



Q K 2 0 4 8 4 0 9 000-8438
-1815/O6

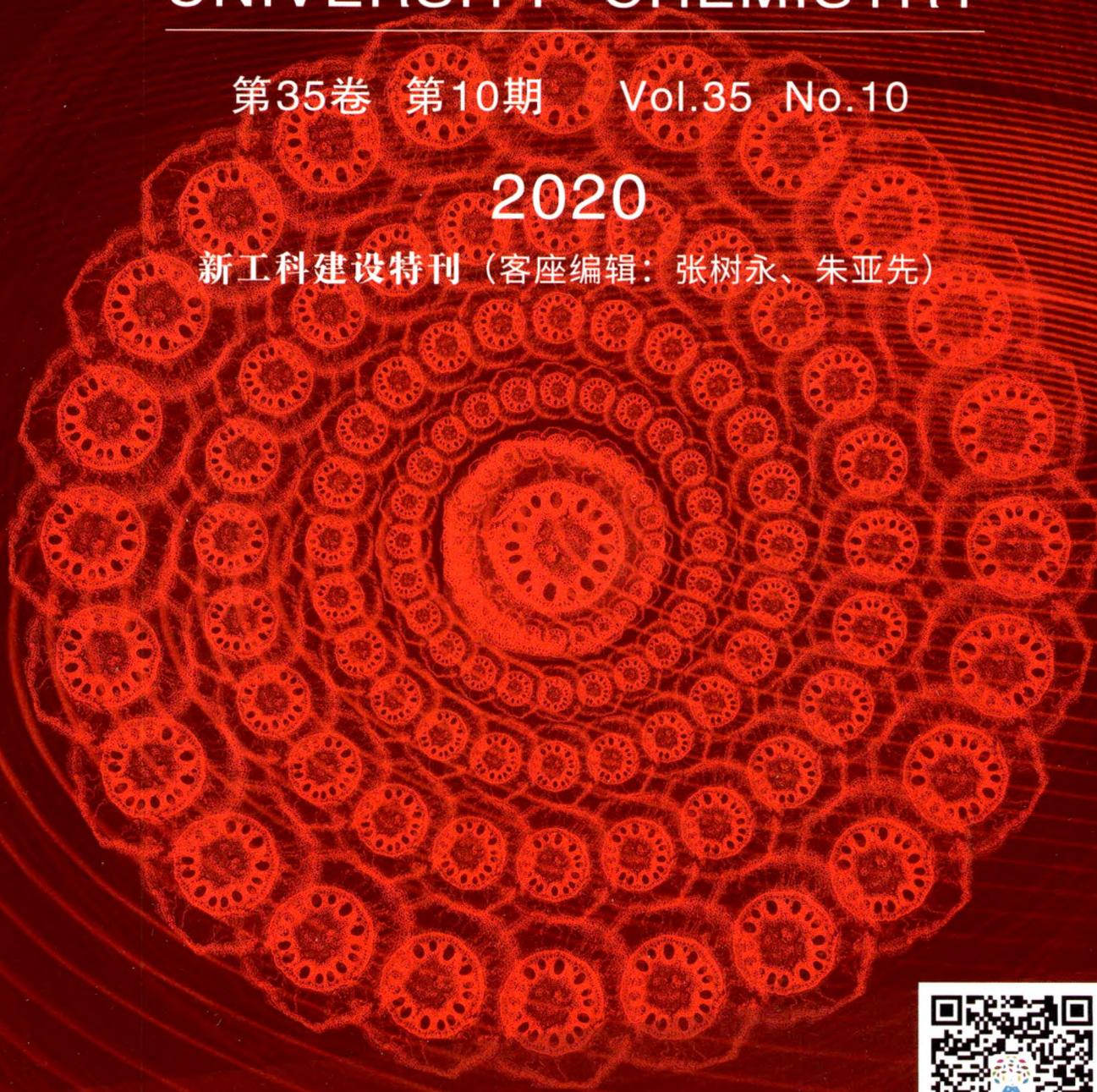
大學化學

UNIVERSITY CHEMISTRY

第35卷 第10期 Vol.35 No.10

2020

新工科建设特刊 (客座编辑: 张树永、朱亚先)



<http://www.dxhx.pku.edu.cn>

中华人民共和国教育部主管
北京大学、中国化学会主办
北京大学化学与分子工程学院大学化学编辑部出版

目 次

专题

序言	张树永,朱亚先 (1)
“基于化学的新工科专业设置和建设方案研究”课题概要	张树永,朱亚先,郑兰荪 (2)
高校化学类专业开展新工科建设的建议	张树永,朱亚先,霍冀川,宋丽娟,徐华龙,郑兰荪 (6)
基于化学的“化学测量学与技术”新工科专业建设建议	霍冀川,张树永,朱亚先,李攻科,杨屹,李梦龙,王玉枝,郑兰荪 (11)
基于化学的新工科专业——“智慧分子工程”专业建设思路及建议	宋丽娟,张树永,王吉林,郑兰荪,朱亚先 (17)
“能源化学”本科专业建设建议	朱亚先,徐华龙,张树永,郑南峰,郑兰荪 (23)
从能源产业发展和人才需求浅谈“能源化学”新工科改造	徐华龙,朱亚先,张树永,郑兰荪 (28)
新工科项目“地方(行业)高校化学类专业应对产业变化的升级改造研究与实践”的实施	丁玉强,朱亚先,宋丽娟,刘卫,刘小珍,霍冀川,薛怀国,郭荣,廖青,倪哲明,周立亚,陆靖 (33)
理科背景下新工科人才培养的思考——以南开大学“新能源科学与工程”探索为例	陶占良,程方益,陈军 (40)
材料化学专业课程体系“三点一线”建设模式与实践	胡道道,刘宗怀,陈新兵,雷志斌 (45)
面向新经济的化工专业改造升级路径探索与实践——以武汉工程大学化工专业改造升级为例	熊芸,喻发全,刘生鹏,高友智,金放 (50)
用新工科理念做强做优盐湖化工特色专业	赵启文,成春春 (55)
厦门大学能源化学专业的创建与实践	傅钢,郑南峰,任斌,吕鑫,王野,田中群,朱亚先 (59)
厚基础、强交叉、重创新:精细化工新工科专业课程体系的构建	王成云,张文清,朱为宏 (65)
面向化妆品产业升级的江南大学应用化学专业建设思考与实践	董玉明,丁玉强,东为富,杨成,刘雪锋,樊晔,王靖,潘庆伟 (71)
新工科视阈下石油化工类高校应用化学专业课程体系重构	钱建华,宋丽娟,王吉林 (77)
新工科背景下湖南大学应用化学专业的改革与建设	朱日龙,楚宗霖,黄中原,邹雨芹,张小华,周海晖,蔡双莲,杜翠翠,李永军,刘娅莉 (82)
新工科视域下青岛大学应用化学专业创新人才培养实践	吕洲,朱倩倩,李群,王宗花,毕赛 (87)
新工科背景下应用化学专业人才培养模式创新研究与实践——以青岛农业大学应用化学专业为例	王修中,徐鲁斌,龚良玉 (92)
新工科建设背景下课程体系与教学内容的改革与实践——以云南大学制药工程专业为例	曹秋娥,刘世熙,陆冬梅 (99)
基于新工科理念的应用化学专业创新创业能力培养体系建设	姜新东,肖林久,李志义,于三三,耿秀娟,封禄田,陈永杰,关瑾,张东享,阎峰,姚慧,李文泽 (104)
构建“三育”实验教学体系 培养民族地区创新性应用型人才	王迎春,李佑稷,顾文斌,欧阳玉祝,顾仁勇 (109)
构建虚实结合、线上线下结合的制药工程专业实验项目——以湖北大学制药工程专业实验改革为例	赵一攻,姜军,王凯,潘洁,张予川,王娟,党雪平 (115)
课程专业相映衬 赋予教学生命力——当无机化学遇上能源化学工程专业	张欢,蒋琪英,蒲琳钰,王伟 (122)
面向化学专业的催化化学教学的探索与实践	张东凤 (128)
新工科背景下高等分离工程教学改革与实践	马占华,杜跃展,李军,孙兰义 (134)
面向应用型人才培养的系列化学教材建设	姚开安,方惠群,孙尔康,张剑荣 (141)
哈工大材料与化工(化学工程领域)专业硕士研究生培养的探索与实践	姚忠平,丛培琳,郝素娥,姜兆华,黄玉东 (146)

动态与信息

欢迎订阅《大学化学》(22)

欢迎订阅《物理化学学报》(76)

CONTENTS

Preface	Shuyong Zhang, Yaxian Zhu (1)
Profile of Project “Research on the Setup and Construction of Emerging Engineering Education Majors Based on Chemistry”	Shuyong Zhang, Yaxian Zhu, Lansun Zheng (2)
Suggestions for “Emerging Engineering Education” Reform for Chemistry-Related Majors	Shuyong Zhang, Yaxian Zhu, Jichuan Huo, Lijuan Song, Hualong Xu, Lansun Zheng (6)
Suggestions on “Chemistry Metrology and Technology” as an Emerging Engineering Education Major Based on Chemistry	Jichuan Huo, Shuyong Zhang, Yaxian Zhu, Gongke Li, Yi Yang, Menglong Li, Yuzhi Wang, Lansun Zheng (11)
Ideas and Suggestions for Constructing “Intelligent Molecular Engineering” as an Emerging Engineering Education Major Based on Chemistry	Lijuan Song, Shuyong Zhang, Jilin Wang, Lansun Zheng, Yaxian Zhu (17)
Suggestions on the Development of “Energy Chemistry”	Yaxian Zhu, Hualong Xu, Shuyong Zhang, Nanfeng Zheng, Lansun Zheng (23)
Discussion on Emerging Engineering Education Reform of “Energy Chemistry” Based on Investigation of Some Fossil Energy Industries	Hualong Xu, Yaxian Zhu, Shuyong Zhang, Lansun Zheng (28)
A Brief Summary of the “Emerging Engineering Education” Project “Upgrade and Practice of Chemistry-Related Majors of Local and/or Specialized University Responding to the Industry Changes”	Yuqiang Ding, Yaxian Zhu, Lijuan Song, Wei Liu, Xiaozhen Liu, Jichuan Huo, Huaguoxue, Rong Guo, Qing Liao, Zheming Ni, Liya Zhou, Jing Lu (33)
Reflections on the Cultivation of Emerging Engineering Talents on the Science Background: An Example on Exploring New Energy Science and Engineering Discipline at Nankai University	Zhanliang Tao, Fangyi Cheng, Jun Chen (40)
Construction Mode and Practice of “Three Points on One Line” in Curriculum System of Material Chemistry	Daodao Hu, Zhonghuai Liu, Xinbing Chen, Zhibin Lei (45)
Exploration and Practice of the Reform and Upgrade Path of Chemical Industry Facing New Economy: Taking the Chemical Engineering Major of Wuhan Institute of Technology as an Example	Yun Xiong, Faquan Yu, Shengpeng Liu, Youzhi Gao, Fang Jin (50)
Improve the Specialty of Salt Lake Chemical Industry Based on the Concepts of Emerging Engineering Education	Qiwen Zhao, Chunxun Cheng (55)
Construction and Practice for Energy Chemistry Majors in Xiamen University	Gang Fu, Nanfeng Zheng, Bin Ren, Xin Lü, Ye Wang, Zhongqun Tian, Yaxian Zhu (59)
Construction of Curriculum System of Emerging Engineering Education for Fine Chemicals: Thick Foundation, Strong Integration, Emphatical Innovation	Chengyun Wang, Wenqing Zhang, Weihong Zhu (65)
On the Development of Applied Chemistry in Jiangnan University for the Promotion of Cosmetics Industry	Yuming Dong, Yuqiang Ding, Weifu Dong, Cheng Yang, Xuefeng Liu, Ye Fan, Jing Wang, Qingwei Pan (71)
Reconstruction of the Curriculum System for the Applied Chemistry Specialty in Petrochemical Universities under the Guidance of Emerging Engineering Education	Jianhua Qian, Lijuan Song, Jilin Wang (77)
Remodeling of Applied Chemistry Specialty in Hunan University for New Engineering Education	Rilong Zhu, Zonglin Chu, Zhongyuan Huang, Yuqin Zou, Xiaohua Zhang, Haihui Zhou, Shuanglian Cai, Cuicui Du, Yongjun Li, Yali Liu (82)
Cultivation Innovative Talents of Applied Chemistry Specialty in Qingdao University under the Guidance of the Emerging Engineering Education	Zhou Lü, Qianqian Zhu, Qun Li, Zonghua Wang, Sai Bi (87)
Innovative Research and Practice of Training Mode for Applied Chemistry Talents under the Background of Emerging Engineering Education: Taking Applied Chemistry Major of Qingdao Agricultural University as an Example	Xiuzhong Wang, Lubin Xu, Liangyu Gong (92)
Reform and Practice of Curriculum System and Teaching Contents under the Guidance of Emerging Engineering Education: Taking Pharmaceutical Engineering Specialty of Yunnan University as an Example	Qie Cao, Shixi Liu, Dongmei Lu (99)
Construction of Innovation and Entrepreneurship Ability Training System of Applied Chemistry Major Based on the Concept of Emerging Engineering Education	Xindong Jiang, Linjiu Xiao, Zhiyi Li, Sansan Yu, Xiujuan Geng, Lutian Feng, Yongjie Chen, Jin Guan, Dongxiang Zhang, Feng Yan, Hui Yao, Wenze Li (104)
Constructing “Three Education” Laboratory Teaching System and Cultivating Innovative and Applied Talents in Minority Areas	Yingchun Wang, Youji Li, Wenbin Yan, Yuzhu Ouyang, Renyong Gu (109)
Combination of Virtual and Real, Online and Offline Professional Laboratory Projects for Pharmaceutical Engineering Major: Taking the Laboratory Teaching Reform of Pharmaceutical Engineering Major of Hubei University as an Example	Yimei Zhao, Jun Jiang, Kai Wang, Jie Pan, Yuchuan Zhang, Juan Wang, Xueping Dang (115)
Course and Major Set off Each Other to Make Teaching Live: When Inorganic Chemistry Meets Energy Chemical Engineering Major	Huan Zhang, Qiying Jiang, Linyu Pu, Wei Wang (122)
Exploration and Practice in Catalytic Chemistry Teaching for Chemistry Majors	Dongfeng Zhang (128)
Teaching Reform and Practice of Advanced Separation Engineering under the Background of Emerging Engineering Education	Zhanhua Ma, Yuezhuan Du, Jun Li, Lanyi Sun (134)
Compilation of Chemistry Textbook Series for Cultivation of Applied Chemistry Students	Kaiyan Yao, Huiqun Fang, Erkang Sun, Jianrong Zhang (141)
Exploration and Practice of Postgraduate Training in Materials and Chemical Engineering (Chemical Engineering Field) of Harbin Institute of Technology	Zhongping Yao, Peilin Cong, Sue Hao, Zhaohua Jiang, Yudong Huang (146)

