

曹新华教授博士硕士生导师

姓名：曹新华

专业：无机化学

联系方式：0376-6390597

邮箱：caoxhchem@163.com

办公室：化学楼 416



简介：曹新华，博士，教授，硕士生导师，河南省杰出青年科学基金获得者、河南省教育厅学术技术带头人、河南省高校科技创新人才、河南省高等学校优秀共产党员、河南省高等学校青年骨干教师，河南省优秀硕士学位论文指导教师，信阳市优秀青年科技专家，入选南湖学者奖励计划 A 类人才。

个人经历

教育经历：

1999.9-2003.6 学士河南师范大学化学与环境科学学院化学

2003.9-2006.6 硕士福建师范大学化学与材料科学学院物理化学导师：郑瑛教授

2008.9-2011.6 博士复旦大学化学系无机化学导师：易涛教授

工作简历：

2006.6-2008.3 上海睿智化学研究有限公司职员

2012.4-2014.10 信阳师范学院化学化工学院讲师

2014.11-2020.12 信阳师范学院化学化工学院副教授

2020.12-至今信阳师范学院化学化工学院教授

研究领域与兴趣

1. 功能超分子自组装材料研究
2. 多金属氧酸盐的合成及生物领域应用研究

主讲课程

本科生：《有机合成化学》、《天然产物化学》、《有机化学实验》

研究生：《有机结构分析》、《化学前沿》等

主持科研项目

1. 河南省自然科学基金—杰出青年科学基金 50 万，2025.01-2027.12，在研；
2. 高等学校重点科研项目基础研究计划（22ZX002）30 万，2022.01-2024.12，在研；
3. 国家自然科学基金--联合基金（U1704164）50 万，2018.01-2020.12，已结项；
4. 国家自然科学基金青年基金（21401159）25 万，2015.01-2017.12，已结项；

5. 河南省高校科技创新人才支持计划（17HASTIT005）30万，2017.01-2019.12 结项；
6. 河南省教育厅青年骨干教师资助项目（2015GGJS-141）2.0万，2016.01-2017.12，已结项。

代表性研究成果

期刊论文：

33. Chen Lian, Si-Han Zhao, Hai-Lou Li,***Xinhua Cao***, A giant Ce-containing poly(tungstobismuthate): Synthesis, structure and catalytic performance for the decontamination of a sulfur mustard simulant, *Chin. Chem. Lett.*, 2024, 35, 109343.
32. Li Yu, Xiaocai Ma, **Xinhua Cao***, and Junwei Zhao*, Nanostructured polyoxometalate-based heterogeneous electrode materials for electrochemical sensing of glucose, *Inorg. Chem.*, 2024, 63, 5952–5960.
31. Hai-Lou Li, Si-Han Zhao, Aiping Gao, Chen Lian,* **Xinhua Cao***, {SeO₂(OH)} Bridging lanthanide-containing antimonio-seleno-tungstates, *Inorg. Chem.*, 2024, 63, 9899–9906.
30. Hai-Lou Li,* Si-Han Zhao, Nuo-Han Wang, Yun-Lei Ma, Chen Lian,* and **Xinhua Cao***, Se-Rich Multinuclear Er-Containing Dawson-type Poly(selenotungstate), *Inorg. Chem.*, 2024, 63, 21645–21651.
29. Huijuan Wu, Xiaocai Ma, Aiping Gao, **Xinhua Cao***, Regulation of fluorescence, morphology, surface wettability and function of naphthalimide-based self-assembly system by metal coordination, *Surf. Interfaces*, 2024, 44, 103744.
28. Huijuan Wu, Qingqing Wang, Yan Zhang, Aiping Gao*, Xiaocai Ma, Xudong Yu, **Xinhua Cao***, Regulation effects on naphthalimide self-assembly system by terminal pyridine isomers and the coordination of metal ions, *Colloid Surface A*, 2024, 697, 134494.
27. Qingqing Han, Qingqing Wang, Aiping Gao, Xue-Ping Chang, Lintao Zeng,* **Xinhua Cao***, Robust Fluorescent Self-Assembly System for Sensing of Phosgene, Thionyl Chloride, and Oxalyl Chloride, *ACS Sustainable Chem. Eng.*, 2023, 11, 2139–2150.
26. Qingqing Wang, Huijuan Wu, Aiping Gao, Xuefei Ge, Xueping Chang*, **Xinhua Cao***, Bis-naphthalimide-based supramolecular self-assembly system for selective and colorimetric detection of oxalyl chloride and phosgene in solution and gas phase, *Chin. Chem. Lett.*, 2023, 34, 107644.
25. Aiping Gao, Qingqing Wang, Huijuan Wu, Jun-Wei Zhao,* **Xinhua Cao***, Research progress on AIE cyanostilbene-based self-assembly gels: Design, regulation and applications. *Coord. Chem. Rev.*, 2022, 471, 214753.
24. Lulu Liu, Jun Jiang, Limin Cui, Junwei Zhao,* **Xinhua Cao***, and Lijuan Chen,* Double Trigonal Pyramidal {SeO₃} Groups Bridged 2-Picolinic Acid Modified Cerium-Inlaid Polyoxometalate Including Mixed Selenotungstate Subunits for Electrochemically Sensing Ochratoxin A, *Inorg. Chem.*, 2022, 61, 1949-1960.
23. **Xinhua Cao**, Aiping Gao, Ji-ting Hou, Tao Yi*, Fluorescent supramolecular self-assembly gels and their application as sensors: A review, *Coord. Chem. Rev.*, 2021, 434, 213792.
22. Jiangbo Guo, Yajuan Li,* Yajun Zhang, Jujie Ren, Xudong Yu,* and **Xinhua Cao***, Switchable Supramolecular Configurations of Al³⁺/LysTPY Coordination Polymers in a Hydrogel Network Controlled by Ultrasound and Heat, *ACS Appl. Mater. Interfaces*, 2021, 13, 40079-40087.
21. **Xinhua Cao***, Yiran Li, Qingqing Han, Aiping Gao, Bingya Wang, Xueping Chang and Ji-ting Hou*, Design of large pi-conjugated a-cyanostilbene derivatives as colorimetric sensors for

- volatileacids and organic amine gases, *J. Mater. Chem. C*, **2020**, 8, 4058-4064.
20. Ji-Ting Hou, Bingya Wang, YuxiaZou, Peiwen Fan, Xueping Chang, **Xinhua Cao***, Shan Wang*,and Fabiao Yu*, Molecular fluorescent probes for imaging and evaluation of hypochlorite fluctuations during diagnosis and therapy ofosteoarthritis in cells and in a mouse model, *ACS Sens.*, 2020, 5, 1949-1958.
 19. **Xinhua Cao***, Yiran Li, Xiaoyuan Zhang, AipingGao, RuixiangXu, Yongsheng Yu,XiaohanHei, Surface wettability and emission behavior tuned via solvent in asupramolecular self-assembly system based on a naphthalene diimidesderivative, *Appl. Surf. Sci.*, **2020**, 501 144256.
 18. **Xinhua Cao***, Yiran Li, Yicheng Yu, Shiyong Fu, AipingGao and Xueping Chang*, Multifunctional supramolecular self-assembly system for colorimetric detection of Hg²⁺, Fe³⁺, Cu²⁺ and continuous sensing of volatile acids and organic amine gases, *Nanoscale*, **2019**, 11, 10911-10920.
 17. **Xinhua Cao***, Yiran Li, AipingGao, Yongsheng Yu, Qiuju Zhou, Xueping Chang*, XiaohanHei, Multifunctional fluorescent naphthalimide self-assembly systemfor detection Cu²⁺, K⁺ and continuously sensing organic aminesand gaseous acids. *J. Mater. Chem. C*, **2019**, 7, 10589-10597.
 16. **Xinhua Cao***, Qianqian Ding, Yiran Li, AipingGao and Xueping Chang, Continuous multi-channel sensing of volatile acidand organic amine gases using a fluorescentself-assembly system. *J. Mater. Chem. C*, **2019**,7, 133-142.
 15. **Xinhua Cao***, Yiran Li, AipingGao, Yongsheng Yu, Xueping Chang, and XiaohanHei, Sensing organic amines and quantitative monitoring of intracellular ph change using a fluorescent self-assembly system,*ACS Appl. Polym. Mater.*, 2019, 1, 1485-1495.
 14. **Xinhua Cao***, Na Zhao, AipingGao, qianqian Ding, Yiran Li, and Xueping Chang*. Terminal molecular isomer-effect on supramolecular self-assembly system based on naphthalimide derivative andits sensing application for mercury(II) and iron (III) ions. *Langmuir*, **2018**, 34, 7404-7415.
 13. **Xinhua Cao***, Na Zhao, HaitingLv, AipingGao,Aiping Shi, Yongquan Wu*,4-Nitrobenzene thiourea self-assembly system and itstransformation upon addition of Hg²⁺ ion: applications assensor to fluoride ion. *Sensors and Actuators B*, **2018**, 266, 637-644.
 12. **Xinhua Cao***, Qianqian Ding, Na Zhao, AipingGao, Qiangshang Jing*, Supramolecular self-assembly system based on naphthalimide boric acid ester derivative for detection, *Sensors Actuat. B-Chem.*, **2017**, 256, 711-720.
 11. **Xinhua Cao***, Na Zhao, HaitingLv, Qianqian Ding, AipingGao, Qiangshan Jing, and Tao Yi*,Strong blue emissive supramolecular self-assembly system based on naphthalimide derivatives and its ability of detection andremoval of 2,4,6-trinitrophenol. *Langmuir*,**2017**, 33, 7788-7798.
 10. **Xinhua Cao***, Na Zhao, GuodongZou, AipingGao, Qianqian Ding,GuanjieZeng and Yongquan Wu*,A dual response organogel system based on aniridium complex and a Eu(III) hybrid for volatileacid and organic amine vapors. *Soft Matter*,**2017**, 13, 3802-3811.
 9. **Xinhua Cao***, Qianqian Ding, AipingGao, HaitingLv, AipingGao, Dan Liu, Regulation gel

- formation, hierarchical structures and surface wettability via isomeride effect in supramolecular organogel system, *J Colloid Interf. Sci.*, **2017**, 494, 170-177.
8. **Xinhua Cao***, Na Zhao, Aiping Gao, Haiting Lv, Yuling Jia, Renmiao Wu, Yongquan Wu*, Bis-naphthalimides self-assembly organogel formation and application in detection of p-phenylenediamine, *Materials Science and Engineering C*, **2017**, 70, 216-222.
 7. **Xinhua Cao***, Na Zhao, RuoHan Li, HaiTingLv, Zongwen Zhang, Aiping Gao, Tao Yi*. Steric-structure-dependent gel formation, hierarchical structures, rheological behavior, and surface wettability. *Chem. Asian J.*, **2016**, 11, 3196-3204.
 6. **Xinhua Cao***, Aiping Gao, Na Zhao, Fangyuan Yuan, Chenxi Liu, Ruru Li, Surfaces wettability and morphology modulation in a fluorene derivative self-assembly system, *Appl. Surf. Sci.*, 2016, 368, 97-103.
 5. **X.H. Cao**, Haichuang Lan, Zhenhua Li, Yueyuan Mao, Liming Chen, Yongquan Wu, Tao Yi*. White light emission from a two-component hybrid gel via an energy transfer process. *Phys. Chem. Chem. Phys.*, **2015**, 17, 32297-32303.
 4. **Xinhua Cao**, Xue Liu, Liming Chen, Yueyuan Mao, Haichuang Lan, Tao Yi*. Photoisomerization-induced morphology and transparency transition in an azobenzene based two-component organogel system. *J Colloid Interf. Sci.*, **2015**, 458, 187-193.
 3. **Xinhua Cao**, Luyan Meng, Zhenhua Li, Yueyuan Mao, Haichuang Lan, Liming Chen, Yang Fan, and Tao Yi*. Large red-shifted fluorescent emission via intermolecular π - π stacking in 4-ethynyl-1,8-naphthalimide-based supramolecular assemblies. *Langmuir*, **2014**, 30, 11753-11760.
 2. **Xinhua Cao**, Yongquan Wu, Keyin Liu, Xudong Yu, Bo Wu, Huazhou Wu, Zhuguang Gong, Tao Yi*. Iridium complex triggered white-light-emitting gel and its response to cysteine. *J. Mater. Chem.*, **2012**, 22, 2650-2657.
 1. **Xinhua Cao**, Jing Zhou, Ying Zou, Mingming Zhang, Xudong Yu, Song Zhang, Tao Yi*. Huang Chunhui, Fluorescence and morphology modulation in a photochromic diarylethene self-assembly system. *Langmuir*, 2011, 27, 5090-5097.

专利著作:

1. **曹新华**, 黑笑涵, 高爱萍, 邹国栋, 于永生, 一种偶氮苯基硫脲衍生物的有机凝胶化合物及制备方法、有机凝胶及应用 (专利号: ZL201811640806.1)。
2. **曹新华**, 高爱萍, 樊阳, 高彦伟, 黑笑涵, 一种萘酰亚胺的有机凝胶化合物及其制备方法、凝胶及应用 (专利号: ZL201610716172.8)。
3. **曹新华**, 高爱萍, 黑笑涵, 高彦伟, 赵娜, 一种4-硝基苯硫脲的有机凝胶化合物及其制备方法、凝胶及应用 (专利号: ZL201710109689.5)。
4. **曹新华**, 宋力, 归风铁, 高爱萍, 陈超, 一种基于萘酰亚胺的有机荧光凝胶化合物及其制备方法与应用 (专利号: ZL201410095004.2)。
5. **曹新华**, 高爱萍, 黑笑涵, 邹国栋, 丁倩倩, 一种对二甲氨基肉桂酸衍生物的有机凝胶化合物及制备方法、有机凝胶及应用 (专利号: ZL201811107186.5)

奖励及荣誉

河南省杰出青年科学基金获得者、河南省教育厅学术技术带头人、河南省高等学校优秀共产党员、河南省优秀硕士学位论文指导教师、河南省高等学校青年骨干教师、信阳市优秀青年科技专家、信阳师范学院十佳优秀研究生导师、入选南湖学者奖励计划 A 类人才。近年来已在 *Journal of Chemistry Materials C*、*ACS Appl. Mater. Interfaces*、*Nanoscale* 等国际知名分析化学期刊杂志上发表学术论文 60 余篇。任期刊 *Chineses Chemical letters* 青年编委。

个人主页