

全国中文核心期刊  
美国化学文摘 (CA) 收录源期刊

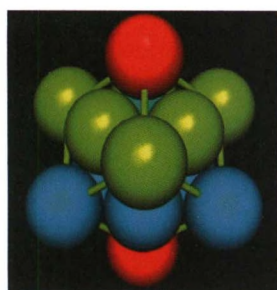
Q K 2 2 0 5 7 5 8

13-3807  
.515/06

# 化学教育 (中英文)

Chinese Journal of Chemical Education

2022年 第43卷 第3期 Vol.43 No.3



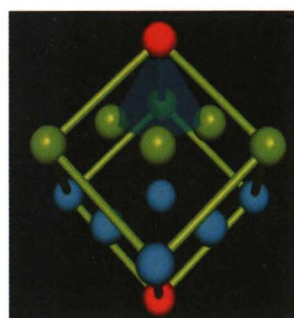
(a)



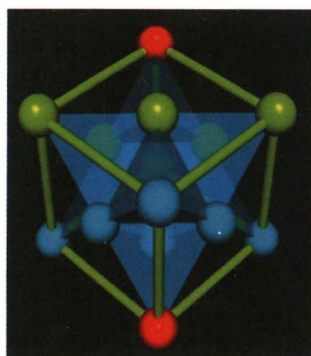
(b)



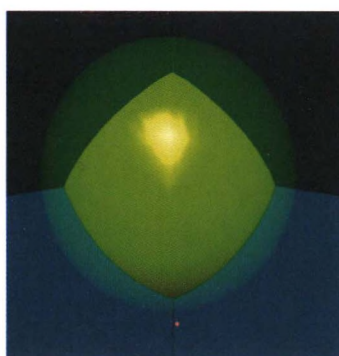
(c)



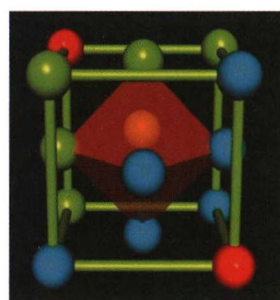
(d)



(e)



(f)



(g)

邮发代号: 2-106

ISSN 1003-3807



9 771003 380222

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

**化学·生活·社会**

化学家的浪漫 月之女神——硒 ..... 张曾栋 莫尊理 岳睿 张红红 (1)

**理论视点**

教育实证研究的认识误区及案例分析 ..... 朱玉军 王香凤 (5)

**课程·教材·评价**

学科能力视域下的初中化学命题评价研究——以阶段性学业水平测试为例 ..... 陈俏 崔广瑾 (10)

高中化学学业水平考试与课程标准的一致性分析——以2009—2020年广东省高中化学学业水平考试必修模块为例 .....  
..... 陈可清 钱扬义 朱潇行 (16)

**优质课例**

整合多重表征 促进概念深度理解——以“原电池”为例 ..... 张瑞林 刘晓华 姜言霞 (23)

基于真实情境的化学教学实践——以“复习糖类、油脂和蛋白质的性质”为例 ..... 赖珊珊 刘双俊 (32)

基于认识模型建构与应用的化学教学设计——“水溶液中的离子反应与离子平衡”一轮复习课 .....  
..... 解宏伟 王秀红 于志民 曹宇 (37)

**教学研究**

以“位-构-性”模型建构和学科能力发展的必修“原子结构 元素周期律”教学设计和实践 .....  
..... 孙彤 王全 孔思敏 邹紫微 范大维 王磊 (45)

从 STSE 情境走向真实问题解决的化学教学 ..... 王哲 何彩霞 (56)

基于模型建构的论证教学在化学概念学习中的应用——以“原电池”概念学习为例 ..... 刘月萍 罗秀玲 肖信 (63)

课程思政视角下化学思维型课堂的建构——以“乙醇”的教学为例 ..... 冯金洪 (74)

由早餐争论引发的对“基本营养物质”的教学思考 ..... 王维臻 曾璐 (81)

**教师教育**

新手-熟手初中化学教师课堂教学行为特征的比较研究——以“酸和碱”单元教学为例 .....  
..... 袁绪富 郑长龙 何鹏 单媛媛 (87)

**调研报告**

初中生化学方程式前概念及其影响因素探查研究 ..... 李川 唐丽梦 李艳灵 刘敬华 (95)

**信息技术与化学**

利用三维虚拟技术突破物质结构教学——从演示型工具到探索型工具的转变 ..... 黄剑芳 (105)

**实验教学与教具研制**

利用离子交换树脂探究浓度对化学平衡的影响 ..... 赖瑶 黄萍 李悦 冉鸣 (116)

**问题讨论与思考**

高中化学新教材中 VSEPR 模型的  $b$  值规定之刍议 ..... 徐广 (120)

**化学史与化学史教育**

溴元素发现史上的成功和遗憾及其历史意义 ..... 陆誉文 袁振东 (123)

**书评**

对标学生发展核心素养 完善初中化学教学与评价——评《基于学生发展核心素养的学业标准·初中化学》 .....  
..... 张宜峰 (128)

创新型人才培养的实践探索——评《创新人才与教育创新研究》 ..... 赵晓雁 (129)

2022年《化学教育》订阅通知 ..... (80)

封面图片 ..... (108)

# CHINESE JOURNAL OF CHEMICAL EDUCATION

2022 Vol. 43 No. 3

Sponsored by Chinese Chemical Society and Beijing Normal University

## Chemistry-Life-Society

Chemist's Romance, Goddess of Moon; Selenium ..... ZHANG Zeng-Dong MO Zun-Li YUE Rui ZHANG Hong-Hong (1)

## Theoretical Perspective

Misunderstanding of Educational Empirical Research and Case Analysis ..... ZHU Yu-Jun WANG Xiang-Feng (5)

## Curriculum-Teaching Materials-Assessment

Evaluation of Junior High School Chemistry Periodical Academic Proficiency Test from Perspective of Discipline Competence ..... CHEN Qiao CUI Guang-Jin (10)

Analysis of Consistency Between Guangdong Province Senior High School Chemistry Academic Proficiency Test (2009–2020) and Curriculum Standards ..... CHEN Ke-Qing QIAN Yang-Yi ZHU Xiao-Xing (16)

## Excellent Lesson

Integrating Multiple Representations to Promote Deep Understanding of Primary Battery ..... ZHANG Rui-Lin LIU Xiao-Hua JIANG Yan-Xia (23)

Chemistry Teaching Practice Based on Real Situation: Taking "Review the Properties of Sugars, Fat and Proteins" as an Example ..... LAI Shan-Shan LIU Shuang-Jun (32)

Teaching Design of Chemistry Based on the Construction and Application of Cognitive Model: Review Course of "Ion Reaction and Ion Balance in Aqueous Solution" ..... XIE Hong-Wei WANG Xiu-Hong YU Zhi-Min CAO Yu (37)

## Teaching Research

Instructional Design and Practice of the Compulsory "Atomic Structure and Element Periodic Law" Based on Model Construction of the "Position-Structure-Properties" and Development of Subject Ability ..... SUN Tong WANG Quan KONG Si-Min ZOU Zi-Wei FAN Da-Wei WANG Lei (45)

Chemistry Teaching from STSE Situation to Real Problem Solving ..... WANG Zhe HE Cai-Xia (56)

Application of Argumentation Teaching Based on Model Construction in Chemical Concept Learning: Taking the Concept of "Primary Battery" as an Example ..... LIU Yue-Ping LUO Xiu-Ling XIAO Xin (63)

Construction of Chemistry Thinking Class from the Perspective of Curriculum Ideology and Politics: Taking the Teaching of "Ethanol" as an Example ..... FENG Jin-Hong (74)

Teaching Reflection on Basic Nutrient Substance Caused by Breakfast Debate ..... WANG Wei-Zhen ZENG Lu (81)

## Teacher Education

Comparative Study on the Characteristics of Novice and Experienced Junior High School Chemistry Teachers' Instruction Behaviors of the "Acid and Alkaline" Unit ..... YUAN Xu-Fu ZHENG Chang-Long HE Peng SHAN Yuan-Yuan (87)

## Investigation Report

Study on the Preconception of Junior High School Students' Chemical Equation and Its Influencing Factors ..... LI Chuan TANG Li-Meng LI Yan-Ling LIU Jing-Hua (95)

## Information Technology and Chemistry

Using 3D Virtual Technology to Break Through the Teaching of Material Structure: Transformation from Demonstrating Tool to Exploratory Tool ..... HUANG Jian-Fang (105)

## Experiment Teaching and Teaching Aid Development

Using Ion Exchange Resin to Explore the Effect of Concentration on Chemical Equilibrium ..... LAI Yao HUANG Ping LI Yue RAN Ming (116)

## Discussion and Thinking of Questions

Discussion on the  $b$  Value of VSEPR Model in the New Textbook for Senior High School ..... XU Guang (120)

## History of Chemistry and Chemical History Education

Success and Regret in the Discovery History of Bromine and Its Historical Significance ..... LU Yu-Wen YUAN Zhen-Dong (123)

## 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)

2022年 第43卷 第3期 2月2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 保定市海天印务有限公司

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 36.00 元

# CHINESE JOURNAL OF CHEMICAL EDUCATION

2022 Vol. 43 No. 3

Sponsored by Chinese Chemical Society and Beijing Normal University

## Chemistry-Life-Society

Chemist's Romance, Goddess of Moon; Selenium ..... ZHANG Zeng-Dong MO Zun-Li YUE Rui ZHANG Hong-Hong (1)

## Theoretical Perspective

Misunderstanding of Educational Empirical Research and Case Analysis ..... ZHU Yu-Jun WANG Xiang-Feng (5)

## Curriculum-Teaching Materials-Assessment

Evaluation of Junior High School Chemistry Periodical Academic Proficiency Test from Perspective of Discipline Competence ..... CHEN Qiao CUI Guang-Jin (10)

Analysis of Consistency Between Guangdong Province Senior High School Chemistry Academic Proficiency Test (2009–2020) and Curriculum Standards ..... CHEN Ke-Qing QIAN Yang-Yi ZHU Xiao-Xing (16)

## Excellent Lesson

Integrating Multiple Representations to Promote Deep Understanding of Primary Battery ..... ZHANG Rui-Lin LIU Xiao-Hua JIANG Yan-Xia (23)

Chemistry Teaching Practice Based on Real Situation: Taking "Review the Properties of Sugars, Fat and Proteins" as an Example ..... LAI Shan-Shan LIU Shuang-Jun (32)

Teaching Design of Chemistry Based on the Construction and Application of Cognitive Model: Review Course of "Ion Reaction and Ion Balance in Aqueous Solution" ..... XIE Hong-Wei WANG Xiu-Hong YU Zhi-Min CAO Yu (37)

## Teaching Research

Instructional Design and Practice of the Compulsory "Atomic Structure and Element Periodic Law" Based on Model Construction of the "Position-Structure-Properties" and Development of Subject Ability ..... SUN Tong WANG Quan KONG Si-Min ZOU Zi-Wei FAN Da-Wei WANG Lei (45)

Chemistry Teaching from STSE Situation to Real Problem Solving ..... WANG Zhe HE Cai-Xia (56)

Application of Argumentation Teaching Based on Model Construction in Chemical Concept Learning: Taking the Concept of "Primary Battery" as an Example ..... LIU Yue-Ping LUO Xiu-Ling XIAO Xin (63)

Construction of Chemistry Thinking Class from the Perspective of Curriculum Ideology and Politics: Taking the Teaching of "Ethanol" as an Example ..... FENG Jin-Hong (74)

Teaching Reflection on Basic Nutrient Substance Caused by Breakfast Debate ..... WANG Wei-Zhen ZENG Lu (81)

## Teacher Education

Comparative Study on the Characteristics of Novice and Experienced Junior High School Chemistry Teachers' Instruction Behaviors of the "Acid and Alkaline" Unit ..... YUAN Xu-Fu ZHENG Chang-Long HE Peng SHAN Yuan-Yuan (87)

## Investigation Report

Study on the Preconception of Junior High School Students' Chemical Equation and Its Influencing Factors ..... LI Chuan TANG Li-Meng LI Yan-Ling LIU Jing-Hua (95)

## Information Technology and Chemistry

Using 3D Virtual Technology to Break Through the Teaching of Material Structure: Transformation from Demonstrating Tool to Exploratory Tool ..... HUANG Jian-Fang (105)

## Experiment Teaching and Teaching Aid Development

Using Ion Exchange Resin to Explore the Effect of Concentration on Chemical Equilibrium ..... LAI Yao HUANG Ping LI Yue RAN Ming (116)

## Discussion and Thinking of Questions

Discussion on the  $b$  Value of VSEPR Model in the New Textbook for Senior High School ..... XU Guang (120)

## History of Chemistry and Chemical History Education

Success and Regret in the Discovery History of Bromine and Its Historical Significance ..... LU Yu-Wen YUAN Zhen-Dong (123)

## 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)

2022年 第43卷 第3期 2月2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 保定市海天印务有限公司

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 36.00 元