



CHINA MEASUREMENT & TEST

ISSN 1674-5124
CN 51-1714/TB

11

2017
第43卷 总第232期

中文核心期刊

中国科技核心期刊

中国科技论文统计源期刊

中国学术期刊综合评价数据库全文收录期刊

中国期刊(光盘版)全文收录期刊

《万方数据---数字化期刊群》全文收录期刊

RCCSE中国核心学术期刊(A)

美国《化学文摘》(CA)收录期刊

美国《剑桥科学文摘(工程技术)》(CSA)收录期刊

美国《剑桥科学文摘(自然科学)》(CSA)收录期刊

俄罗斯《文摘杂志》收录期刊

美国《乌利希期刊指南》收录期刊



油气管道漏磁检测缺陷区域的分段识别方法
CdSe量子点的合成、功能化及生物应用

主管：中国测试技术研究院



中国测试

China Measurement & Test

1975年创刊(月刊)
第43卷 总第232期
2017年11月

2017.11

目次

测试理论

- | | | |
|---------------------------|-----------------|----|
| 油气管道漏磁检测缺陷区域的分段识别方法 | 陈俊杰 | 1 |
| 电动汽车动态工况的 EMI 测试技术需求与方案设计 | 曾博, 邓俊泳, 林道祺, 等 | 8 |
| 基于小波包能量变化率的激光超声处理 | 宋潮, 郑宾, 郭华玲, 等 | 12 |

测试方法

物理测试

- | | | |
|----------------------------|----------------|----|
| 高亮度下近红外激光散斑投射的轮廓测量 | 梁晋, 梁瑜, 张衍维, 等 | 17 |
| 低压差线性电压调整器噪声电压测试方法 | 罗军, 刘焱, 王小强, 等 | 22 |
| 改进小波阈值法在 MEMS 陀螺随机误差分析中的应用 | 王辛望, 沈小林, 刘新生 | 26 |
| 球压痕仪机架柔度对硬度的影响分析与标定方法研究 | 金宏平 | 31 |

化学测试

- | | | |
|----------------------------------|--------------------|----|
| 气相色谱-质谱/离子选择法对 PE 保鲜膜中邻苯二甲酸酯类的测定 | 张玉才, 邓人攀, 木合塔尔·吐尔洪 | 37 |
| 薯蓣皂素标准物质的研制 | 兰韬, 董跟来, 初侨, 等 | 42 |
| 甲醇中微量六氯丁二烯溶液标准物质的研制及不确定度评定 | 肖展, 方正, 左又铭, 等 | 47 |

生物测试

- | | | |
|----------------------------|-----------------|----|
| CdSe量子点的合成、功能化及生物应用 | 邓文清, 代蕊, 江雪, 等 | 51 |
| 带阱顶空-气质联用法分析福建特色茶叶中挥发性香味成分 | 黄惠贞, 梁晖, 刘秀彩, 等 | 59 |

测试仪器

- | | | |
|--------------------------------------|------------------|----|
| 基于无线传感网的古建筑健康监测技术 | 沈澍, 蒋维乐, 单玥, 等 | 64 |
| 密闭式医用离心机的转速计量检测系统 | 黎虹, 李光, 付晓云, 等 | 70 |
| 基于铌酸锂的高温压电加速度传感器设计 | 顾宝龙, 赵振平, 陈浩远, 等 | 74 |
| 双通道超临界 CO ₂ 煤层气井压裂器测试系统设计 | 刘丁, 崔春生, 李新城, 等 | 79 |
| 电能质量分析仪系统设计 | 雷凯, 王忆, 叶永杭, 等 | 83 |

测控技术

- | | | |
|-----------------------------|----------------|-----|
| 基于 EEMD 排列熵的高速列车轮对轴承故障诊断方法 | 施莹, 庄哲, 林建辉 | 89 |
| 改进萤火虫算法优化粒子滤波的信号源定位 | 杜太行, 李静秋, 江春冬 | 96 |
| 机器人与激光跟踪仪的坐标系转换方法研究 | 刘湛基, 王晗, 陈桴, 等 | 102 |
| 基于 FPGA 的光伏 MPPT 控制系统设计与实现 | 杨秀增 | 108 |
| 一种基于 PCHI-LMD 的暂态电能质量扰动检测方法 | 庞春梅, 任颖, 白艳兵 | 112 |

性能测试

- | | | |
|----------------------------|-----------------|-----|
| 基于数值模拟和波形分析的声发射传感器安装策略 | 顾爱军, 韩文钦 | 117 |
| 自动挡汽车换挡质量评价系统研究 | 涂安全, 罗贤虎, 李星, 等 | 124 |
| 尼龙的压缩力学性能及本构模型研究 | 穆磊金, 胡文军, 陶俊林 | 129 |
| 基于互信息特征选择和 LSSVM 的网络入侵检测系统 | 庄夏 | 134 |
| 基于有限元法的客车制动工况整车情况分析 | 蒋冬清, 李三雁, 代春香 | 140 |

CONTENTS

Test Theories

Segmentation identification method for defect area of MFL detection of oil and gas pipelines	<i>CHEN Junjie</i>	1
Technology requirement and scheme design for electric vehicle EMI measurements in transient condition	<i>ZENG Bo, DENG Junyong, LIN Daoqi, et al.</i>	8
Laser ultrasonic treatment based on wavelet packet energy change rate	<i>SONG Chao, ZHENG Bin, GUO Hualing, et al.</i>	12

Test Methods

Physical Tests

Profile measurement of near infrared laser speckle projection in high brightness	<i>LIANG Jin, LIANG Yu, ZHANG Hengwei, et al.</i>	17
Noise voltage testing method of low dropout linear regulator	<i>LUO Jun, LIU Yan, WANG Xiaoqiang, et al.</i>	22
Application of improved wavelet thresholding method for analysing MEMS gyroscope random error	<i>WANG Ximwang, SHEN Xiaolin, LIU Xinsheng</i>	26
Study on the effect analysis and calibration method of machine compliance on hardness for spherical indentation instrument	<i>JIN Hongping</i>	31

Chemical Tests

Determination of phthalate esters in PE plastic preservation film by GC-MS/SIM	<i>ZHANG Yucui, DENG Renpan, MUHETAER Tuerhong</i>	37
Preparation of Diosgenin certified reference materials	<i>LAN Tao, DONG Genlai, CHU Qiao, et al.</i>	42
Preparation of trace hexachlorobutadiene in methanol solution reference material and evaluation for uncertainty	<i>XIAO Zhan, FANG Zheng, ZUO Youming, et al.</i>	47

Bioassay

Synthesis, functionalization and bio-applications of CdSe quantum dots	<i>DENG Wenqing, DAI Rui, JIANG Xue, et al.</i>	51
Analysis of volatile aroma components in Fujian characteristic tea using HST-GC/MS	<i>HUANG Huizhen, LIANG Hui, LIU Xiucui, et al.</i>	59

Test Instruments

Research on health monitoring technology for ancient building based on WSN	<i>SHEN Shu, JIANG Weile, SHAN Yue, et al.</i>	64
Speed measurement test system of closed medical centrifuges	<i>LI Hong, LI Guang, FU Xiaoyun, et al.</i>	70
Design of high-temperature piezoelectric acceleration sensor based lithium niobate	<i>GU Baolong, ZHAO Zhenping, CHEN Haoyuan, et al.</i>	74
Design of the double channel test system for fracturing device of coal-bed methane well with supercritical CO ₂	<i>LIU Ding, CUI Chunsheng, LI Xin'e, et al.</i>	79
System design for power quality analyzer	<i>LEI Kai, WANG Yi, YE Yonghang, et al.</i>	83

Measurement and Control Technologies

Fault diagnosis method of high speed train axle bearing based on EEMD permutation entropy	<i>SHI Ying, ZHUANG Zhe, LIN Jianhui</i>	89
Signal source localization based on optimized particle filter by improved firefly algorithm	<i>DU Taihang, LI Jingqiu, JIANG Chundong</i>	96
Study on the method of coordinate transformation between robot and laser tracker	<i>LIU Zhanji, WANG Han, CHEN Xun, et al.</i>	102
Design and implementation of photovoltaic maximum power point tracking control system based on FPGA	<i>YANG Xiuzeng</i>	108
A method of transient power quality disturbance detection based on PCHI-LMD	<i>PANG Chunmei, REN Ying, BAI Yanbing</i>	112

Performance Tests

Acoustic emission sensor installation strategy based on numerical simulation and waveform analysis	<i>GU Aijun, HAN Wenqin</i>	117
Study on shift quality evaluation system of automatic car	<i>TU Anquan, LUO Xianhu, LI Xing, et al.</i>	124
Research on compression mechanical properties and constitutive model of nylon	<i>MU Leijin, HU Wenjun, TAO Junlin</i>	129
Network intrusion detection system based on mutual information feature selection and LSSVM	<i>ZHUANG Xia</i>	134
Situation analysis of the vehicle under braking condition based on the finite element method	<i>JIANG Dongqing, LI Sanyan, DAI Chunxiang</i>	140