

# 计算力学学报

第41卷 第3期 2024年6月

## 目 次

### 研究论文

- 基于概率密度演化的输电塔-线体系抗风可靠性分析 ..... 谭淳元, 张文远, 刘章军 (409-414)  
梯度多孔金属材料梁的屈曲和屈曲基础上的振动 ..... 李清禄, 赵煊贺, 张靖华 (415-420)  
任意边界条件下 Timoshenko 梁及其修正理论的自振特性分析 ..... 吴宗欢, 马乾瑛, 王亚波, 等 (421-427)  
带支撑广义 Maxwell 粘弹性阻尼耗能结构风振响应分析 ..... 李创第, 杨雪峰, 李宇翔, 等 (428-436)  
高效耗能黏弹性阻尼框架结构减震性能研究 ..... 张 敏, 舒磊兴 (437-444, 505)  
颗粒材料柱体崩塌物质点法数值模拟 ..... 吴凤元, 秦鹏飞, 李鑫超, 等 (445-451)  
土体颗粒物流动物质点法模拟的弹塑性和非牛顿流体本构模型  
比较研究 ..... 王晶磊, 孙 政, 杨宇杰, 等 (452-457)  
基于有限差分-谱方法的分数阶 Burgers 流体的非稳态驻点流动 ..... 白 羽, 王 欣, 张 艳, 等 (458-466)  
一种基于莫顿码及镜像编码的平衡八叉树模型 ..... 袁 瑶, 徐 骏, 顾剑锋 (467-473)  
全螺栓装配式钢框架外挂轻质墙板有限元分析 ..... 樊 敏, 郭宏超, 李 慎, 等 (474-482)  
多梁式波形钢腹板工字钢组合梁荷载横向分布系数研究 ..... 吴传山, 邓文琴, 张焕涛, 等 (483-490)  
荷电颗粒在旋转环形通道内分离性能研究 ..... 沈家鑫, 彭 慧, 王彦入, 等 (491-498)  
姿控飞轮轴承供油器设计与精准供油分析 ..... 刘玉浩, 武洪凯, 张宇翔, 等 (499-505)  
轴向流作用下均布非线性弹簧支承二维壁板的复杂响应 ..... 董 宇, 郑 辉, 杨翊仁 (506-512)  
简单立方点阵结构静态平压性能分析 ..... 杨孝峰, 盛亚鹏, 苏宇锋 (513-518, 533)  
基于滑动元法的连续拉索滑移分析 ..... 王 恺 (519-524)  
基于混合 PSO 算法和损伤概率均值的两阶段梁式结构损伤识别 ..... 陈泽鹏, 王伟龙, 刘琪钿, 等 (525-533)  
基于模态柔度曲率的砖石古塔损伤识别研究 ..... 卢俊龙, 乔 璐, 张 晨, 等 (534-541)  
超大跨度空间 X 撑结构屈曲强度特性研究 ..... 付殿福, 陈景杰, 张梦竹, 等 (542-549, 598)  
一种分子运动和碰撞双重网格 DSMC 方法研究 ..... 刘传瑞, 王学德 (550-555)  
薄板几何非线性弯曲分析的深度能量法 ..... 彭林欣, 罗伟漫, 黄钟民 (556-563)  
求解双曲守恒律的修正模板近似的五阶 WENO 格式 ..... 郭 城, 王亚辉 (564-571)  
基于改进 Reddy 型三阶剪切变形理论的弹性地基上 FG-CNTRC  
板屈曲无网格分析 ..... 许建文, 严世涛, 彭林欣, 等 (572-581)

### 研究简报

- 考虑外载荷方向不确定性的稳健性拓扑优化 ..... 费 晨, 王晓拓, 倪成功, 等 (582-587)  
基于弯矩修正法的浅水区海底直铺管道允许悬跨长度计算 ..... 付长静, 王锦国, 赵天龙 (588-592)  
碳纳米管增强氟橡胶高温力学行为及本构关系研究 ..... 左彦江, 王 柱, 王俊璞 (593-598)  
黏弹性纳米流体在垂直板上的自然对流与传热分析 ..... 许晓勤 (599-604)  
基于质量守恒的缆索计算理论与找形解析算法 ..... 朱伟华, 颜东煌, 许红胜 (605-610)

封面题字:钱令希 责任编辑:冯 颖 刘 燕

期刊基本参数:CN21-1373/O3 \* 1984 \* b \* A4 \* 202 \* zh \* P \* ¥50.00 \* 1000 \* 28 \* 2024-06

# Chinese Journal of Computational Mechanics

Vol. 41 No. 3 June 2024

## CONTENTS

### Research Papers

- Reliability analysis of wind resistance of transmission tower-line system based on probability density evolution ..... TAN Chun-yuan, ZHANG Wen-yuan, LIU Zhang-jun (409-414)
- Buckling of beams made of graded porous metal materials and times new vibration on the basis of buckling ..... LI Qing-lu, ZHAO Xuan-he, ZHANG Jing-hua (415-420)
- Analysis on natural vibration characteristics of Timoshenko beam and its modified theory with arbitrary boundary conditions ..... WU Zong-huan, MA Qian-ying, WANG Ya-bo, et al (421-427)
- Wind vibration response analysis of generalized Maxwell viscoelastic damped energy dissipation structures with supports ..... LI Chuang-di, YANG Xue-feng, LI Yu-xiang, et al (428-436)
- Analysis of damping performance of the frame structure with high-efficiency energy dissipation viscoelastic dampers ..... ZHANG Min, SHU Lei-xing (437-444, 505)
- Numerical simulation of collapse of a granular material column using material point method ..... WU Feng-yuan, QIN Peng-fei, LI Xin-chao, et al (445-451)
- A comparative study of elastoplasticity and non-Newtonian fluid constitutive models simulated by the material point method for soil granular flow problems ..... WANG Jing-lei, SUN Zheng, YANG Yu-jie, et al (452-457)
- Unsteady stagnation point flow of fractional burgers fluid based on finite difference-spectral method ..... BAI Yu, WANG Xin, ZHANG Yan, et al (458-466)
- A balanced octree based on morton code and mirror code ..... YUAN Yao, XU Jun, GU Jian-feng (467-473)
- Finite element analysis on seismic performance of fully bolted prefabricated steel frame with external light wall panel ..... FAN Min, GUO Hong-chao, LI Shen, et al (474-482)
- Study on the load transverse distribution coefficient of multi-beam composite I-beam with corrugated steel webs ..... WU Chuan-shan, DENG Wen-qin, ZHANG Huan-tao, et al (483-490)
- Study on separation performance of charged particles in rotating annular channel ..... SHEN Jia-xin, PENG Hui, WANG Yan-ru, et al (491-498)
- Accurate oil supply design and analysis of attitude control flywheel bearing oil feeder ..... LIU Yu-hao, WU Hong-kai, ZHANG Yu-xiang, et al (499-505)
- Complicated responses of a two-dimensional plate under action of an axial liquid flow with cubic stiffness ..... DONG Yu, ZHENG Hui, YANG Yi-ren (506-512)
- Static compression performance analysis of simple cubic lattice structure ..... YANG Xiao-feng, SHENG Ya-peng, SU Yu-feng (513-518, 533)
- Analysis of continuous cable sliding based on sliding variable method ..... WANG Kai (519-524)
- A two-stage structural damage detection method for beam-like structures based on hybrid PSO and probabilistic mean of damage vector factor ..... CHEN Ze-peng, WANG Wei-long, LIU Qi-tian, et al (525-533)
- Research on damage identification of masonry pagodas based on modal flexibility curvature ..... LU Jun-long, QIAO Lu, ZHANG Chen, et al (534-541)
- Study on buckling strength characteristics of the super-span space X-brace structure ..... FU Dian-fu, CHEN Jing-jie, ZHANG Meng-zhu, et al (542-549, 598)
- A DSMC implement method of a hybrid grid of molecular motion and collision ..... LIU Chuan-rui, WANG Xue-de (550-555)
- Deep energy method for geometrical nonlinear bending analysis of thin plates ..... PENG Lin-xin, LUO Wei-man, HUANG Zhong-min (556-563)
- Fifth-order modified stencil WENO schemes for hyperbolic conservation laws ..... GUO Cheng, WANG Ya-hui (564-571)
- Meshless buckling analysis of FG-CNTRC plate on elastic foundation based on improved Reddy type third-order shear deformation theory ..... XU Jian-wen, YAN Shi-tao, PENG Lin-xin, et al (572-581)
- ### Research Notes
- Robust topology optimization considering the uncertainty of load direction ..... FEI Chen, WANG Xiao-tuo, NI Cheng-gong, et al (582-587)
- Calculation of allowable suspension span length for direct laying pipeline in shallow water area based on bending moment correction method ..... FU Chang-jing, WANG Jin-guo, ZHAO Tian-long (588-592)
- Study of mechanical behavior and constitutive relation of carbon nanotube reinforced fluororubber at high temperature ..... ZUO Yan-jiang, WANG Zhu, WANG Jun-pu (593-598)
- Natural convection and heat transfer of viscoelastic nanofluid on a vertical plate ..... XU Xiao-qin (599-604)
- Cable theory of computation and analytical form finding algorithm based on mass conservation ..... ZHU Wei-hua, YAN Dong-huang, XU Hong-sheng (605-610)