



姓名 马洪敏

学历/学位 研究生/博士

职称/职务 副教授/系主任

联系电话 82760510; 13791133111

电子邮箱 chm\_mahm@ujn.edu.cn

实验室/办公室 逸夫科学楼B530A室

主讲课程 《工业分析》《专业外语》《仿生化学与智能材料》



科研方向：  
 < 复合物多孔结构的制备、性质及应用 >  
 < 电化学传感器、光电分析、电致化学发光分析 >

### 【科研项目】

1. 富碳纳米材料光电协同响应体系的构建及电化学传感应用（国家自然科学基金，21675063，65万）
2. 石墨烯/纳米金属复合体系有序多孔结构的构筑及形成机制研究（国家自然科学基金，21203074，27万）
3. 仿生纳米结构制备、界面修饰及光电化学传感应用（中国博士后科学基金，一等资助，2016M590609，8万）
4. 基于各向异性纳米材料的蜂窝状薄膜的制备及性能分析（山东省自然科学基金，ZR2012BQ007，5万）
5. 基于低维半导体材料的电致化学发光传感技术的研究及应用（山东省高等学校科技计划项目，J16LC23，5.5万）
6. 基于纳米复合物多孔结构的免疫传感器的构建及分析应用（济南大学博士基金，XBS1273，5万）
7. 多巴胺仿生聚合功能界面的构建及电化学传感应用（济南大学博士后基金，XBH1513，5万）

### 【获奖情况】

1. 全国商业科技进步一等奖（环境内分泌干扰物光电传感技术开发应用，第一位）
2. 山东省科技进步二等奖(纳米多孔材料在食品污染物传感技术中的研究与应用，第四位)
3. 山东省科技进步二等奖（基于功能化纳米材料构建的电化学传感器的研发，第六位）
4. 山东高等学校优秀科研成果一等奖(高灵敏、高选择性光电传感体系在生物分析中的研究与应用，第二位)
5. 山东高等学校优秀科研成果一等奖(基于新型纳米材料用于信号放大的生物传感应用研究，第二位)

科研成果及奖励（包括项目、专利、鉴定等）（2005年以来）：

### 【发明专利】

1. 一种基于蜂窝状多孔膜的生物分子微阵列的制备方法，ZL201310380671.0
2. 一种基于多巴胺仿生修饰的免疫传感器的制备方法及应用，ZL201310508295.9
3. 一种基于负载石墨相氮化碳电致化学发光生物传感界面的制备方法及应用，ZL201510138730.2
4. 一种基于钡三脚架构建的肌红蛋白生物传感器的制备方法及应用，ZL201510062285.6
5. 一种基于立方钡-八面氧化亚铜-氧化石墨烯构建的T-2毒素传感器的制备方法及应用，ZL201510660598.1
6. 一种电沉积金及金复合物的胃癌标志物CA724生物传感器的制备方法及应用，ZL201510386129.5
7. 一种PdPb信号源的雌激素竞争型免疫传感器的制备方法及应用，ZL201510122094.4
8. 一种Pt-二氧化锰/四氧化三铁胰腺癌标志物的生物传感器的制备方法及应用，ZL201510385729.X
9. 一种基于NP-NiGd@Au的胃癌标志物金纳米簇电致化学发光传感器的制备方法及应用，ZL201510248743.5
10. 一种基于金杂化的氧化镍钴纳米花构建的赭曲霉毒素传感器的制备方法及应用，ZL201510660597.7
11. 一种快速检测凝血酶的电化学适配体传感器的制备方法及应用，ZL 201510471527.7
12. 一种基于KNbO3-AuNPs@Bi2S3构建的电化学发光免疫传感器的制备方法及应用，ZL201510262842.9

教学成果与奖励（2005年以来）：

1. 济南大学教研成果三等奖（科研背景下探究应用化学专业英语的能动性教学）

2. 济南大学教研成果二等奖（讨论式教学在《食品安全与分析》课程中的实践研究）
3. 济南大学教研项目（学分制改革背景下新生研讨课的探索与实践）
4. 2014年度济南大学本科教学贡献奖
5. 2015年度济南大学本科教学贡献奖
6. 国家精品课程资源共享课主讲教师
7. 山东省精品课程主讲教师

代表性论文（2005年以来）：

1. **Hongmin Ma**, Jing Zhou, Yan Li, Tongqian Han, Yong Zhang, Lihua Hu, Bin Du, Qin Wei. A label-free electrochemiluminescence immunosensor based on EuPO<sub>4</sub> nanowire for the ultrasensitive detection of Prostate specific antigen. *Biosens. Bioelectron.* **2016**, 80, 352-358.
2. **Hongmin Ma**, Yaoguang Wang, Dan Wu, Yong Zhang, Jian Gao, Xiang Ren, Bin Du, Qin Wei. A Novel Controlled Release Immunosensor based on Benzimidazole Functionalized SiO<sub>2</sub> and Cyclodextrin Functionalized Gold. *Sci. Rep.* **2016**, 6, 19797.
3. **Hongmin Ma**, Yan Li, Yulan Wang, Lihua Hu, Yong Zhang, Dawei Fan, Tao Yan, Qin Wei. Cubic Cu<sub>2</sub>O nanoframes with a unique edge-truncated structure and a good electrocatalytic activity for immunosensor application. *Biosens. Bioelectron.* **2016**, 78, 167-173.
4. **Hongmin Ma**, Xiaojian Li, Tao Yan, Yan Li, Yong Zhang, Dan Wu, Qin Wei, Bin Du. Electrochemiluminescent immunosensing of prostate-specific antigen based on silver nanoparticles-doped Pb (II) metal-organic framework. *Biosens. Bioelectron.* **2016**, 79, 379-385.
5. **Hongmin Ma**, Xiaojian Li, Tao Yan, Yan Li, Haiyang Liu, Yong Zhang, Dan Wu, Bin Du, Qin Wei. Sensitive Insulin Detection based on Electrogenated Chemiluminescence Resonance Energy Transfer between Ru(bpy)<sub>3</sub><sup>2+</sup> and Au Nanoparticle-Doped β-Cyclodextrin-Pb (II) Metal-Organic Framework. *ACS Appl. Mater. Interfaces* **2016**, 8, 10121-10127.
6. **Hongmin Ma**, Xiaojian Li, Tao Yan, Yan Li, Haiyang Liu, Yong Zhang, Dan Wu, Bin Du, Qin Wei. Electrogenated Chemiluminescence Behavior of Au nanoparticles-hybridized Pb (II) metal-organic framework and its application in selective sensing hexavalent chromium. *Sci. Rep.* **2016**, 6, 22059.
7. Yong Zhang, **Hongmin Ma\***, Dan Wu, Rongxia Li, Xueping Wang, Yaoguang Wang, Wenjuan Zhu, Qin Wei, Bin Du. A generalized in situ electrodeposition of Zn doped CdS-based photoelectrochemical strategy for the detection of two metal ions on the same sensing platform. *Biosens. Bioelectron.* **2016**, 77, 936-941.
8. Yicheng Wei, Yan Li, Na Li, Yong Zhang, Tao Yan, **Hongmin Ma\***, Qin Wei. Sandwich-type electrochemical immunosensor for the detection of AFP based on Pd octahedral and APTES-M-CeO<sub>2</sub>-GS as signal labels. *Biosens. Bioelectron.* **2016**, 79, 482-487.
9. Xuehui Pang, Yong Zhang, Jihong Pan, Yanxia Zhao, Yao Chen, Xiang Ren, **Hongmin Ma\***, Qin Wei, Bin Du. A photoelectrochemical biosensor for fibroblast-like synovial cell using visible light-activated NCQDs sensitized-ZnO/CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub> heterojunction. *Biosens. Bioelectron.* **2016**, 77, 330-338.
10. Yuanyuan Liu, **Hongmin Ma\***, Jian Gao, Dan Wu, Xiang Ren, Tao Yan, Xuehui Pang, Qin Wei. Ultrasensitive electrochemical immunosensor for SCCA detection based on ternary Pt/PdCu nanocube anchored on three-dimensional graphene framework for signal amplification. *Biosens. Bioelectron.* **2016**, 79, 71-78.
11. **Hongmin Ma**, Xiaoyue Zhang, Xiaojian Li, Rongxia Li, Bin Du, Qin Wei. Electrochemical immunosensor for detecting typical bladder cancer biomarker based on reduced graphene oxide-tetraethylene pentamine and trimetallic AuPdPt nanoparticles. *Talanta* **2015**, 143, 77-82.
12. **Hongmin Ma**, Tao Yan, Yong Zhang, Picheng Gao, Xuehui Pang, Bin Du, Qin Wei. A biomimetic mussel-inspired photoelectrochemical biosensing chip for the sensitive detection of CD146. *Analyst* **2015**, 140, 5019-5022.
13. **Hongmin Ma**, Yaoguang Wang, Hui Zhang, Dan Wu, Aiping Guo, Tao Yan, Qin Wei, Bin Du. A sensitive electrochemical immunosensor for the detection of squamous cell carcinoma antigen by using PtAu nanoparticles loaded on TiO<sub>2</sub> colloidal spheres as labels. *RSC Adv.* **2015**, 5, 59853-59860.
14. Yulan Wang, Dan Wu, Yong Zhang, Xiang Ren, Yaoguang Wang, **Hongmin Ma\***, Qin Wei. Layer-by-layer self-assembly of 2D graphene nanosheets, 3D copper oxide nanoflowers and 0D gold nanoparticles for ultrasensitive electrochemical detection of alpha fetoprotein. *RSC Adv.* **2015**, 5, 56583-56589.
15. Yulan Wang, Yan Li, Lihua Hu, Xiang Ren, Bin Du, **Hongmin Ma\***, Qin Wei. Application of three-dimensional flower-like nanomaterials in the fabrication of sandwich-type electrochemical immunosensors. *RSC Adv.* **2015**, 5, 88160-88165.
16. Xueping Wang, Tao Yan, Yan Li, Yixin Liu, Bin Du, **Hongmin Ma\***, Qin Wei. A competitive photoelectrochemical immunosensor based on a CdS-induced signal amplification strategy for the ultrasensitive detection of dexamethasone. *Sci. Rep.* **2015**, 5, 17945.
17. Rongyu Wang, Xuehui Pang, Hui Zhang, Picheng Gao, Bin Du, **Hongmin Ma**, Qin Wei. Photoelectrochemical detection of Cd<sup>2+</sup> based on in situ electrodeposition of CdS on ZnO nanorods. *Anal. Methods* **2015**, 7, 5406-5411.

18. Xuehui Pang, Jianxiu Li, Yongbei Zhao, Dan Wu, Yong Zhang, Bin Du, **Hongmin Ma\***, Qin Wei. Label-Free Electrochemiluminescent Immunosensor for Detection of Carcinoembryonic Antigen Based on Nanocomposites of GO/MWCNTs-COOH/Au@CeO<sub>2</sub>. *ACS Appl. Mater. Interfaces* **2015**, 7, 19260-19267.
19. Jian Gao, **Hongmin Ma\***, Xiaohui Lv, Tao Yan, Na Li, Wei Cao, Qin Wei. A novel electrochemical immunosensor using  $\beta$ -cyclodextrins functionalized silver supported adamantine-modified glucose oxidase as labels for ultrasensitive detection of alpha-fetoprotein. *Anal. Chim. Acta* **2015**, 893, 49-56.
20. **Hongmin Ma**, Dan Wu, Zhentao Cui, Yan Li, Yong Zhang, Bin Du, Qin Wei. Graphene-Based Optical and Electrochemical Biosensors: A Review. *Anal. Lett.* **2013**, 46, 1-17.
21. **Hongmin Ma**, Kexia Mao, He Li, Dan Wu, Yong Zhang, Bin Du, Qin Wei. Ultrasensitive multiplexed immunosensors for the simultaneous determination of endocrine disrupting compounds using Pt@SBA-15 as a non-enzymatic label. *J. Mater. Chem. B* **2013**, 1, 5137-5142.
22. **Hongmin Ma**, Picheng Gao, Yong Zhang, Dawei Fan, Guobao Li, Bin Du, Qin Wei. Engineering microstructured porous films for multiple applications via mussel-inspired surface coating. *RSC Adv.* **2013**, 3, 25291-25295.
23. **Hongmin Ma**, Picheng Gao, Dawei Fan, Guobao Li, Dan Wu, Bin Du, Qin Wei. Radially aligned microchannels prepared from ordered array of cracks on colloidal films. *Phys. Chem. Chem. Phys.* **2013**, 15, 9808-9811.
24. **Hongmin Ma**, Picheng Gao, Dawei Fan, Bin Du, Jingcheng Hao, Qin Wei. Assembly of graphene nanocomposites into honeycomb-structured macroporous films with enhanced hydrophobicity. *New J. Chem.* **2013**, 37, 1307-1311.
25. **Hongmin Ma**, Dawei Fan, Guobao Li, Xiulong Xia, Hui Guo, Bin Du, Qin Wei. Honeycomb-Structured Porous Films Prepared from Polymer Nanocomposites of Gold Nanorods. *J. Inorg. Organomet. Polym.* **2013**, 23, 587-591.
26. **Hongmin Ma**, Li Kong, Xiaohui Guo, Jingcheng Hao. Dynamic insights into formation of honeycomb structures induced by breath figures. *RSC Adv.* **2011**, 1, 1187-1189.
27. **Hongmin Ma**, Jingcheng Hao. Ordered patterns and structures via interfacial self-assembly: superlattices, honeycomb structures and coffee rings. *Chem. Soc. Rev.* **2011**, 40, 5457-5471.
28. **Hongmin Ma**, Renhao Dong, J. David Van Horn, Jingcheng Hao. Spontaneous formation of radially aligned microchannels. *Chem. Commun.* **2011**, 47, 2047-2049.
29. **Hongmin Ma**, Jiwei Cui, Aixin Song, Jingcheng Hao. Fabrication of Freestanding Honeycomb Films with Through-Pore Structures via Air/Water Interfacial Self-Assembly. *Chem. Commun.* **2011**, 47, 1154-1156.
30. **Hongmin Ma**, Jiwei Cui, Jingfei Chen, Jingcheng Hao. Self-Organized Polymer Nanocomposite Inverse Opal Films with Combined Optical Properties. *Chem. Eur. J.* **2011**, 17, 655-660.
31. **Hongmin Ma**, Jingcheng Hao. Evaporation-Induced Ordered Honeycomb Structures of Gold Nanoparticles at the Air/Water Interface. *Chem. Eur. J.* **2010**, 16, 655-660.