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研究领域：环境功能材料，水污染控制，环境分析检测，计算流体力学（CFD）模拟

2019/1-至今，天津工业大学，环境科学与工程学院副教授

2015/6-2018.12，天津工业大学，环境与化学工程学院讲师

2013/10-2014/12，中科院城市环境研究所，助理研究员

2008/9 - 2013/9，厦门大学，环境工程，博士

2004/9 - 2008/6，厦门大学，生物工程，学士

主持或参加科研项目（课题）及人才计划项目情况：

- 1.天津市自然科学基金，18JJCQNJC08600，反硝化菌生物还原制备纳米铁复合材料及其脱氮性能研究，2018/04-2021/03，主持
- 2.中国纺织工业联合会科技指导性项目，2017001，生物法制备载纳米银抗菌性聚丙烯纤维工艺技术研究，2017/04-2017/12，主持
- 3.天津市教委科研计划项目，2017KJ076，生物法制备反硝化菌-纳米颗粒复合材料用于地下水硝酸盐脱氮的基础研究，2017/11-2020/10，主持
- 4.省部共建分离膜与膜过程国家重点实验室自主培育课题，Z2-201539，生物法制备载纳米银复合超滤膜及其抗菌性能研究，2015/08-2017/8，主持
- 5.军事医学科学院委托横向项目，空化反应器数值模拟，2016/03-2017/12，主持
- 6.国家自然科学基金重点项目，21036004，生物质还原法制备贵金属纳米颗粒及其催化剂的化学与工程基础研究，2011/01-2014/12，参与
- 7.国家自然科学基金青年项目，51708406，纤维基多齿配体重金属离子印迹材料的制备及在固相萃取中的应用，2018/01-2020/12 参与
8. 国家自然科学基金青年项目，21407141,基于等温扩增反应快速检测水中蓝藻总量的方法研究，2015/01-2017/12，参与

代表性研究成果：

1. **Hongyu Liu***, Jun Zhang, Ming Lu, Lin Liang, Huan Zhang, Junfu Wei. Biosynthesis based membrane filtration coupled with iron nanoparticles reduction process in removal of dyes. *Chemical Engineering Journal*, 2020, 387: 124202.
2. **Hongyu Liu***, Huan Zhang, Jie Wang, Junfu Wei, Effect of temperature on the size of biosynthesized silver nanoparticle: Deep insight into microscopic kinetics analysis, *Arabian Journal of Chemistry*, 2020, 13: 1011-1019.
3. **Hongyu Liu***, Yuchen Sun, Jun Zhang, Huan Zhang, Kongyin Zhao, Junfu Wei. Plant-mediated biosynthesis of iron nanoparticles-calcium alginate hydrogel membrane and its eminent performance in removal of Cr(VI). *Chemical Engineering Journal*, 2019, 378: 122120.
4. **Hongyu Liu***, Yuchen Sun, Huan Zhang, Jie Wang, Junfu Wei. Hydrodynamic cavitation enhanced biosynthesis of silver nanoparticles at room temperature and its mechanism. *Materials Letters*, 2019, 236: 387-389.
5. **Hongyu Liu***, Ming Lu, Mengfu Zhu, Huan Zhang, Kongyin Zhao, Jie Wang, Junfu Wei. Continuous biosynthesis of silver nanoparticles in a hydrodynamic cavitation device and modeling of the process by numerical simulation strategy, *Journal of*

Nanoparticles Research, 2018, 9 (20): 233.

6. **Hongyu Liu***, Jiayang Huang, Huan Zhang, Jie* Wang, Junfu Wei, Plant-mediated Synthesis in a Microfluidic Chip Yields Spherical Ag Nanoparticles and PSD Simulation by a PBE-Assisted Strategy, *Journal of Chemical Technology and Biotechnology*, 2017, 10 (92) : 2546-2553.

7. **Hongyu Liu***, Huan Zhang, Jie* Wang, Junfu Wei, Yu Zhang, Biological Synthesis of Pt Nanoparticles in a Microfluidic Chip and Modeling of the Formation Process with PBM and CFD, *Journal of Chemical Technology and Biotechnology*, 2017, 8 (92) : 2171-2177.

8. **Hongyu Liu**, Jun Li, Jiale Huang, Daohua Sun, Tareque Odoom-Wubah, Qingbiao Li*. Modeling of Silver Nanoparticle Formation in a Microreactor: Reaction Kinetics Coupled with Population Balance Model and Fluid Dynamics. *Industrial & Engineering Chemistry Research*. 2014, 53 (11): 4263–4270.

9. **Hongyu Liu**, Jiale Huang, Daohua Sun, Jun Li, Qingbiao Li. Continuous-flow biosynthesis of Au-Ag bimetallic nanoparticles in a microreactor. *Journal of Nanoparticle Research*. 2014, 16(11): 1-9.

10. **Hongyu Liu**, Jiale Huang, Daohua Sun, Jun Li, Xueliang Li , Zongli Zhang , Qingbiao Li* . Production of silver nanoparticles in a continuous stirred tank reactor based on plant-mediated biosynthesis: flow behaviors and RTD prediction by CFD simulation. *Industrial & Engineering Chemistry Research*. 2013, 6(52): 2280–2289.

11. **Hongyu Liu**, Jiale Huang, Daohua Sun, Liqin Lin, Wenshuang Lin, Jun Li, XindeJiang, Weiwei Wu, Qingbiao Li*. Microfluidic biosynthesis of silver nanoparticles: Effect of process parameters on size distribution. *Chemical Engineering Journal*. 2012, 209: 568-576.

12. **刘宏宇**, 方宏达, 曾迪, 陈少华. 一种利用电镀集控区含铬废水浓缩液制备铬鞣剂的方法, 2017.1, 中国, 专利号: ZL201410529940.X

13. 李清彪, **刘宏宇**, 黄加乐, 孙道华, 李军, 张宗立. 连续反应釜制备金银合金纳米颗粒的方法, 2015.2, 中国发明专利, 专利号: ZL201210303767.2