

卷首语

1 加快智慧海洋建设,推进人工智能对海洋工程装备的变革

吴有生

专稿

6 深水油气平台水下结构运维机器人技术进展

姜哲,赵宇,黄建虾,王芳,陈祎,罗传坤,

罗高生

专题:海洋工程装备智能化

特邀主编:阎军

16 海洋工程典型装备智能化研究进展

阎军,苏琦,许琦,杨建业,陈金龙,卢海龙,

武文华

27 基于GBRT模型的海洋平台结构裂纹扩展识别

李阳,苏馨,代彤彤,张崎,黄一,贾子光

36 基于谱位移格式的复杂切口功能梯度板自由振动等几何分析

杨少伟,孙贤波,蔡志勤,卢海龙,杨志勋

48 海洋环境下金属管道力-腐蚀电场耦合特性分析

夏江敏,丁建伯,苏里阳,张雨杭,张丹

54 基于虚拟激励法的隔震LNG储罐随机地震响应分析

刘富鹏,叶忠志,孙晓旭,秦玉良,王立佳,

余建星,王晓虎,雷鸣,李浩然

62 平台耦联作用下的悬链线型柔性立管涡激振动响应实验

朱红钧,刘文丽,宋金泽,高岳

73 LNG耐超低温柔性管道实验测试研究进展

英玺蓬,阎军,张凯仑,曹慧鑫,步宇峰,

卢青针,杨志勋

86 基于量纲分析的柔性立管骨架层辊弯成型弯曲变形特征预测

王心悦,阎军,袁振钦,李文博,卢海龙,

陈金龙

95 基于深度学习的悬链式单点系泊设计
指标预测

孙强,李颜,彭东升,王宇新,阎军,
岳前进,钟万勰

105 液化天然气卸料臂结构计算分析与
紧急脱离装置可靠性研究

杨亮,肖立,许佳伟,郝思佳,邱灶杨,
范嘉堃,盖小刚,陈举

118 基于结构特征的LNG低温软管内流场
流动特性研究

刘森儿,李方道,程昊,李欣欣

125 海洋应急通信网络智能监控与调度
系统设计及实现

周雪,金上奎,谢硕,闫建峰,王晓瑞,
孟俊峰,欧阳照红,黄宛宁

Foreword

- 1 Accelerate the construction of smart oceans and promote the transformation of marine engineering equipment through artificial intelligence *WU Yousheng*

Special to S&T Review

- 6 Development and trends of underwater robots for inspection, maintenance and repair for offshore oil and gas platforms: A review *JIANG Zhe, ZHAO Yu, HUANG Jianxia, WANG Fang, CHEN Yi, LUO Chuankun, LUO Gaosheng*

Exclusive: Intelligent Development of Marine Engineering Equipment

- 16 Overview on research progress of typical intelligent equipment in marine engineering *YAN Jun, SU Qi, XU Qi, YANG Jianye, CHEN Jinlong, LU Hailong, WU Wenhua*
- 27 Crack extension identification of ocean platform structure by gradient boosting regression tree *LI Yang, SU Xin, DAI Tongtong, ZHANG Qi, HUANG Yi, JIA Ziguang*
- 36 Isogeometric analysis for free vibration of functionally graded plates with complex cutouts using spectral displacement formulation *YANG Shaowei, SUN Xianbo, CAI Zhiqin, LU Hailong, YANG Zhixun*
- 48 Characteristic analysis of the coupling stress-electric field of metal pipe corrosion under marine environment *XIA Jiangmin, DING Jianbo, SU Liyang, ZHANG Yuhang, ZHANG Dan*
- 54 Random seismic response analysis of LNG storage tanks based on pseudo excitation method *LIU Fupeng, YE Zhongzhi, SUN Xiaoxu, QIN Yuliang, WANG Lijia, YU Jianxing, WANG Xiaohu, LEI Ming, LI Haoran*

- 62 Experimental study on vortex-induced vibration of catenary flexible riser under coupling effect of platform motion *ZHU Hongjun, LIU Wenli, SONG Jinze, GAO Yue*
- 73 Review of experimental testing technology of LNG cryogenic flexible hoses *YING Xipeng, YAN Jun, ZHANG Kailun, CAO Huixin, BU Yufeng, LU Qingzhen, YANG Zhixun*
- 86 Prediction of bending deformation characteristics of flexible tubular carcass layer roll bending with dimensional analysis *WANG Xinyue, YAN Jun, YUAN Zhenqin, LI Wenbo, LU Hailong, CHEN Jinlong*
- 95 Deep learning based catenary single point mooring design parameters prediction *SUN Qiang, LI Yan, PENG Dongsheng, WANG Yuxin, YAN Jun, YUE Qianjin, ZHONG Wanxie*
- 105 Structural calculation and analysis of the unloading arm of liquefied natural gas and the reliability research of the emergency release system *YANG Liang, XIAO Li, XU Jiawei, HAO Sijia, QIU Zaoyang, FAN Jiakun, GAI Xiaogang, CHEN Ju*
- 118 On flow characteristics of LNG cryogenic hoses based on structural features *LIU Miao'er, LI Fangqiu, CHENG Hao, LI Xinxin*
- 125 Design and application of intelligent monitoring and scheduling system for smart ocean emergency communication network *ZHOU Xue, JIN Shangxi, XIE Shuo, YAN Jianfeng, WANG Xiaorui, MENG Junfeng, OUYAN Zhaohong, HUANG Wanning*