

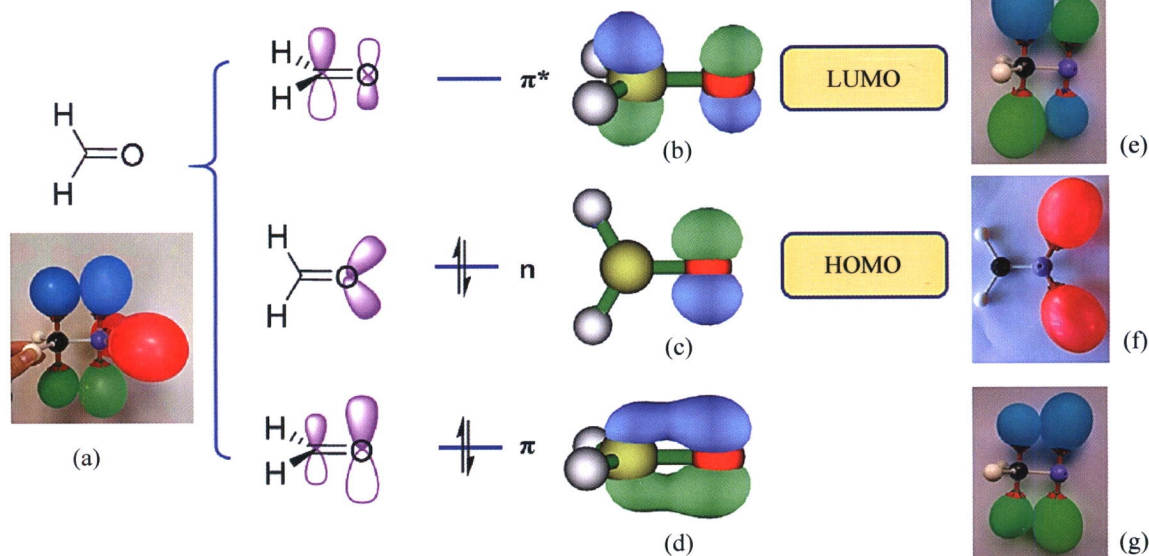
化学教育 (中英文)

Chinese Journal of Chemical Education

2021年 第42卷 第4期 Vol.42 No.4



分子轨道示意图和计算模拟图



邮发代号: 2-106

ISSN 1003-3807



HUAXUE JIAOYU

万方数据



CHINESE
CHEMICAL
SOCIETY



主管: 中国科学技术协会
主办: 中国化学会
北京师范大学

目次

化学·生活·社会

- 氯化磷酸胆碱钙盐及其衍生物研究进展 孙陈铭 苗志伟 (1)
- 过氧化氢直接氧化苯制备苯酚的多相催化研究进展 包河彬 胡志德 (8)
- 非金属元素氮的同素异形体概述 魏灵灵 李淑妮 马艺 翟全国 高胜利 高玲香 (17)

课程·教材·评价

- 高分子化学理论课与实验课的融合教学模式探索 王明存 王红山 陈贻焯 朱英 (31)
- 基于雨课堂+企业微信+慕课的在线直播教学——以有机化学为例
..... 贾丽艳 及燕铭 梁雅璇 刘怡晨 卢忠林 邢国文 (36)
- 对如何促进学生学好物理化学网络课程的思考 张素铭 邢双喜 (40)

理论教学

- 气球结合球棍模型在化学结构理论教学中的应用 陈宁 杜洪光 许家喜 (46)
- 配位滴定终点误差的通用计算方法 苏铁军 (51)

实验教学

- 大学化学综合实验:三草酸合铁(Ⅲ)酸钾的制备和结构表征 戴小敏 冯凌竹 李佳欣 (56)
- 综合化学实验:苯并21冠7和二级铵盐主客体相互作用的研究 何田 范逸鎔 尹守春 (62)
- 钼酸铋纳米片的制备以及光催化性能测试——大学综合化学实验的设计
..... 李泽胜 何伟月 吴泽锋 黄泽涛 程辉成 周建敏 (69)

职业教育

- 中职“甲醇生产工艺”虚拟仿真教学实效的研究 吴晓兵 彭茜 (73)

信息技术与化学

- Gaussian与Aspen Plus在化工原理课程设计中的应用 杨金杯 余美琼 陈文韬 (78)

调研报告

- 大一学生化学实验室安全基础知识调查研究 王晓艳 任笑红 (86)

问题讨论与思考

- 等温模型在“液-液萃取”中的适用性探讨 高家俊 蔡苑 殷霞 姜兴茂 李春喜 (90)

国内外动态

- Journal of Chemical Education* 中关于化学批判性思维的文献分析 何为 李茂柯 黄倩 伍晓春 (96)
- 图尔敏论证模式在应用型院校理科教学中的应用 万妍君 曹焱 焦芮 蒙彩燕 (102)

化学史与化学史教育

- 从诺贝尔奖看高分子百年 颜静 顾军渭 耿旺昌 闫毅 (107)

- 2021年《化学教育》订阅通知 (61)

- 封面图片 (49)

本期责任编辑 杨金瑞 齐娜

CHINESE JOURNAL OF CHEMICAL EDUCATION

2021 Vol. 42 No. 4

Sponsored by Chinese Chemical Society and Beijing Normal University

Chemistry-Life-Society

- Research Progress of Phosphocholine Chloride Calcium Salt and Its Derivatives SUN Chen-Ming MIAO Zhi-Wei (1)
Heterogeneous Catalysis for Direct Oxidation of Benzene to Phenol with Hydrogen Peroxide BAO He-Bin HU Zhi-De (8)
Discussion on the Allotropes of Nonmetallic Element Nitrogen WEI Ling-Ling LI Shu-Ni MA Yi ZHAI Quan-Guo GAO Sheng-Li GAO Ling-Xiang (17)

Curriculum-Teaching Materials-Assessment

- Synergistic Teaching Mode of Polymer Chemistry Theoretical and Experimental Courses WANG Ming-Cun WANG Hong-Shan CHEN Yi-Chi ZHU Ying (31)
Online Teaching Based on Rain Classroom+WeChat-Enterprise+MOOC with Organic Chemistry as Example JIA Li-Yan JI Yan-Ming LIANG Ya-Xuan LIU Yi-Chen LU Zhong-Lin XING Guo-Wen (36)
Considerations on How to Guide Students to Make the Best of Physical Chemistry Online Learning ZHANG Su-Ming XING Shuang-Xi (40)

Theory Teaching

- Application of the Balloons and Balloon-Ball-Stick Model Teaching of Chemical Structure Theory CHEN Ning DU Hong-Guang XU Jia-Xi (46)
General Calculation Method on Complexometric Titration Error SU Tie-Jun (51)

Experiment Teaching

- University Chemistry Comprehensive Experiment; Preparation and Structural Characterization of Potassium Ferrioxalate DAI Xiao-Min FENG Ling-Zhu LI Jia-Xin (56)
Research-Based Comprehensive Chemistry Experiment; Investigation of the Host-Guest Interactions Between Benzo-21-Crown-7 and Secondary Dialkylammonium Salts HE Tian FAN Yi-Qi YIN Shou-Chun (62)
Preparation and Photocatalytic Performance of Bismuth Molybdate Nanosheets LI Ze-Sheng HE Wei-Yue WU Ze-Feng HUANG Ze-Tao CHENG Hui-Cheng ZHOU Jian-Min (69)

Vocational Education

- Virtual Simulation Training Effect in Secondary Vocational Chemistry Teaching Taking Methanol Production Process as Example WU Xiao-Bing PENG Qian (73)

Information Technology and Chemistry

- Application of Gaussian and Aspen Plus in Course Design of Chemical Engineering Principle YANG Jin-Bei YU Mei-Qiong CHEN Wen-Tao (78)

Investigation Report

- Investigation of Basic Safety Knowledge on Chemistry Laboratory Among First-Year Undergraduates WANG Xiao-Yan REN Xiao-Hong (86)

Discussion and Thinking of Questions

- Applicability of Isotherm Model in Liquid-Liquid Extraction GAO Jia-Jun CAI Yuan YIN Xia JIANG Xing-Mao LI Chun-Xi (90)

Domestic and Overseas Trends

- Literature Analysis on Critical Thinking in Chemistry in *Journal of Chemical Education* HE Wei LI Mao-Ke HUANG Qian WU Xiao-Chun (96)
Application of Toulmin's Argumentation Pattern in Science Education in Applied Undergraduate Colleges WAN Yan-Jun CAO Yan JIAO Rui MENG Cai-Yan (102)

History of Chemistry and Chemical History Education

- Century of Macromolecule from Perspective of the Nobel Prize in Science YAN Jing GU Jun-Wei GENG Wang-Chang YAN Yi (107)

化学教育(中英文)

(半月刊·1980年创中文刊·2017年变更为中英文刊)
2021年 第42卷 第4期 2月18日出版

主管单位 中国科学技术协会
主办单位 中国化学会 北京师范大学
编辑出版 《化学教育(中英文)》编辑部
编辑部地址 北京师范大学化学楼217室
邮政编码 100875
电话(传真) 010-58807875
咨询信箱 hxjy-jce@263.net
投稿网址 http://www.hxjy.chemsoc.org.cn

顾问 刘知新
主编 刘正平
副主编 姜雪峰 施展 孙世刚 王磊
王祖浩 杨屹 郑长龙 朱玉军(专职)
刊名题字 戴安邦
印刷装订 保定华泰印刷有限公司
总发行处 中国邮政集团公司北京市报刊发行局
订 阅 全国各地邮局

刊号 ISSN 1003 - 3807
CN 10 - 1515/O6

国内邮发代号 2-106

国外发行代号 M3070

定价 26.00元

CHINESE JOURNAL OF CHEMICAL EDUCATION

2021 Vol. 42 No. 4

Sponsored by Chinese Chemical Society and Beijing Normal University

Chemistry-Life-Society

- Research Progress of Phosphocholine Chloride Calcium Salt and Its Derivatives SUN Chen-Ming MIAO Zhi-Wei (1)
Heterogeneous Catalysis for Direct Oxidation of Benzene to Phenol with Hydrogen Peroxide BAO He-Bin HU Zhi-De (8)
Discussion on the Allotropes of Nonmetallic Element Nitrogen WEI Ling-Ling LI Shu-Ni MA Yi ZHAI Quan-Guo GAO Sheng-Li GAO Ling-Xiang (17)

Curriculum-Teaching Materials-Assessment

- Synergistic Teaching Mode of Polymer Chemistry Theoretical and Experimental Courses WANG Ming-Cun WANG Hong-Shan CHEN Yi-Chi ZHU Ying (31)
Online Teaching Based on Rain Classroom+WeChat-Enterprise+MOOC with Organic Chemistry as Example JIA Li-Yan JI Yan-Ming LIANG Ya-Xuan LIU Yi-Chen LU Zhong-Lin XING Guo-Wen (36)
Considerations on How to Guide Students to Make the Best of Physical Chemistry Online Learning ZHANG Su-Ming XING Shuang-Xi (40)

Theory Teaching

- Application of the Balloons and Balloon-Ball-Stick Model Teaching of Chemical Structure Theory CHEN Ning DU Hong-Guang XU Jia-Xi (46)
General Calculation Method on Complexometric Titration Error SU Tie-Jun (51)

Experiment Teaching

- University Chemistry Comprehensive Experiment; Preparation and Structural Characterization of Potassium Ferrioxalate DAI Xiao-Min FENG Ling-Zhu LI Jia-Xin (56)
Research-Based Comprehensive Chemistry Experiment; Investigation of the Host-Guest Interactions Between Benzo-21-Crown-7 and Secondary Dialkylammonium Salts HE Tian FAN Yi-Qi YIN Shou-Chun (62)
Preparation and Photocatalytic Performance of Bismuth Molybdate Nanosheets LI Ze-Sheng HE Wei-Yue WU Ze-Feng HUANG Ze-Tao CHENG Hui-Cheng ZHOU Jian-Min (69)

Vocational Education

- Virtual Simulation Training Effect in Secondary Vocational Chemistry Teaching Taking Methanol Production Process as Example WU Xiao-Bing PENG Qian (73)

Information Technology and Chemistry

- Application of Gaussian and Aspen Plus in Course Design of Chemical Engineering Principle YANG Jin-Bei YU Mei-Qiong CHEN Wen-Tao (78)

Investigation Report

- Investigation of Basic Safety Knowledge on Chemistry Laboratory Among First-Year Undergraduates WANG Xiao-Yan REN Xiao-Hong (86)

Discussion and Thinking of Questions

- Applicability of Isotherm Model in Liquid-Liquid Extraction GAO Jia-Jun CAI Yuan YIN Xia JIANG Xing-Mao LI Chun-Xi (90)

Domestic and Overseas Trends

- Literature Analysis on Critical Thinking in Chemistry in *Journal of Chemical Education* HE Wei LI Mao-Ke HUANG Qian WU Xiao-Chun (96)
Application of Toulmin's Argumentation Pattern in Science Education in Applied Undergraduate Colleges WAN Yan-Jun CAO Yan JIAO Rui MENG Cai-Yan (102)

History of Chemistry and Chemical History Education

- Century of Macromolecule from Perspective of the Nobel Prize in Science YAN Jing GU Jun-Wei GENG Wang-Chang YAN Yi (107)

化学教育(中英文)

(半月刊·1980年创中文刊·2017年变更为中英文刊)
2021年 第42卷 第4期 2月18日出版

主管单位 中国科学技术协会
主办单位 中国化学会 北京师范大学
编辑出版 《化学教育(中英文)》编辑部
编辑部地址 北京师范大学化学楼217室
邮政编码 100875
电话(传真) 010-58807875
咨询信箱 hxjy-jce@263.net
投稿网址 http://www.hxjy.chemsoc.org.cn

顾问 刘知新
主编 刘正平
副主编 姜雪峰 施展 孙世刚 王磊
王祖浩 杨屹 郑长龙 朱玉军(专职)
刊名题字 戴安邦
印刷装订 保定华泰印刷有限公司
总发行处 中国邮政集团公司北京市报刊发行局
订 阅 全国各地邮局

刊号 ISSN 1003 - 3807
CN 10 - 1515/O6

国内邮发代号 2-106

国外发行代号 M3070

定价 26.00元