首都师范大学学报(自然科学版)

Shoudu Shifan Daxue Xuebao(Ziran Kexue Ban)

2026年6月　　第47卷　第3期

目　　次

50周年刊庆:AI赋能自然科学研究——功能材料与能源

化学视角下的AI驱动跨学科融合:机遇、路径与挑战 ……陈　欣,刘怡帆,黄嘉莉,彭浩南(1)

ML赋能可控/活性聚合体系的合成工艺优化与机理探索 ……刘　捷,杨书桂,曹　瑜(14)

AI驱动的纳米药物癌症治疗新进展 ……孙晓环,路　燕,王欢欢(39)

AI辅助网状框架材料合成 ……任锐琴,赵智豪(49)

生成式AI与逆向设计:高通量预测新型荧光染料的分子结构 ……彭灵雅,窦小雅,刘乐洁,江　艳(61)

应用数学研究

基于正态逆高斯分布的VaR计算方法 ……刘　龙,任芳玲(74)

理论物理研究

带有李黄杨修正的双组份玻色-爱因斯坦凝聚体孤子解 ……王林红,李　睿,孙　青,纪安春,胡　洁(80)

自旋轨道耦合对IV族类石墨烯结构材料电子输运的影响 ……张研研,姜婉依,裴　威,郑　军,袁瑞玥(85)

超音速碳纳米管增强梁的颤振特性分析 ……冯瑞龙,韩明君,汪卫东(93)

区域高质量发展

国内外场景理论研究进展与启示 ……王　燕,文　谨(105)

西南地区户籍流动人口省内迁移意愿的空间分异及机制 ……闫玘娇,赵美风,冉赛飞(116)

北京市石景山区空气重污染特征及成因分析:以2024年3次重污染过程为例 ……

……于付荣,屈林臻,易华炜,崔阳阳,赵旭龙,朱利军,薛亦峰(127)

Journal of Capital Normal University

(Natural Science Edition)

Vol.47 No.3 Jun. 2026

Contents

50th Anniversary of the Journal: AI for Science—Functional Materials and Energy

AI-driven interdisciplinary integration from a chemical perspective: opportunities, pathways, and challenges ····CHEN Xin, LIU Yifan, HUANG Jiali, PENG Haonan(1)

ML-driven process optimization and mechanistic insights into controlled and living polymerizations ····LIU Jie, YANG Shugui, CAO Yu(14)

Recent advances in AI-driven cancer nanotherapy····SUN Xiaohuan, LU Yan, WANG Huanhuan(39)

AI-assisted synthesis in reticular framework materials ···· REN Ruiqin, ZHAO Zhihao(49)

Generative AI for inverse design: high-throughput discovery of fluorescent dye molecules···· PENG Lingya, DOU Xiaoya, LIU Lejie, JIANG Yan(61)

Research of Applied Mathematics

VaR calculation method based on normal inverse Gaussian distribution ····LIU Long, REN Fangling(74)

Research of Theoretical Physics

Soliton solutions of two-component Bose-Einstein condensates with Lee-Huang-Yang correction ···· WANG Linhong, LI Rui, SUN Qin, JI Anchun, HU Jie(80)

Spin-orbit coupling effects on electronic transport in group IV graphene like materials ····ZHANG Yanyan, JIANG Wanyi, PEI Wei, ZHENG Jun, YUAN Ruiyang(85)

Analysis of flutter characteristics of supersonic carbon nanotube-reinforced beams ····FENG Ruilong, HAN Mingjun, WANG Weidong(93)

Regional High-quality Development

Research progress and enlightenment of scene theory at home and abroad ····WANG Yan, WEN Jin(105)

Spatial difference and mechanism of registered floating population's migration willingness within the province of southwest China ····YAN Qijiao, ZHAO Meifeng, RAN Saifei(116)

Analysis of characteristics and causes of heavy air pollution in Shijingshan District, Beijing: evidence from three pollution episodes in 2024···· YU Furong, QU Linzhen, YI Huawei, CUI Yangyang, ZHAO Xulong, ZHU Lijun, XUE Yifeng(127)