

第 53 卷 第 2 期 2024 年 2 月

### 目 次

· 综合评述 ·

- 半导体碳化硅衬底的湿法氧化 ..... 鲁雪松, 王万堂, 王 蓉, 杨德仁, 皮孝东(181)  
 高温高压合成掺杂金刚石研究进展 ..... 郝敬林, 邓丽芬, 王凯悦, 宋 惠, 江 南, 西村一仁(194)  
 碳化硅同质外延质量影响因素的分析与综述

..... 郭 钰, 刘春俊, 张新河, 沈鹏远, 张 博, 娄艳芳, 彭同华, 杨 建(210)

- 金属有机框架质子导体及其质子交换膜应用研究进展 ..... 付凤艳, 王晓红, 高志华, 邢广恩, 张 彦, 范 培(218)

· 研究论文 ·

- 大尺寸 NaI(Tl)生长结晶炉设计 ..... 闫 平, 李 永, 何高魁, 王 强, 王国宝, 郑玉来(231)

- 基于片状光束扫描的激光晶体内在缺陷表征方法 ..... 钱梦雪, 张志荣, 王华东, 张庆礼, 孙 或(238)

- 声学双曲构型超材料的负折射特性研究 ..... 刘 松, 赵仁洁, 杜一帆, 吴 芳, 宋和滨, 高 鹏(246)

- 大尺寸 GaN 微波材料范德瓦耳斯外延机理及应力调控研究

..... 李传皓, 李忠辉, 彭大青, 张东国, 杨乾坤, 罗伟科(252)

- Ni, Cu, Zn 掺杂四方相 PbTiO<sub>3</sub>力学性能、电子结构与光学性质的第一性原理研究

..... 王云杰, 张志远, 文杜林, 吴侦成, 苏 欣(258)

- 双钙钛矿氧化物 A<sub>2</sub>BO<sub>6</sub> (A = Sr, Ca; B = Cr, Mo) 磁光克尔效应的第一性原理研究

..... 刘 派, 祖宁宁, 李 瑞(267)

- Cu<sub>x</sub>S<sub>y</sub>-MoS<sub>2</sub>异质结构的介电损耗调控及其高效电磁波吸收 ..... 蒋 肖, 李 博, 何 邦, 曾小军(276)

- 稀土金属 Y 掺杂锐钛矿 TiO<sub>2</sub>(101) 表面的改性 ..... 朱黎原, 王志文(286)

- 一例锶配合物的合成、结构及表征 ..... 保玉婷, 梁毅农, 孙 赞(293)

- 一种新型苯磺酸-咪唑配合物的结构及催化性能研究 ..... 郝金阳, 王 敏, 杨瑞杰, 张迎春, 宋志国(300)

- 基于 5-氨基烟酸的锰金属有机框架的合成、结构及荧光传感性质

..... 江 涛, 梁晓彤, 廖思燕, 刘小慧, 余嘉俊, 邹 霖, 邱燕璇(307)

- 基于四核铜簇单元构筑的配位聚合物及光催化降解性能

..... 潘会宾, 吴婷婷, 葛 婧, 黄沛沛, 拓梦琪, 卢久富(315)

- 非稀土激活耐高温蓝紫色 Zn<sub>3</sub>B<sub>2</sub>O<sub>6</sub>:Bi<sup>3+</sup> 荧光粉的发光特性研究 ..... 绳星星, 吕锦彬, 肖 峰(322)

- 全 TOPCon 电池正面多晶硅层硼掺杂工艺 ..... 张 博, 宋志成, 倪玉凤, 魏凯峰(329)

- 多晶型 MnO<sub>2</sub>-Ru 复合催化剂的制备及其电催化水解析氧性能的研究

..... 李 佳, 袁仲纯, 姚梦琴, 刘 飞, 马 俊(336)

- 电石渣改性制备高效 CO<sub>2</sub>复合吸收剂 ..... 张 媛, 高彩云, 李 东, 李 梅(344)

# JOURNAL OF SYNTHETIC CRYSTALS

Vol. 53, No. 2 February 2024 (Series No. 304)

## CONTENTS

### • Reviews •

- Wet Oxidation of Semiconducting Silicon Carbide Wafers ..... LU Xuesong, WANG Wantang, WANG Rong, YANG Deren, PI Xiaodong(181)  
Synthesis of Doped Diamond by High-Pressure and High-Temperature: a Review ..... HAO Jinglin, DENG Lifen, WANG Kaiyue, SONG Hui, JIANG Nan, KAZUHITO Nishimura(194)  
Analysis and Review of Influencing Factors of SiC Homo-Epitaxial Wafers Quality ..... GUO Yu, LIU Chunjun, ZHANG Xinhe, SHEN Pengyuan, ZHANG Bo, LOU Yanfang, PENG Tonghua, YANG Jian(210)  
Research Progress on Metal Organic Frameworks Proton Conductor and Their Applications in Proton Exchange Membranes ..... FU Fengyan, WANG Xiaohong, GAO Zhihua, XING Guang'en, ZHANG Yan, FAN Pei(218)

### • Research Articles •

- Design of Large Size NaI (Tl) Growth Crystallization Furnace ..... YAN Ping, LI Yong, HE Gaokui, WANG Qiang, WANG Guobao, ZHENG Yulai(231)  
Characterization Method for Internal Defects in Laser Crystals Based on Slice Beam Scanning ..... QIAN Mengxue, ZHANG Zhirong, WANG Huadong, ZHANG Qingli, SUN Yu(238)  
Negative Refraction Characteristics of Acoustic Hyperbolic Configuration Metamaterials ..... LIU Song, ZHAO Renjie, DU Yifan, WU Fang, SONG Hebin, GAO Peng(246)  
Study on vdW Epitaxy Mechanism and Stress Modulation of Large-Size GaN Microwave Material ..... LI Chuanhao, LI Zhonghui, PENG Daqing, ZHANG Dongguo, YANG Qiankun, LUO Weike(252)  
First Principles Study on Mechanical Properties, Electronic Structure and Optical Properties of Ni, Cu, Zn Doped Tetragonal PbTiO<sub>3</sub> ..... WANG Yunjie, ZHANG Zhiyuan, WEN Dulin, WU Zhencheng, SU Xin(258)  
First Principles Study of Magneto-Optical Kerr Effect of Double Perovskite Oxide A<sub>2</sub>BO<sub>6</sub> (A = Sr, Ca; B = Cr, Mo) ..... LIU Pai, ZU Ningning, LI Rui(267)  
Dielectric Loss Regulation and Efficient Electromagnetic Wave Absorption of Cu<sub>x</sub>S<sub>y</sub>-MoS<sub>2</sub> Heterostructure ..... JIANG Xiao, LI Bo, HE Bang, ZENG Xiaojun(276)  
Modification of Anatase TiO<sub>2</sub>(101) Surface by Doping Rare Earth Yttrium ..... ZHU Liyuan, WANG Zhiwen(286)  
Synthesis, Structure and Characterization of a Strontium Complex ..... BAO Yuting, LIANG Yinong, SUN Zan(293)  
Study on the Structure and Catalytic Property of a Novel Benzenesulfonate-Imidazole Complex ..... QI Jinyang, WANG Min, YANG Ruijie, ZHANG Yingchun, SONG Zhiguo(300)  
Synthesis, Structure and Fluorescence Sensing Property of Manganese Metal-Organic Framework Based on 5-Aminonicotinic Acid ..... JIANG Tao, LIANG Xiaotong, LIAO Siyan, LIU Xiaohui, YU Jiajun, ZOU Lin, QIU Yanxuan(307)  
A Coordination Polymer Constructed by Tetranuclear Copper Cluster Units and Its Photocatalytic Degradation Properties ..... PAN Huibin, WU Tingting, GE Jing, HUANG Peipei, TUO Mengqi, LU Jiufu(315)  
Luminescence Properties of Non-Rare Earth Activated Thermal Stability Blue-Violet Zn<sub>3</sub>B<sub>2</sub>O<sub>6</sub>:Bi<sup>3+</sup> Phosphor ..... SHENG Xingxing, LYU Jinbin, XIAO Feng(322)  
Boron Doping Technology for the Front Polysilicon Layer of Full TOPCon Cells ..... ZHANG Bo, SONG Zhicheng, NI Yuseng, WEI Kaifeng(329)  
Preparation of Polymorph MnO<sub>2</sub>-Ru Composite Catalyst and Its Electrocatalytic Performance for Oxygen Evolution in Water ..... LI Jia, YUAN Zhongchun, YAO Mengqin, LIU Fei, MA Jun(336)  
High Efficiency CO<sub>2</sub> Composite Absorbent Prepared by Modification of Carbide Slag ..... ZHANG Yuan, GAO Caiyun, LI Dong, LI Mei(344)