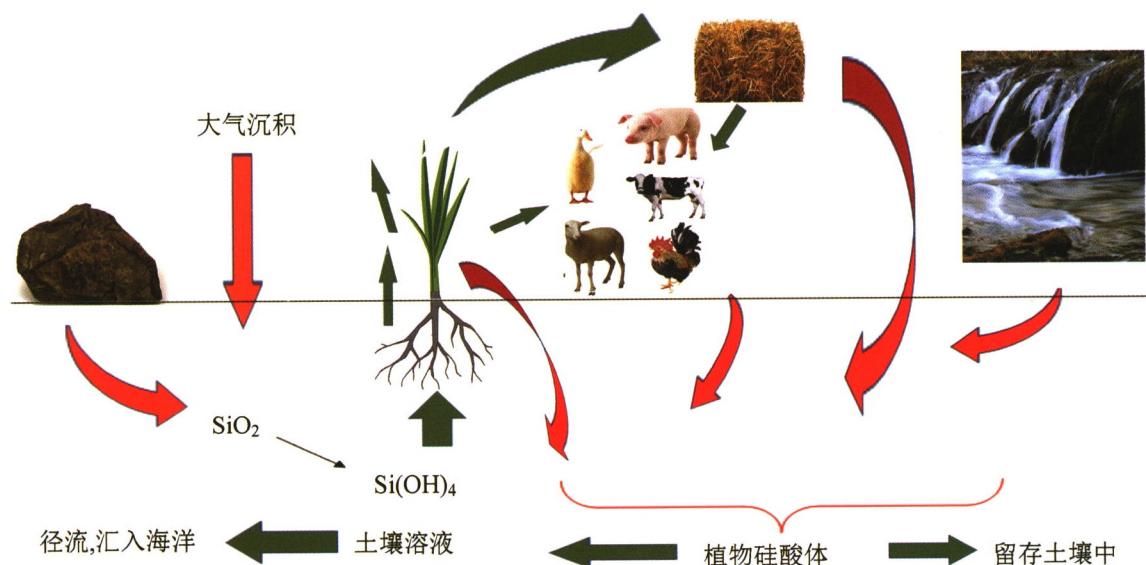


# 化学教育(中英文)

Chinese Journal of Chemical Education

2019 年 第 40 卷 第 13 期 Vol.40 No.13



邮发代号：2-106

ISSN 1003-3807



13

HUAXUE JIAOYU



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

### 国际化学元素周期表年

- 硅对农作物生长的影响 ..... 饶震红 杜凤沛 李向东 (1)

### 课程·教材·评价

- 中学化学教材中化学方程式内容的编排分析——基于“三序结合”的视角 ..... 方弯弯 程萍 (10)

- 改革开放以来高中化学教科书物质结构内容选择及演变 ..... 王春姣 王秀红 (16)

- 大概念视角下小学一年级物质主题的内容选择和教学建议 ..... 王维臻 (23)

### 优质课例

- 基于化学史发展学生学科核心素养的教学——以“胶体”为例 ..... 庄乾敏 刘冰 张雪 (28)

- 基于核心素养的HPS教学实践——以“甲烷”为例 ..... 张四方 武迪迪 (33)

### 教学研究

- 基于真实情境的深度学习——以研究木耳中铁含量为例 ..... 曹葵 牛桓云 (37)

- 基于提高学生科学素养的科学实践活动设计与实践——以“果蔬维生素C大比拼”为例 ..... 王寿红 (41)

- 以物质的量为核心的化学计量系统构建及其产生式教学策略 ..... 王开科 (47)

### 教师教育

- 基于CCITIAS的专家型化学教师实验课堂行为个案研究 ..... 阮雪丹 罗德炳 郑柳萍 颜桂炀 (53)

### 调研报告

- 高中生“绿色应用”素养的测评研究 ..... 顾佳磊 王祖浩 (59)

- 5年制学前教育专业学生科学核心素养的调查研究 ..... 曹爱娟 (65)

### 实验教学与教具研制

- 应用手持微型激光荧光光谱仪测定常见蔬果中的花青素 ..... 王世雄 李嘉宁 冉鸣 (71)

- 蓝瓶子实验与碘时钟实验比较研究 ..... 龙琪 (75)

- 探究碘钟振荡实验的最佳条件及反应机理 ..... 孙影信欣 吴晶 (78)

- 氧化还原反应平衡与移动的实验研究——以硫酸铁与碘化钾反应为例 ..... 李东标 何万林 魏芳萍 冉鸣 (85)

### 问题讨论与思考

- 银离子与亚铁离子反应可逆性的热力学研究 ..... 王兆龙 (89)

- 对固液反应产生气体的差量法计量实验的质疑与探究——以产生氢气、氧气和二氧化碳的初中化学计算为例 ..... 周梅华 (91)

### 论文简报

- 有序思维在解答化学工艺流程题中的应用 ..... 王正兵 (15)

- 利用新型具支试管改进化学实验 ..... 林文宁 田英 (40)

### 书评

- 基于创新管理视角下的教育变革——评《创新管理：如何进行教育改革》 ..... 姚妍妍 林雨萱 牛静崧 (95)

- 对学校教育中学生安全教育缺失的反思——评《学生安全教育》 ..... 孙蕾 (96)

### 名师工作室

- 依托名师工作室培养乡村名师的实践与效果 ..... 王爱华 骞俊杰 (97)

- 2019年《化学教育》订阅办法 ..... (70)

- 2019年《化学教育》奇数期订阅办法 ..... (94)

- 2019年首届化学微格教学论坛暨第九届“华文杯”化学师范生教学技能交流展示活动纪要 ..... (84)

- 封面图片 ..... (5)

本期责任编辑 陈会玲 张霄青

# CHINESE JOURNAL OF CHEMICAL EDUCATION

## 2019 Vol. 40 No. 13

Sponsored by Chinese Chemical Society and Beijing Normal University

### International Year of the Periodic Table of Chemical Elements

Effect of Silicon on Crop Growth ..... RAO Zhen-Hong DU Feng-Pei LI Xiang-Dong(1)

### Curriculum-Teaching Materials-Assessment

Analysis of Contents of Chemical Equation in High School Chemistry Textbooks from Perspective of "Combination of Three Sequences" ..... FANG Wan-Wan CHENG Ping(10)

Selection and Organization of Contents of the Structure of Matter in Senior High School Chemistry Textbooks Since China's Reform and Opening Up ..... WANG Chun-Jiao WANG Xiu-Hong(16)

What Grade 1 Students Need to Know About Matter Based on Perspective of Big Idea and Corresponding Teaching Suggestions ..... WANG Wei-Zhen(23)

### Excellent Lesson

Developing Students' Core Literacy Based on Chemical History: Teaching of Colloid ..... ZHUANG Qian-Min LIU Bing ZHANG Xue(28)

Teaching of Methane Based on Chemistry Core Literacy with HPS Teaching Mode ..... ZHANG Si-Fang WU Di-Di(33)

### Teaching Research

Determination of Iron Content in Black Fungus Based on Deep Learning ..... CAO Kui NIU Huan-Yun(37)

Design and Practice of Scientific Practice of "Comparison of Vitamin C Content in Fruits and Vegetables" Based on Improving Students' Scientific Literacy ..... WANG Shou-Hong(41)

Construction of Stoichiometric System with Amount-of-Substance as Core and Productive Teaching Strategy ..... WANG Kai-Ke(47)

### Teacher Education

Case Study of Experimental Classroom Teaching Behavior of an Excellent Chemistry Teacher Based on CCITIAS Analysis System ..... RUAN Xue-Dan LUO De-Bing ZHENG Liu-Ping YAN Gui-Yang(53)

### Investigation Report

Measurement and Assessment of Senior High School Students' "Green Application" Competence ..... GU Jia-Lei WANG Zu-Hao(59)

Investigation on Scientific Core Literacy of Five-Year Preschool Education Major Students ..... CAO Ai-Juan(65)

### Experiment Teaching and Teaching Aid Development

Using Hand-Held Miniature Laser Fluorescence Spectrometer to Determine Anthocyanin in Common Fruits and Vegetables ..... WANG Shi-Xiong LI Jia-Ning RAN Ming(71)

Comparison of "Blue Bottle" Experiment and Iodine Clock Reaction ..... LONG Qi(75)

Optimum Condition and Reaction Mechanism of Briggs-Rauscher Reaction ..... SUN Ying XIN Xin WU Jing(78)

Experimental Study on Redox Reaction Equilibrium and Movement: Ferric Sulfate Reacting with Potassium Iodide ..... LI Dong-Biao HE Wan-Lin WEI Fang-Ping RAN Ming(85)

### Discussion and Thinking of Questions

Thermodynamics Research on Reversibility of Reaction Between Silver Ions and Ferrous Ions ..... WANG Zhao-Long(89)

Inquiry on Difference Method Measurement Experiment of Gas Produced by Solid-Liquid Reaction; Calculation of Producing H<sub>2</sub>, O<sub>2</sub> and CO<sub>2</sub> in Junior High School Chemistry ..... ZHOU Mei-Hua(91)

## 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)

2019年 第40卷 第13期 7月2日出版

主管单位 中国科学技术协会

顾问 刘知新

主办单位 中国化学会 北京师范大学

主编 刘正平

编辑出版 《化学教育(中英文)》编辑部

副主编 李艳梅 孙世刚 王磊 王祖浩

编辑部地址 北京师范大学化学楼217室

杨屹 杨振忠 郑长龙 朱玉军(专职)

邮政编码 100875

刊名题字 戴安邦

电话(传真) 010—58807875

印刷装订 保定华泰印刷有限公司

咨询信箱 hxjy-jce@263.net

总发行处 中国邮政集团公司北京市报刊发行局

投稿网址 <http://www.hxjy.org>

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 21.00 元

# CHINESE JOURNAL OF CHEMICAL EDUCATION

## 2019 Vol. 40 No. 13

Sponsored by Chinese Chemical Society and Beijing Normal University

### International Year of the Periodic Table of Chemical Elements

Effect of Silicon on Crop Growth ..... RAO Zhen-Hong DU Feng-Pei LI Xiang-Dong(1)

### Curriculum-Teaching Materials-Assessment

Analysis of Contents of Chemical Equation in High School Chemistry Textbooks from Perspective of "Combination of Three Sequences" ..... FANG Wan-Wan CHENG Ping(10)

Selection and Organization of Contents of the Structure of Matter in Senior High School Chemistry Textbooks Since China's Reform and Opening Up ..... WANG Chun-Jiao WANG Xiu-Hong(16)

What Grade 1 Students Need to Know About Matter Based on Perspective of Big Idea and Corresponding Teaching Suggestions ..... WANG Wei-Zhen(23)

### Excellent Lesson

Developing Students' Core Literacy Based on Chemical History: Teaching of Colloid ..... ZHUANG Qian-Min LIU Bing ZHANG Xue(28)

Teaching of Methane Based on Chemistry Core Literacy with HPS Teaching Mode ..... ZHANG Si-Fang WU Di-Di(33)

### Teaching Research

Determination of Iron Content in Black Fungus Based on Deep Learning ..... CAO Kui NIU Huan-Yun(37)

Design and Practice of Scientific Practice of "Comparison of Vitamin C Content in Fruits and Vegetables" Based on Improving Students' Scientific Literacy ..... WANG Shou-Hong(41)

Construction of Stoichiometric System with Amount-of-Substance as Core and Productive Teaching Strategy ..... WANG Kai-Ke(47)

### Teacher Education

Case Study of Experimental Classroom Teaching Behavior of an Excellent Chemistry Teacher Based on CCITIAS Analysis System ..... RUAN Xue-Dan LUO De-Bing ZHENG Liu-Ping YAN Gui-Yang(53)

### Investigation Report

Measurement and Assessment of Senior High School Students' "Green Application" Competence ..... GU Jia-Lei WANG Zu-Hao(59)

Investigation on Scientific Core Literacy of Five-Year Preschool Education Major Students ..... CAO Ai-Juan(65)

### Experiment Teaching and Teaching Aid Development

Using Hand-Held Miniature Laser Fluorescence Spectrometer to Determine Anthocyanin in Common Fruits and Vegetables ..... WANG Shi-Xiong LI Jia-Ning RAN Ming(71)

Comparison of "Blue Bottle" Experiment and Iodine Clock Reaction ..... LONG Qi(75)

Optimum Condition and Reaction Mechanism of Briggs-Rauscher Reaction ..... SUN Ying XIN Xin WU Jing(78)

Experimental Study on Redox Reaction Equilibrium and Movement: Ferric Sulfate Reacting with Potassium Iodide ..... LI Dong-Biao HE Wan-Lin WEI Fang-Ping RAN Ming(85)

### Discussion and Thinking of Questions

Thermodynamics Research on Reversibility of Reaction Between Silver Ions and Ferrous Ions ..... WANG Zhao-Long(89)

Inquiry on Difference Method Measurement Experiment of Gas Produced by Solid-Liquid Reaction; Calculation of Producing H<sub>2</sub>, O<sub>2</sub> and CO<sub>2</sub> in Junior High School Chemistry ..... ZHOU Mei-Hua(91)

## 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)

2019年 第40卷 第13期 7月2日出版

主管单位 中国科学技术协会

顾问 刘知新

主办单位 中国化学会 北京师范大学

主编 刘正平

编辑出版 《化学教育(中英文)》编辑部

副主编 李艳梅 孙世刚 王磊 王祖浩

编辑部地址 北京师范大学化学楼217室

杨屹 杨振忠 郑长龙 朱玉军(专职)

邮政编码 100875

刊名题字 戴安邦

电话(传真) 010—58807875

印刷装订 保定华泰印刷有限公司

咨询信箱 hxjy-jce@263.net

总发行处 中国邮政集团公司北京市报刊发行局

投稿网址 <http://www.hxjy.org>

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 21.00 元