



中国·广州
GUANGZHOU CHINA

ISSN 1000-5463
CODEN HSDZER

华南师范大学学报

HUANAN SHIFAN DAXUE XUEBAO

JOURNAL OF SOUTH CHINA NORMAL UNIVERSITY

自然科学版

NATURAL SCIENCE EDITION

2019
第51卷
第2期

全国中文核心期刊
中国科技核心期刊
RCCSE中国核心期刊
中国高校优秀科技期刊

万方数据

目 次

· 物理学与光学工程 ·

- 基于极化码的单步量子密钥分发后处理 李 锦, 蒋 琳, 林旭城, 方俊彬(1)
六角晶格中 Dirac 准粒子的动力学模拟与操控 黄肖健, 许文刚, 廖开宇, 黄 巍, 李 志(7)
基于单/多参数的 DC-DC 模块电源健康评估技术研究
..... 姜 伟, 张春雷, 时林林, 贾寒光, 俞鹏飞, 周振威(14)
基于棱镜耦合的双循环法测量液体复折射率 张 敬, 邓剑勋, 黄佐华(21)

· 化学与环境 ·

- 肠溶型饲料添加剂甘氨酸亚铁的制备与表征 舒绪刚, 林 羽, 胡洪超, 付志欢, 龚 圣(27)
纳米 AgBr 热力学性质的测定及温度效应研究
..... 覃方红, 肖碧源, 张美婷, 吕 勇, 钟婧晗, 邱江源, 黄在银(34)
碱式铜盐包覆 Cu_2O 催化剂的形成机理及催化性能 黄小燕, 古 颖, 钟嘉豪, 陈可清, 万 霞(39)
直接回收锰酸锂制备超级电容器 MnS 材料的研究 缪建麟, 常 毅, 蔡俊超, 朱显峰, 赵瑞瑞(45)
复合光催化剂 AgCl/AgBr 降解水中四溴双酚 A 的研究 高大方, 张 刚(50)
Fe-Mn-MCM-41 分子筛催化臭氧氧化控制含溴水中溴酸盐的生成
..... 薛 颖, 李旭凯, 吴 颖, 李来胜(56)

· 生物学与生物工程 ·

- 金钇石斛转基因体系的建立 王 昊, 邓柠檬, 张雅文, 梁 山(62)
八角中茴香油与莽草酸的提取和分离纯化 吕 琪, 张耀元, 倪 贺, 李海航(69)

· 地理科学与技术 ·

- 粤北锦江扶溪段河流阶地的光释光测年 邹小娟, 周尚哲, 谢金明, 孙 永, 黄耀婷, 杨 虹(76)
土壤理化性质对珠江口红树林湿地土壤氮磷质量分数的影响
..... 牛安逸, 马姣娇, 杨文槐, 黄金辉, 徐颂军(86)

· 数学与应用数学 ·

- 截面曲率有上界的 4 维收缩的梯度 Ricci 孤立子 张珠洪(95)
非线性抛物积分微分方程非常规 Hermite 型矩形元的高精度分析 李先枝, 范中广(98)
一类 Riemann-Liouville 型分数阶微分方程正解的存在性 薛益民, 戴振祥, 刘 洁(105)
有限级代数体函数的 Borel 方向 张晓梅, 孙道椿, 柴富杰(110)

· 计算机科学与软件工程 ·

- 基于矩阵分解与随机森林的多准则推荐算法 林栢全, 肖 菁(117)
时态拟序数据索引 TQD-tree 更新技术 陈 璇, 吴明珠, 卢 莉, 叶小平(123)
《华南师范大学学报(自然科学版)》征稿简则 (128)

CONTENTS

· Physics & Optical Engineering ·

Polar Codes-Based One-Step Post-Processing of Quantum Key Distribution

..... *LI Jin, JIANG Lin, LIN Xucheng, FANG Junbin*(1)

Simulation and Manipulation of Dirac Quasiparticles' Dynamics in a Hexagonal Lattice

..... *HUANG Xiaojian, XU Wengang, LIAO Kaiyu, HUANG Wei, LI Zhi*(7)

Research on Health Evaluation Model of DC-DC Power Module Based on Mahalanobis Distance Method

..... *JIANG Wei, ZHANG Chunlei, SHI Linlin, JIA Hanguang, YU Pengfei, ZHOU Zhenwei*(14)

Double-Circulating Measurement of Liquid Complex Refractive Index Based on Prism Coupling

..... *ZHANG Jing, DENG Jianxun, HUANG Zuohua*(21)

· Chemistry & Environment ·

Preparation and Characterization of Enteric Feed Additive Glycine Ferrous

..... *SHU Xugang, LIN Yu, HU Hongchao, FU Zhihuan, GONG Sheng*(27)

The Thermodynamic Property Determination and Temperature Effect of Nano AgBr

..... *QIN Fanghong, XIAO Biyuan, ZHANG Meiting, LÜ Yong,*

ZHONG Jinghan, QIU Jiangyuan, HUANG Zaiyin(34)

The Formation Mechanism and Catalytic Performance of Cu₂O Coated Basic Copper Salt Core-Shell Catalyst

..... *HUANG Xiaoyan, GU Ying, ZHONG Jiahao, CHEN Keqing, WAN Xia*(39)

A Study of Direct Recovery of LiMn₂O₄ and Its Use as the MnS Material for Manufacturing Supercapacitors

..... *MIAO Jianlin, CHANG Yi, CAI Junchao, ZHU Xianfeng, ZHAO Ruirui*(45)

Photocatalytic Degradation of Tetrabromobisphenol A with Composite AgCl/AgBr

.....*万方数据*..... *GAO Dafang, ZHANG Gang*(50)

Inhibiting Bromate in Bromide-Containing Water during Catalytic Ozonation with Fe-Mn-MCM-41

..... XUE Ying, LI Xukai, WU Ying, LI Laisheng(56)

• **Biology & Bioengineering** •

The Establishment of Genetically Modified *Dendrobium nobile* Tissues

..... WANG Hao, DENG Ningmeng, ZHANG Yawen, LIANG Shan(62)

Extraction, Separation and Purification of Anise Oil and Shikimic Acid from Star Anise

..... LÜ Qi, ZHANG Yaoyuan, NI He, LI Haihang(69)

• **Geography Science & Technology** •

OSL Dating of the River Terraces in Upper Jinjiang River around Fuxi, Northern Guangdong Province

..... ZOU Xiaojuan, ZHOU Shangzhe, XIE Jinming, SUN Yong, HUANG Yaoting, YANG Hong(76)

Effects of Soil Physical and Chemical Properties on the Mass Fractions of Nitrogen and Phosphorus in soil of Mangrove Wetland in the Pearl River Estuary

..... NIU Anyi, MA Jiaojiao, YANG Wenhui, HUANG Jinhui, XU Songjun(86)

• **Mathematics & Applied Mathematics** •

On Shrinking Gradient 4-D Ricci Solitons with Sectional Curvature Bounded Above ZHANG Zhuhong(95)

A High-Accuracy Analysis of Unconventional Hermite-Type Rectangular Element for Nonlinear Parabolic Integro-differential Equations LI Xianzhi, FAN Zhongguang(98)

On the Existence of Positive Solutions to a Type of Riemann-Liouville Fractional Differential Equations

..... XUE Yimin, DAI Zhenxiang, LIU Jie(105)

Borel Direction of Finite Order Algebraic Function ZHANG Xiaomei, SUN Daochun, CHAI Fujie(110)

• **Computer Science & Software Engineering** •

Multiple Criteria Recommendation Algorithm Based on Matrix Factorization and Random Forest

..... LIN Baiquan, XIAO Jing(117)

Updating Technique of Temporal Quasi-Order Data Index

...万方数据..... CHEN Ying, WU Mingzhu, LU Li, YE Xiaoping (123)