

## 目 次

### 综述

- 结构损伤动力检测与健康监测研究现状与展望 ..... 朱宏平, 余 璞, 张俊兵 (001)

### 基本方法

- 基于小波包和概率主成份分析的损伤识别 ..... 孙晓丹, 欧进萍 (012)

- 基于多点位移控制的推覆分析算法 ..... 黄羽立, 陆新征, 叶列平, 施 炳 (018)

- 阶梯形圆形水池分析的传递矩阵法 ..... 夏桂云, 俞茂宏, 李传习, 曾庆元 (024)

- 侧向力作用下薄壁箱梁腹板力学特性的研究 ..... 甘亚南, 王振波, 周广春 (030)

- 基于马尔科夫链模拟的支持向量机可靠性分析方法 ..... 袁修开, 吕震宙, 许 鑫 (036)

- 一种高效的流场反设计算法研究 ..... 姚伟刚, 徐 敏, 陈志敏 (044)

- 基于余弦变换的地震动反应谱计算方法 ..... 蒋甫玉, 高丽坤 (049)

- 既有结构材料强度的信度推断方法 ..... 姚继涛, 解耀魁 (057)

- 含有整体刚体位移杆件系统的几何非线性分析 ..... 罗晓明, 齐朝晖, 许永生, 韩雅楠 (062)

### 土木工程学科

- 不同抗震区结构承载力裕度的概率结构分析与比较 ..... 范文亮, 李 杰 (069)

- 桥梁气动自激力时域表达式的瞬态与极限特性 ..... 张志田, 陈政清, 李春光 (075)

- 钢梁-钢筋混凝土柱梁柱节点的设计模型 ..... 申红侠, 顾 强 (086)

- 结构-地基动力相互作用的实时耦联动力试验 ..... 汪 强, 王进廷, 金 峰, 张楚汉 (094)

- 水平井水力压裂的三维有限元数值模拟研究 ..... 张广明, 刘 合, 张 劲, 吴恒安, 王秀喜 (101)

- 管材包裹预应力混凝土方形柱优化数值模拟研究 ..... 陈 波 (107)

- 钢筋混凝土构件基于修正压力场理论的受剪承载力计算 ..... 魏巍巍, 贡金鑫 (111)

- 高地应力下圆形巷道临界冲击地压解析解 ..... 郭延华, 姜福兴, 张常光 (118)

- 全跨和半跨荷载组合下荷载效应函数模型研究 ..... 蒋友宝, 贺艺华 (123)

- 预应力钢箱高强混凝土组合梁受扭性能全过程分析 ..... 胡少伟, 陈 亮 (129)

- Balsa 芯材夹层梁的失效分析 ..... 万 里, 刘伟庆, 周 叮, 方 海 (134)

- 框架-密肋复合墙结构剪力分担率计算方法研究 ..... 郭 猛, 姚谦峰, 袁 泉 (141)

- 再生混凝土梁挠度计算方法研究 ..... 杨桂新, 吴 瑾, 叶 强 (147)

## 目 次

- 转弯半径对引水式水电站弯道排冰影响的数值模拟... 王晓玲, 蒋志勇, 周莎莎, 周正印, 张自强 (152)  
基于隐式梯度公式的各向异性混凝土损伤研究..... 汪忠明, 牛晓玉, 杨伯源 (159)  
基于突变理论的滑坡时间预测模型..... 周小平, 钱七虎, 张永兴, 杨海清 (165)  
受酸雨侵蚀混凝土弹性模量研究..... 张英姿, 赵颖华, 范颖芳 (175)  
基频约束下的桁架结构半定规划法拓扑优化..... 李东泽, 于登云, 马兴瑞 (181)  
弹性地基上矩形贮液结构的液-固耦合振动特性 ..... 程选生, 杜永峰 (186)  
体外预应力钢-混凝土组合连续梁自振频率分析 ..... 焦春节, 丁洁民 (193)  
地震作用下钢结构损伤过程数值模拟..... 段红霞, 李守巨, 刘迎曦 (198)  
基于粒子群算法的劣化桥面铺装多目标组合维护策略优化研究..... 彭建新, 邵旭东, 张建仁 (205)

### 其他工程学科

- 洪水中漂浮管道的应力分析..... 王晓霖, 帅 健 (212)  
超空泡航行器三维流场仿真及性能分析..... 向 敏, 吴 雄, 张为华, 王中伟 (217)  
纵向磁场中导电薄板的亚谐共振..... 胡宇达, 李佰洲 (223)  
钻柱扭转和纵向振动的等效网络分析..... 闫向宏, 孙建孟, 张美玲, 苏远大, 陈雪莲 (229)  
双曲传热反问题研究..... 薛齐文, 杜秀云, 马莉英 (234)  
箱形船体波浪和波浪压力的非线性时域模型..... 桂琴琴, 邹志利, 王大国 (239)  
仿甲壳虫芯柱的缓冲吸能结构..... 郭 婷, 王跃方 (246)  
液压脉振注射成型机注射过程螺杆动态特性分析..... 王 权, 瞿金平 (252)

## CONTENTS

### OVERVIEWS

- A summary review and advantages of vibration-based damage identification methods in structural health monitoring ..... ZHU Hong-ping , YU Jing , ZHANG Jun-bing (001)

### METHODOLOGIES

- Structural damage identification based on wavelet packet energy and PPCA .... SUN Xiao-dan , OU Jin-ping (012)  
A pushover analysis algorithm based on multiple point constraints .....  
..... HUANG Yu-li , LU Xin-zheng , YE Lie-ping , SHI Wei (018)  
Transfer matrix method for analysis of stepped circular water tank .....  
..... XIA Gui-yun , YU Mao-hong , LI Chuan-xi , ZENG Qing-yuan (024)  
Mechanical characteristics of thin-walled box girder's webs under lateral forces .....  
..... GAN Ya-nan , WANG Zhen-bo , ZHOU Guang-chun (030)  
Support vector machine reliability analysis method based on Markov chain simulation .....  
..... YUAN Xiu-kai , LU Zhen-zhou , XU Xin (036)  
An efficient method for flow field inverse design ..... YAO Wei-gang , XU Min , CHEN Zhi-min (044)  
Calculation of earthquake response spectra by cosine transform ..... JIANG Fu-yu , GAO Li-kun (049)  
Belief inference method for material strength of existing structure ..... YAO Ji-tao , XIE Yao-kui (057)  
Geometric nonlinear analysis of truss systems with rigid body motions .....  
..... LUO Xiao-ming , QI Zhao-hui , XU Yong-sheng , HAN Ya-nan (062)

### CIVIL ENGINEERING

- Probabilistic analysis of margin ratio for ultimate limit capacity of structures in different seismic regions .....  
..... FAN Wen-liang , LI Jie (069)  
Limiting and transient characteristics of time-domain expressions for bridge self-excited aerodynamic forces .....  
..... ZHANG Zhi-tian , CHEN Zheng-qing , LI Chun-guang (075)  
Deformation-based capacity design of RCS beam-column connections ..... SHEN Hong-xia , GU Qiang (086)  
Soil-structure interaction analysis by real-time dynamic hybrid testing .....  
..... WANG Qiang , WANG Jin-ting , JIN Feng , ZHANG Chu-han (094)  
Three-dimensional finite element numerical simulation of horizontal well hydraulic fracturing .....  
..... ZHANG Guang-ming , LIU He , ZHANG Jin , WU Heng-an , WANG Xiu-xi (101)  
Numerical study on optimization design of square tubular column filled with pre-stressed concrete .....  
..... CHEN Bo (107)  
Shear strength of reinforced concrete members based on modified compression field theory .....  
..... WEI Wei-wei , GONG Jin-xin (111)  
Analytical solution for critical rockburst of a circular chamber subjected to high in-situ stress .....  
..... GUO Yan-hua , JIANG Fu-xing , ZHANG Chang-guang (118)  
Research on load effect function model under full-span and half-span loading .....  
..... JIANG You-bao , HE Yi-hua (123)  
Complete history analysis on torsional performance of prestressed steel-HSC composite box beams .....  
..... HU Shao-wei , CHEN Liang (129)  
Failure analysis of sandwich beams with Balsa core ..... WAN Li , LIU Wei-qing , ZHOU Ding , FANG Hai (134)  
Calculation method for the shear-sharing ratio of frame-composite wall structure .....  
..... GUO Meng , YAO Qian-feng , YUAN Quan (141)  
Study on deflection of recycled concrete beams ..... YANG Gui-xin , WU Jin , YE Qiang (147)

**CONTENTS**

Numerical simulation of effect of turning radius on ice removal in bend channel of diversion type power house .....	WANG Xiao-ling , JIANG Zhi-yong , ZHOU Sha-sha , ZHOU Zheng-yin , ZHANG Zi-qiang (152)
Study on anisotropic damage of concrete material based on implicit gradient model .....	WANG Zhong-ming , NIU Xiao-yu , YANG Bo-yuan (159)
Time prediction model of landslides based on catastrophe theory .....	ZHOU Xiao-ping , QIAN Qi-hu , ZHANG Yong-xing , YANG Hai-qing (165)
A theoretical model for assessing elastic modulus of concrete corroded by acid rain .....	ZHANG Ying-zhi , ZHAO Ying-hua , FAN Ying-fang (175)
Truss topology optimization with fundamental frequency constraints via semi-definite programming .....	LI Dong-ze , YU Deng-yun , MA Xing-rui (181)
Vibration characteristic analysis of rectangular liquid-storage structures considering liquid-solid coupling on elastic foundation.....	CHENG Xuan-sheng , DU Yong-feng (186)
Analysis of natural frequency of prestressed composite beam with external tendons .....	JIAO Chun-jie , DING Jie-min (193)
Numerical simulation of damage process of steel frames under earthquake excitation .....	DUAN Hong-xia , LI Shou-ju , LIU Ying-xi (198)
Particle swarm algorithm-based multi-objective combinative optimization of maintenance scenarios for deteriorating wearing surfaces.....	PENG Jian-xin , SHAO Xu-dong , ZHANG Jian-ren (205)

**OTHER ENGINEERING DISCIPLINES**

Stress analysis of pipeline floating in flood.....	WANG Xiao-lin , SHUAI Jian (212)
Three-dimensional flow field simulation and performance analysis for a supercavitating vehicle .....	XIANG Min , WU Xiong , ZHANG Wei-hua , WANG Zhong-wei (217)
The subharmonic resonance of current-conducting thin plate in longitudinal magnetic field .....	HU Yu-da , LI Bai-zhou (223)
Analysis of torsional and longitudinal vibration of drill strings using equivalent network .....	YAN Xiang-hong , SUN Jian-meng , ZHANG Mei-ling , SU Yuan-da , CHEN Xue-lian (229)
Research on the inverse hyperbolic heat conduction problems.....	XUE Qi-wen , DU Xiu-yun , MA Li-ying (234)
Time-domain model of nonlinear wave forces on a box-shaped ship .....	GUI Qin-qin , ZOU Zhi-li , WANG Da-guo (239)
Energy absorbing structures imitating trabecular of beetle cuticles .....	GUO Ting , WANG Yue-fang (246)
Analysis on dynamic characteristics of screw in injection process of hydraulic vibration injection molding machine.....	WANG Quan , QU Jin-ping (252)