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简介：王海波，男，1984年12月生，博士，教授，硕士生导师，河南省高层次人才（C类人才），中原千人计划—中原青年拔尖人才，河南省教育厅学术技术带头人，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：

2003.9-2007.6 学士 长沙理工大学 化学与环境工程学院 化学工程与工艺  
2007.9-2012.6 博士 湖南大学 化学化工学院 分析化学 导师：楚霞教授  
2020.8-2020.9 脱产学习 中共河南省委党校（河南行政学院） 高级专家进修班

### 工作简历：

2012.7-2015.10 信阳师范学院化学化工学院 讲师  
2015.11-2021.11 信阳师范学院化学化工学院 副教授  
2021.12-至今 信阳师范学院化学化工学院 教授

## 研究领域与兴趣

1. 生化分析与生物传感
2. 生物纳米材料与技术
3. 功能化荧光纳米材料

## 主讲课程

本科生：《现代分子光谱分析》、《专业英语》、《化学进展》

研究生：《仪器分析》、《分析化学实验》、《仪器分析实验》等

## 主持科研项目

### 纵向项目：

1. 国家自然科学基金：荧光金纳米簇的制备、表征及其在超灵敏生物传感方法中的应用，U1704153，54万，2018.1-2020.12，主持
2. 国家自然科学基金：基于上转换荧光纳米材料的超灵敏生物传感新方法研究，21305119，25

万, 2014.1-2016.12, 主持

3. 中原千人计划—中原青年拔尖人才(自然科学和工程技术类), 50万, 2020.1-2022.12, 主持

#### 横向项目:

1. 化学生物传感与计量学国家重点实验室开放课题: 基于上转换荧光纳米材料的荧光能量共振转移传感新技术的研究, 2012011, 3万, 2013.1-2014.12, 主持

2. 化学生物传感与计量学国家重点实验室开放课题: 基于核酸信号放大技术和上转换纳米材料的超灵敏荧光生物传感新方法研究, 2016002, 3万, 2017.1-2018.12, 主持

#### 代表性研究成果

#### 期刊论文:

1. **Hai-Bo Wang\***, Bei-Bei Tao, Ning-Ning Wu, Hong-Ding Zhang, Yan-Ming Liu, Glutathione-stabilized copper nanoclusters mediated-inner filter effect for sensitive and selective determination of p-nitrophenol and alkaline phosphatase activity, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, **2022**, 271: 120948.
2. Bei-Bei Tao, Ning-Ning Wu, Hong-Ding Zhang, **Hai-Bo Wang\***, Blocking the Cu (II) Ions Mediated Catalytical Ability for Construction of Ratiometric Fluorescence Sensing Platform Based on Glutathione-Stabilized Copper Nanoclusters, *Journal of The Electrochemical Society*, **2022**, 169(3): 037529.
3. Zaiqiong Liu, Jinpeng Tao, Zhenyu Zhu, Yanli Zhang\*, Hongbin Wang, Pengfei Pang, **Haibo Wang\***, Wenrong Yang, A sensitive electrochemical assay for T4 polynucleotide kinase activity based on Fe<sub>3</sub>O<sub>4</sub>@TiO<sub>2</sub> and gold nanoparticles hybrid probe modified magnetic electrode, *Journal of The Electrochemical Society*, **2022**, 169(2): 027504.
4. **Hai-Bo Wang\***, Bei-Bei Tao, An-Li Mao, Zhong-Liang Xiao, Yan-Ming Liu, Self-assembled copper nanoclusters structure dependent fluorescent enhancement for sensitive determination of tetracyclines by the restriction intramolecular motion, *Sensors and Actuators B: Chemical*, **2021**, 348: 130729.
5. **Hai-Bo Wang\***, An-Li Mao, Bei-Bei Tao, Hong-Ding Zhang, Zhong-Liang Xiao, Yan-Ming Liu, L-histidine-DNA interaction: a strategy for the improvement of the fluorescence signal of poly(adenine) DNA-templated gold nanoclusters, *Microchimica Acta*, **2021**, 188(6): 198.
6. **Hai-Bo Wang\***, An-Li Mao, Bei-Bei Tao, Hong-Ding Zhang, Yan-Ming Liu, Fabrication of multiple molecular logic gates made of fluorescent DNA-templated Au nanoclusters, *New Journal of Chemistry*, **2021**, 45(9): 4195-4201.
7. Hongding Zhang\*, Sifei Wu, Zhenhua Xing, **Hai-Bo Wang\***, Yan-Ming Liu, A highly sensitive electrochemical sensor for theophylline based on dopamine - melanin nanosphere (DMN)-gold nanoparticles (AuNPs)-modified electrode, *Applied Physics A*, **2021**, 127(11): 844.
8. **Hai-Bo Wang\***, Hong-Yu Bai, Ya-Shu Wang, Tian Gan\*, Yan-Ming Liu, Highly selective fluorimetric and colorimetric sensing of mercury(II) by exploiting the self-assembly-induced emission of 4-chlorothiophenol capped copper nanoclusters, *Microchimica Acta*, **2020**, 187(3):

9. **Hai-Bo Wang\***, An-Li Mao, Tian Gan\*, Yan-Ming Liu, A turn-on fluorescent strategy for cellular glutathione determination based on the aggregation-induced emission enhancement of self-assembly copper nanoclusters, *Analyst*, **2020**, 145(21): 7009-7017.
10. Hongding Zhang\*, Zhenhua Xing, Miaomiao Pan, **Hai-Bo Wang\***, Yan-Ming Liu, Highly sensitive and selective electrochemical determination of 4-aminophenol based on flower-like Ag-Au nanocomposites modified glassy carbon electrode, *Journal of The Electrochemical Society*, **2020**, 167(12): 126504.
11. **Hai-Bo Wang\***, An-Li Mao, Yong-Hong Li, Tian Gan\*, Yan-Ming Liu, A turn-on fluorescence strategy for biothiols determination by blocking Hg(II)-mediated fluorescence quenching of adenine-rich DNA-templated gold nanoclusters, *Luminescence*, **2020**, 35(8): 1296-1303.
12. **Hai-Bo Wang\***, Hong-Yu Bai, Gao-Li Dong, Yan-Ming Liu, DNA-templated Au nanoclusters coupled with proximity-dependent hybridization and guanine-rich DNA induced quenching: a sensitive fluorescent biosensing platform for DNA detection, *Nanoscale Advances*, **2019**, 1(4): 1482-1488.
13. **Hai-Bo Wang\***, Hong-Yu Bai, An-Li Mao, Tian Gan\*, Yan-Ming Liu, Poly(adenine)-templated fluorescent Au nanoclusters for the rapid and sensitive detection of melamine, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, **2019**, 219: 375-381.
14. **Hai-Bo Wang\***, Hong-Yu Bai, An-Li Mao, Yan-Ming Liu, Poly(adenine) DNA-Templated Gold Nanocluster-Based Fluorescent Strategy for the Determination of Thiol-Containing Pharmaceuticals, *Analytical Letters*, **2019**, 52(14): 2300-2311.
15. **Hai-Bo Wang\***, Yang Li, Hong-Yu Bai, Yan-Ming Liu, DNA-templated Au nanoclusters and MnO<sub>2</sub> sheets: a label-free and universal fluorescence biosensing platform, *Sensors and Actuators B: Chemical*, **2018**, 259: 204-210.
16. **Hai-Bo Wang\***, Yang Li, Ying Chen, Zi-Ping Zhang, Tian Gan\*, Yan-Ming Liu, Determination of the activity of alkaline phosphatase by using nanoclusters composed of flower-like cobalt oxyhydroxide and copper nanoclusters as fluorescent probes, *Microchimica Acta*, **2018**, 185(2): 102.
17. Hai-Bo Wang\*, Yang Li, Hong-Yu Bai, Zi-Ping Zhang, Yong-Hong Li\*, Yan-Ming Liu, Development of Rapid and Label-Free Fluorescence Sensing of Tetracyclines in Milk Based on Poly(Adenine) DNA-Templated Au Nanoclusters, *Food Analytical Methods*, **2018**, 11(11): 3095-3102.
18. **Hai-Bo Wang\***, Yang Li, Hong-Yu Bai, Yan-Ming Liu, Fluorescent Determination of Dopamine Using Polythymine-Templated Copper Nanoclusters, *Analytical Letters*, **2018**, 51(18): 2868-2877.
19. Hai-Bo Wang\*, Ying Chen, Na Li, Yan-Ming Liu, A fluorescent glucose bioassay based on the hydrogen peroxide-induced decomposition of a quencher system composed of MnO<sub>2</sub> nanosheets and copper nanoclusters, *Microchimica Acta*, **2017**, 184(2): 515-523.
20. **Hai-Bo Wang\***, Yang Li, Gao-Li Dong, Tian Gan\*, Yan-Ming Liu, A convenient and label-free

- colorimetric assay for dopamine detection based on the inhibition of the Cu(II)-catalyzed oxidation of a 3, 3', 5, 5'-tetramethylbenzidine-H<sub>2</sub>O<sub>2</sub> system, *New Journal of Chemistry*, **2017**, 41(23): 14364-14369.
21. **Hai-Bo Wang\***, Ying Chen, Yang Li, Yan-Ming Liu, A sensitive fluorescence sensor for glutathione detection based on MnO<sub>2</sub> nanosheets-copper nanoclusters composites, *RSC Advances*, **2016**, 6(83): 79526-79532.
  22. **Hai-Bo Wang\***, Ying Chen, Yang Li, Yan-Ming Liu, Blocking the formation of fluorescent poly(thymine)-templated copper nanoparticles for label-free and sensitive detection of kojic acid in foodstuffs, *Analytical Methods*, **2016**, 8(47): 8322-8328.
  23. **Hai-Bo Wang\***, Hong-Ding Zhang, Yu-Liang Jiang, Xiao-Ling Li, Yan-Ming Liu, Determination of Adenine and Guanine by a Dopamine-Melanin Nanosphere-Polyaniline Nanocomposite Modified Glassy Carbon Electrode, *Analytical Letters*, **2016**, 49(2): 226-235.
  24. Hai-Bo Wang\*, Hong-Ding Zhang, Ying Chen, Yan-Ming Liu, A fluorescent biosensor for protein detection based on poly(thymine)-templated copper nanoparticles and terminal protection of small molecule-linked DNA, *Biosensors and Bioelectronics*, 2015, 74: 581-586.
  25. **Hai-Bo Wang\***, Hong-Ding Zhang, Ying Chen, Ke-Jing Huang, Yan-Ming Liu, A label-free and ultrasensitive fluorescent sensor for dopamine detection based on double-stranded DNA templated copper nanoparticles, *Sensors and Actuators B: Chemical*, **2015**, 220: 146-153.
  26. **Hai-Bo Wang\***, Hong-Ding Zhang, Yue-Hua Zhang, Huan Chen, Lu-Lu Xu, Ke-Jing Huang, Yan-Ming Liu, Tungsten disulfide nano-flowers/silver nanoparticles composites based electrochemical sensor for theophylline determination, *Journal of The Electrochemical Society*, **2015**, 162(7): B173-B179.
  27. **Hai-Bo Wang\***, Hong-Ding Zhang, Ying Chen, Yang Li, Tian Gan, H<sub>2</sub>O<sub>2</sub>-mediated fluorescence quenching of double stranded DNA templated copper nanoparticles for label-free and sensitive detection of glucose, *RSC Advances*, **2015**, 5(95): 77906-77912.
  28. **Hai-Bo Wang\***, Ying Chen, Yang Li, Hong-Ding Zhang, Jun-Tao Cao, A rapid, sensitive and label-free sensor for Hg(II) ions detection based on blocking of cysteine-quenching of fluorescent poly(thymine)-templated copper nanoparticles, *RSC Advances*, **2015**, 5(114): 94099-94104.
  29. **Hai-Bo Wang\***, Hong-Ding Zhang, Ying Chen, Yan-Ming Liu, Inhibition of double-stranded DNA templated copper nanoparticles as label-free fluorescent sensors for L-histidine detection, *New Journal of Chemistry*, 2015, 39(11): 8896-8900.
  30. **Hai-Bo Wang\***, Hong-Ding Zhang, Ying Chen, Li-Juan Ou\*, Yan-Ming Liu, Poly(thymine)-templated fluorescent copper nanoparticles for label-free detection of N-acetylcysteine in pharmaceutical samples, *Analytical Methods*, **2015**, 7(15): 6372-6377.
  31. **Hai-Bo Wang\***, Hong-Ding Zhang, Shu-Ping Xu, Tian Gan, Ke-Jing Huang\*, Yan-Ming Liu, A sensitive and label-free electrochemical impedance biosensor for protein detection based on terminal protection of small molecule-linked DNA, *Sensors and Actuators B: Chemical*, **2014**, 194: 478-483.

32. **Hai-Bo Wang\***, Hong-Ding Zhang, Lu-Lu Xu, Tian Gan, Ke-Jing Huang, Yan-Ming Liu, Electrochemical biosensor for simultaneous determination of guanine and adenine based on dopamine-melanin colloidal nanospheres-graphene composites, *Journal of Solid State Electrochemistry*, **2014**, 18(9): 2435-2442.
33. **Hai-Bo Wang\***, Lan Wang, Ke-Jing Huang, Shu-Ping Xu, Hong-Qi Wang\*, Ling-Ling Wang, Yan-Ming Liu, A highly sensitive and selective biosensing strategy for the detection of Pb<sup>2+</sup> ions based on GR-5 DNzyme functionalized Au NPs, *New Journal of Chemistry*, **2013**, 37(8): 2557-2563.
34. **Hai-Bo Wang\***, Yong-Hong Li, Ke-Jing Huang, Xin-Sheng Liu, Yan-E Yang, Yan-Ming Liu, A label-free and sensitive fluorescence strategy for screening ligands binding to poly(A) based on exonuclease-I assisted background noise reduction, *Analytical Methods*, **2013**, 5(18): 4852-4858.
35. **Hai-Bo Wang\***, Li-Juan Ou, Ke-Jing Huang, Xin-Ge Wen, Ling-Ling Wang, Yan-Ming Liu, A sensitive biosensing strategy for DNA detection based on graphene oxide and T7 exonuclease assisted target recycling amplification, *Canadian Journal of Chemistry*, **2013**, 91(12): 1266-1271.
36. **Hai-Bo Wang**, Shuang Wu, Xia Chu\*, Ru-Qin Yu, A Sensitive Fluorescence Strategy for Telomerase Detection in Cancer Cells Based on T7 Exonuclease-Assisted Target Recycling Amplification, *Chemical Communications*, **2012**, 48(47): 5916-5918.
37. **Hai-Bo Wang**, Ting-Ting Chen, Shuang Wu, Xia Chu\*, Ru-Qin Yu, A Novel Biosensing Strategy for Screening G-Quadruplex Ligands Based on Graphene Oxide sheets, *Biosensors and Bioelectronics*, **2012**, 34: 88-93.
38. **Hai-Bo Wang**, Qing Zhang, Xia Chu\*, Ting-Ting Chen, Jia Ge, Ru-Qin Yu, Graphene Oxide-Peptide Conjugate as an Intracellular Protease Sensor for Caspase-3 Activation Imaging in Live Cells, *Angewandte Chemie International Edition*, **2011**, 50(31): 7065-7069.

#### 专利著作:

1. 国家发明专利 (ZL 2018 1 1422786.0): **王海波**, 白宏宇, 毛安丽, 甘甜, 曹俊涛, 刘彦明, 一种检测汞离子的荧光试纸及其制备方法、使用方法, 2021.2.26
2. 国家发明专利 (ZL 2016 1 0981357.1): **王海波**, 李阳, 刘小玉, 董高丽, 刘彦明, 一种花状金-银纳米复合物电化学传感器及其制备方法和应用, 2019.4.12
3. 国家发明专利 (ZL 2013 1 0600457.1): **王海波**, 张红定, 黄克靖, 刘彦明, 一种黑色素纳米微球-石墨烯电化学传感器及其制备方法和应用, 2015.6.17
4. 国家发明专利 (ZL 2013 1 0601223.9): **王海波**, 张红定, 黄克靖, 刘彦明, 一种多巴胺-黑色素纳米微球电化学传感器及其制备方法和应用, 2015.5.20

#### 奖励及荣誉

系河南省高层次人才 C 类人才 (拔尖人才)、中原千人计划-中原青年拔尖人才、河南省教育厅学术技术带头人、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。近年来已在 *Angewandte Chemie*

International Edition、Analytical Chemistry、Chemical Communications、Biosensors and Bioelectronics 等国际知名分析化学期刊杂志上发表学术论文 40 余篇，其中 IF >5.0 的论文 30 篇，他引 2000 余次，单篇最高他引 200 余次，H-Index 28。主持国家自然科学基金 2 项，河南省高层次人才特殊支持“中原千人计划”1 项，河南省高等学校青年骨干教师培养计划 1 项，河南省教育厅科学技术研究重点项目 1 项，化学生物传感与计量学国家重点实验室开放基金 2 项，授权国家发明专利 4 项。获河南省优秀硕士学位论文指导教师、信阳市第九届青年科技奖。担任 Coordination Chemistry Reviews、Biosensors and Bioelectronics、Nanoscale、Sensors and Actuators B: Chemical、Analytic Chimica Acta、Analytst 等国际学术期刊特约审稿人，教育部学位中心学位论文通讯评议专家，河南省科技项目通讯评审专家，江西省科技项目通讯评审专家，浙江省自然科学基金通讯评审专家，山东省自然科学基金通讯评审专家，安徽省科技项目通讯评审专家，山东省科学技术奖通讯评审专家。获 2019 年“Publons 同行评议奖”—化学学科和交叉学科顶级审稿专家，Sensors and Actuators B: Chemical 优秀审稿专家，Analytic Chimica Acta 优秀审稿专家，Spectrochimica Acta Part A 优秀审稿专家。