动力学与振动控制研究进展.....曹登庆 白坤朝 丁 虎 周徐斌 潘忠文 詹世革 (1)

颗粒材料计算力学专题

序.....季顺迎 谭援强 (14)
颗粒材料破碎演化路径细观热力学机制.....沈超敏 刘斯宏 (16)
颗粒材料三维应力路径下的接触组构特性.....刘嘉英 周 伟 马 刚 李易奥 (26)
超疏水小球低速入水空泡研究.....黄 超 翁 翥 刘谋斌 (36)
粘接-映射混合算法及其对颗粒材料中板的振动特性分析.....潘静武 李 健 洪广洋 李红影 (46)
SLS预热温度下尼龙粉末流动性的离散元模拟.....谭援强 肖湘武 张江涛 姜胜强 (56)
工业规模竖冷设备中烧结矿石偏析行为的GPU高性能离散元模拟.....张雪宽 徐 骥 孙俊杰 张永杰 张正好 葛 蔚 (64)
水位对正倒锥体结构冰载荷影响的离散元分析.....龙 雪 刘社文 季顺迎 (74)

流体力学

JP-10裂解的激波管实验与动力学模拟.....熊 壮 王 苏 张 灿 俞鸿儒 (85)
蜻蜓滑翔时柔性褶皱前翅气动特性分析.....刘惠祥 何国毅 王 琦 (94)
基于PIV技术分析颗粒在湍流边界层中的行为.....高天达 孙 姣 范 赢 轩瑞祥 陈文义 (103)
后临界湍流区内旋转薄壳结构振动演化与作用机制实测研究.....王 浩 柯世堂 (111)
格子Boltzmann方法模拟多孔介质惯性流及边界条件改进.....程志林 宁正福 曾 彦 王 庆 张文通 叶洪涛 陈志礼 (124)
钝后缘风力机翼型的环境量控制研究.....乔晨亮 许和勇 叶正寅 (135)

固体力学

轴对称薄壁结构自由振动的边界元分析.....周 琪 陈永强 (146)
金属材料的强度与应力-应变关系的球压入测试方法.....张志杰 蔡力勋 陈 辉 包 陈 刘晓坤 (159)
无限平板中含有两个非圆形孔的应力解析解.....曾祥太 吕爱钟 (170)
基于中间构形的大变形弹塑性模型.....孟春宇 汤正俊 陈明祥 (182)
共线式热电发电机在侧面散热情况下的性能.....王雪强 剧成健 兑关锁 (192)

动力学与控制

自主泳动弹性绳的轨迹模拟.....王 郡 朱永宁 徐 鉴 (198)
含摩擦滑移铰平面多刚体系统动力学的数值算法.....王晓军 吕 敬 王 琪 (209)
非齐次边界条件下轴向运动梁的非线性振动.....张登博 唐有筠 陈立群 (218)
串联式叉型滞后簇发振荡及其动力学机制.....张 毅 韩修静 毕勤胜 (228)
条带式太阳帆的结构动力学分析.....张军徽 崔洋洋 佟 安 (237)

生物、工程及交叉力学

紫藤萝羽状复叶气动特性研究.....俞科杰 邵传平 (245)
C¹连续型广义有限元格式.....田 荣 (263)
改进型扩展比例边界有限元法.....江守燕 李 云 杜成斌 (278)

力学人物追忆

纪念钱俭博士.....时 钟 (289)

科学基金

“2018流固耦合力学在船舶与海洋新能源中的应用研究领域科学家论坛”学术综述.....李 晔 王本龙 詹世革 (292)
第三届全国生物力学青年学者学术研讨会报告综述.....吕永钢 詹世革 (298)
中国力学学会2019年学术活动计划..... (304)
向审稿者致谢..... (i)

Chinese Journal of Theoretical and Applied Mechanics

(Bimonthly)

Vol. 51, No. 1, 2019

CONTENTS

Research Review

Advances in dynamics and vibration control of large-scale flexible spacecraft Cao Dengqing Bai Kunchao Ding Hu Zhou Xubin Pan Zhongwen Chen Liqun Zhan Shige (1)

Theme Articles on “Computation Mechanics of Granular Materials”

Preface Ji Shunying Tan Yuanqiang (14)
Evolution path for the particle breakage of granular materials: A micromechanical and thermodynamic insight Shen Chaomin Liu Sihong (16)
Contact fabric characteristics of granular materials under three dimensional stress paths Liu Jiaying Zhou Wei Ma Gang Li Yiao Liu Qiwen (26)
Study on low-speed water entry of super-hydrophobic small spheres Huang Chao Wen Xi Liu Moubin (36)
The composite-mapping hybrid algorithm and its applications of vibration plate buried in particles Pan Jingwu Li Jian Hong Guangyang Li Hongying (46)
Determination of discrete element model contact parameters of nylon powder at SLS preheating temperature and its flow characteristics Tan Yuanqiang Xiao Xiangwu Zhang Jiangtao Jiang Shengqiang (56)
Segregation behavior of sinter in vertically arranged cooler with high performance GPU simulation Zhang Xuekuan Xu Ji Sun Junjie Zhang Yongjie Zhang Zhenghao Ge Wei (64)
Influence of water level on ice load on upward-downward conical structure based on DEM analysis Long Xue Liu Shewen Ji Shunying (74)

Fluid Mechanics

Shock-tube experimental study and kinetic modeling of JP-10 pyrolysis Xiong Zhuang Wang Su Zhang Can Yu Hongru (85)
Numerical study on the aerodynamic performance of the flexible and corrugated forewing of dragonfly in gliding flight Liu Huixiang He Guoyi Wang Qi (94)
PIV experimental investigation on the behavior of particle in the turbulent boundary layer Gao Tianda Sun Jiao Fan Ying Chen Wenyi Xuan Ruixiang (103)
Evolution characteristic and working mechanism analysis of rotating thin-walled structures in post-critical turbulent interval based on field measurement Wang Hao Ke Shitang (111)
A lattice boltzmann simulation of fluid flow in porous media using a modified boundary condition Cheng Zhilin Ning Zhengfu Zeng Yan Wang Qing Sui Weibo Zhang Wentong Ye Hongtao Chen Zhili (124)
Circulation control on wind turbine airfoil with blunt trailing edge Qiao Chenliang Xu Heyong Ye Zhengyin (135)

Solid Mechanics

Free vibration analysis of thin-walled axisymmetric structures with boundary element method Zhou Qi Chen Yongqiang (146)
Spherical indentation method to determine stress-strain relations and tensile strength of metallic materials Zhang Zhijie Cai Lixun Chen Hui Bao Chen Liu Xiaokun (159)
Analytical stress solution research on an infinite plate containing two non-circular holes Zeng Xiangtai Lü Aizhong (170)
A large deformation elastoplastic model based on the intermediate configuration Meng Chunyu Tang Zhengjun Chen Mingxiang (182)
Performance of collinear thermoelectric generator considering the heat dissipation in the side surface Wang Xueqiang Ju Chengjian Dui Guansuo (192)

Dynamics, Vibration and Control

Trajectory simulation of self-propelled elastic rods in fluid Wang Jun Zhu Yongning Xu Jian (198)
A numerical method for dynamics of planar multi-rigid-body system with frictional translational joints based on lugre friction model Wang Xiaojun Lü Jing Wang Qi (209)
Nonlinear vibrations of axially moving beams with nonhomogeneous boundary conditions Zhang Dengbo Tang Youqi Chen Liqun (218)
Series-mode pitchfork-hysteresis bursting oscillations and their dynamical mechanisms Zhang Yi Han Xiujing Bi Qinsheng (228)
Structural dynamic and stability analysis of a stripped solar sail Zhang Junhui Cui Yangyang Tong An (237)

Biomechanics, Engineering and Interdisciplinary Mechanics

Wind tunnel investigation of the aerodynamic characteristics of purple wisteria compound leaves Yu Kejie Shao Chuanping (245)
A GFEM with C^1 continuity Tian Rong (263)
Improved extended scaled boundary finite element methods Jiang Shouyan Li Yun Du Chengbin (278)

Recollection of Scientists in the Field of Mechanics

Dr. Qian Jian: In memoriam Shi Zhong (289)

Science Foundation

Review of the 2018 Symposium on Application of Fluid-structure Interaction in Naval Architecture and Offshore Renewable Energy Li Ye Wang Benlong Zhan Shige (292)
Review of the Third National Symposium on Biomechanics for Young Scholars Lü Yonggang Zhan Shige (298)

International and national academic activities organized or sponsored by CSTAM in 2018 (304)

Acknowledgements to Reviewers (i)