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**研究领域：先进环境与新能源功能材料与应**研究团队：[罗胜联 教授](#)[刘玉堂 教授](#)[唐艳红 教授](#)

## 基本信息

国家自然科学基金通讯评审专家、教育部科技奖励通讯评审专家、教育部学位中心学位论文通讯评审专家、多个省市自然科学基金通讯评审专家、国际刊物 *American Journal of Water Science and Journal of Bioanalytical Techniques* 编委、亚太材料研究学会会员。先后主持国家自然科学基金 (20704011、51078129、51178173、51478171、51778218)、湖南省自然科学基金重点项目 (09JJ3027)、秀人才计划资助项目 (NCET-11-0126)、湖南省杰出青年基金 (14JJ1015)、湖南省科技重大专项 (2009FJ1008) 等10余项课题。

在能源和环境领域取得多项创新性成果。近年来以通讯作者身份在包括 *Angewandte Chemie International Edition*、*Advanced Functional Materials*、*ACS Nano*、*Water Research*、*European Journal of Applied Catalysis B Environment*、*Carbon*、*Analytical Chemistry*、*Chemistry of Materials*、*Journal of Materials Chemistry A*、*Journal of Power Sources* 等国际SCI期刊上发表学术论文80余篇，SCI他引3000余次，多篇论文入选 Highly cited paper、Hot paper 和 Research front，国际媒体 ChemPubSoc Europe 旗下的“ChemistryViews”对研究工作进行一次国际学术会议邀请报告及分会主席。研究成果被湖南卫视、央视网、凤凰资讯等20余家媒体报道。相关研究成果已经申请专利30余项，撰写专著2部、获得湖南省自然科学一等奖。

## 教育背景

1994.9 – 1998.8 湘潭大学，本科

1998.9 – 2003.6 中国科学院长春应用化学研究所，硕博连读研究生 (导师 黄葆同院士)

## 工作履历

2003.7 – 2005.5 复旦大学先进材料研究院，博士后 (导师 黄维院士)

2005.6 – 至今 湖南大学化学化工学院、化学生物传感与计量学国家重点实验室

2011.9 – 2012.9 新加坡国立大学访问学者

## 学术兼职

*American Journal of Water Science and Engineering* 编委*Journal of Bioanalytical Techniques* 编委

亚太材料研究学会会员

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(2) 环境污染防治与资源化利用;

(3) 多功能纳米材料的可控合成和组装技术;

(4) 光/电催化先进功能材料。

## 科研项目

国家自然科学基金 (51778218), 卤代有机污染物废水的电化学高效脱毒及催化微界面机制

国家自然科学基金 (51478171), 水中有机污染物催化分解协同能源产生

国家自然科学基金 (51178173), 精细界面结构石墨烯基复合物/二氧化钛纳米管阵列功能材料及降解有机污染物的机理研究

国家自然科学基金 (51078129), 分子印迹无机半导体薄膜修饰TiO<sub>2</sub>纳米管阵列环境功能材料及其在POPs降解应用中的基础研究

国家自然科学基金 (20704011), 新型结构乙烯共聚物的制备及其功能化

湖南省杰出青年基金 (14JJ1015), 低剂量持久性污染物废水的深度净化与机制研究

教育部新世纪优秀人才支持计划 (NCET-11-0126), 城市废水处理与资源化

湖南省自然科学基金重点项目 (09JJ3027), 负载催化剂纳米反应器的构筑及新型聚乙烯制备

湖南省科技重大专项 (2009FJ1008), 稀贵金属高效提取及深加工关键技术开发与示范

教育部创新团队 (IRT1238), 化石能源低碳化清洁利用

## 学术成果

### 专著

1. 石墨烯基功能材料在环境中的应用 (ISBN978-7-03-046887-1), 刘承斌, 唐艳红 著, 北京: 科学出版社, 2015.
2. 植物内生菌修复重金属污染理论与方法 (ISBN 978-7-03-035960-5), 罗胜联, 刘承斌, 罗旭彪 编著, 北京: 科学出版社, 2013.

### 学术报告

1. Chengbin Liu, "Fine structure control of catalysts for environmental and energy applications" BIT's 5<sup>th</sup> Annual Global Congress of Catalysis, Sep 21-23, 2014, Qingdao, China (Invited lecture).
2. Chengbin Liu, "Graphene-based nanostructures: one-step fabrication and applications" 2013 International Conference for Top and Emerging Materials Scientists, Zhuhai, China (Invited lecture)

### 代表性论文 (通讯作者)

1. Miao Guo, **Chengbin Liu**, Zezhong Zhang, Jian Zhou, Yanhong Tang, Shenglian Luo "Flexible Ti<sub>3</sub>C<sub>2</sub>Tx@Al electrodes with ultrahigh areal capacitance: In situ regulation of inter conductivity and spacing" *Advanced Functional Materials*, 2018, 1803196.
2. Yunxiong Zeng, Xia Liu, **Chengbin Liu**, Longlu Wang, Yingchun Xia, Shuqu Zhang, Shenglian Luo, Yong Pei "Scalable one-step production of porous oxygen-doped g-C<sub>3</sub>N<sub>4</sub> nanorods with effective electro excellent visible-light photocatalytic activity" *Applied Catalysis B: Environmental*, 2018, 224,1-9.
3. Shuqu Zhang, Xia Liu, **Chengbin Liu**, Shenglian Luo, Longlu Wang, Tao Cai, Yunxiong Zeng, Jili Yuan, Wanyue Dong, Yong Pei, Yutang Liu "MoS<sub>2</sub> quantum dots growth induced by S vacancy in ZnIn<sub>2</sub>S<sub>4</sub> Atomic-level heterostructure for photocatalytic hydrogen production" *ACS Nano*, 2018, 12, 751-758.
4. Guiyin Zhou, Jinming Luo, **Chengbin Liu**, Lin Chu, John Crittenden "Efficient heavy metal removal from industrial melting effluent using fixed-bed process based on porous hydrogel adsorbents" *Water*, 131, 246-254.
5. Longlu Wang, Xia Liu, Jinming Luo, Xidong Duan, John Crittenden, **Chengbin Liu**, Shuqu Zhang, Yong Pei, Yunxiong Zeng, Xiangfeng Duan "Self-optimization of the active site of molybdenum disulfide phase transition during photocatalytic hydrogen evolution" *Angewandte Chemie International Edition*, 2017, 56, 7610-7614.
6. Kai Yin, Fei Li, Ying Wang, Qunying He, Yongxiu Deng, Shuo Chen, **Chengbin Liu**, "Oxidative transformation of artificial sweetener acesulfame by permanganate: reaction kinetics, transformation product and ecotoxicity" *Journal of Hazardous Materials*, 2017, 330, 52-60.
7. Tao Cai, Yutang Liu, Longlu Wang, Shuqu Zhang, Yunxiong Zeng, Jili Yuan, Jianhong Ma, Wanyue Dong, **Chengbin Liu**, Shenglian Luo "Silver phosphate-based Z-Scheme photocatalytic system with superior photocatalytic activities and anti-photocorrosion performance" *Applied Catalysis B: Environmental*, 2017, 208,1-13.
8. Meijun Liu, Liming Yang, Tian Liu, Yanhong Tang, Shenglian Luo, **Chengbin Liu**, Yunxiong Zeng, "Fe<sub>2</sub>P/reduced graphene oxide/Fe<sub>2</sub>P sandwich structured nanowall arrays: a high-performance non-noble electrocatalyst for hydrogen evolution" *Journal of Materials Chemistry A*, 2017, 5, 8608-8615.
9. Shuqu Zhang, Longlu Wang, **Chengbin Liu**, Jinming Luo, John Crittenden, Xia Liu, Tao Cai, Jili Yuan, Yong Pei, Yutang Liu "Photocatalytic wastewater purification with simultaneous hydrogen production decorated hierarchical assembly of ZnIn<sub>2</sub>S<sub>4</sub> on reduced graphene oxide photocatalyst" *Water Research*, 2017, 121, 11-19.

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hierarchical "cauline leaf" nanoarchitectures" *Applied Catalysis B: Environmental*, 2016, 186, 88–96.

12. Xuhong Zhang, Longlu Wang, **Chengbin Liu**, Yangbin Ding, Shuqu Zhang, Yunxiong Zeng, Yutang Liu, Shenglian Luo, "A bamboo-inspired hierarchical nanoarchitecture of Ag/CuO/TiO<sub>2</sub> nanotube array photocatalytic degradation of 2,4-dinitrophenol" *Journal of Hazardous Materials*, 2016, 313, 244–252.

13. Chenghao Cao, Chujun Zhang, Junliang Yang, Jia Sun, Shuping Pang, Han Wu, Runsheng Wu, Yongli Gao, **Chengbin Liu**, "Iodine and chlorine element evolution in CH<sub>3</sub>NH<sub>3</sub>PbI<sub>3</sub>-xCl<sub>x</sub> thin films for high performance heterojunction perovskite solar cells" *Chemistry of Materials*, 2016, 28, 2742–2749.

14. **Chengbin Liu**, Yangbin Ding, Wenqun Wu, Yarong Teng, "A simple and effective strategy to fast remove chromium (VI) and organic pollutant in photoelectrocatalytic process at low voltage" *Chemical Engineering Journal*, 2016, 306, 22–30.

15. Guiyin Zhou, **Chengbin Liu**, Lin Chu, Yanhong Tang, Shenglian Luo, "Rapid and efficient treatment of wastewater with high-concentration heavy metals using a new type of hydrogel-based adsorption process" *Bioresour Technol*, 2016, 219, 451–457.

16. Shuqu Zhang, Longlu Wang, Yunxiong Zeng, Yuzi Xu, Yanhong Tang, Shenglian Luo, Yutang Liu, **Chengbin Liu** "CdS nanoparticles decorated perpendicular hybrid of MoS<sub>2</sub> and N-doped graphene nanosheets for directional enhancement of photocatalytic hydrogen evolution" *ChemCatChem*, 2016, 8, 2557–2564.

17. Yangbin Ding, Yanhong Tang, Liming Yang, **Yunxiong Zeng**, Jili Yuan, Tian Liu, Shuqu Zhang, **Chengbin Liu**, Shenglian Luo, "Porous nitrogen-rich carbon materials from carbon self-repairing g-C<sub>3</sub>N<sub>4</sub> as a high-performance supercapacitor" *Journal of Materials Chemistry A*, 2016, 4, 14307–14315.

18. Yuzi Xu, Longlu Wang, Xia Liu, Shuqu Zhang, **Chengbin Liu**, Dafeng Yan, Yunxiong Zeng, Yong Pei, Yutang Liu, Shenglian Luo "Monolayer MoS<sub>2</sub> with S vacancy from interlayer spacing expanded carbon nanotubes for efficient electrochemical hydrogen production" *Journal of Materials Chemistry A*, 2016, 4, 16524–16530.

19. Yunxiong Zeng, **Chengbin Liu**, Longlu Wang, Shuqu Zhang, Yangbin Ding, Yuzi Xu, Yutang Liu, Shenglian Luo "Three-dimensional graphitic carbon nitride belt network for enhanced visible light photocatalytic hydrogen evolution" *Journal of Materials Chemistry A*, 2016, 4, 19003–19010.

20. Yangbin Ding, Wei Bai, Jinhua Sun, Yu Wu, Mushtaque A. Memon, Chao Wang, **Chengbin Liu**, Yong Huang, Jianxin Geng "Cellulose tailored anatase TiO<sub>2</sub> nanospindles in three-dimensional graphene oxide framework for high performance supercapacitors" *ACS Applied Materials & Interfaces*, 2016, 8, 12165–12175.

21. **Chengbin Liu**, Longlu Wang, Yanhong Tang, Shenglian Luo, Yutang Liu, Shuqu Zhang, Yunxiong Zeng, Yuzi Xu "Vertical single or few-layer MoS<sub>2</sub> nanosheets rooting into TiO<sub>2</sub> nanofibers for highly efficient photocatalytic hydrogen evolution" *Applied Catalysis B: Environmental*, 2015, 164, 1–9.

22. **Chengbin Liu**, Chenghao Cao, Xubiao Luo, Shenglian Luo "Ag-bridged Ag<sub>2</sub>O nanowire network/TiO<sub>2</sub> nanotube array p-n heterojunction as a highly efficient and stable visible light photocatalyst" *Journal of Materials Chemistry A*, 2015, 285, 319–324.

23. Liming Yang, Dafeng Yan, **Chengbin Liu**, Hejie Song, Yanhong Tang, Shenglian Luo, Meijun Liu "Vertically oriented reduced graphene oxide supported dealloyed palladium-copper nanoparticles for methanol electrooxidation" *Journal of Power Sources*, 2015, 278, 725–732.

24. Rui Xu, Guiyin Zhou, Yanhong Tang\*, Lin Chu, **Chengbin Liu\***, Zebing Zeng, Shenglian Luo "New double network hydrogel adsorbent: highly efficient removal of Cd(II) and Mn(II) ions in aqueous solution" *Engineering Journal*, 2015, 275, 179–188.

25. Guiyin Zhou, **Chengbin Liu**, Yanhong Tang, Shenglian Luo, Zebing Zeng, Yutang Liu, Rui Xu, Lin Chu "Sponge-like polysiloxane-graphene oxide gel as a highly efficient and renewable adsorbent for lead and copper removal from wastewater" *Chemical Engineering Journal*, 2015, 280, 275–282.

26. Lin Chu, **Chengbin Liu**, Guiyin Zhou, Rui Xu, Yanhong Tang, Zebing Zeng\*, Shenglian Luo\* "A double network gel as low cost and easy recycle adsorbent: highly efficient removal of Cd(II) and Pb(II) from wastewater" *Journal of Hazardous Materials*, 2015, 300, 153–160.

27. Hejie Song, Liming Yang, Yanhong Tang, Dafeng Yan, **Chengbin Liu**, Shenglian Luo "Three-dimensional nitrogen-doped reduced graphene oxide-carbon nanotubes architecture supporting ultrafine palladium nanoparticles for highly efficient methanol electrooxidation" *Chemistry-A European Journal*, 2015, 21(46), 16631–16638. (Hot paper)

28. Shenglian Luo, Xiaojie Li, Liang Chen, Juiliang Chen, Yong Wan, **Chengbin Liu** "Layer-by-layer strategy for adsorption capacity fattening of endophytic bacterial biomass for highly effective removal of lead and copper" *Chemical Engineering Journal*, 2014, 239, 312–321.

29. **Chengbin Liu**, Hang Zhang, Yanhong Tang, Shenglian Luo "Controllable growth of graphene/Cu composite and its nanoarchitecture-dependent electrocatalytic activity to hydrazine oxidation" *Journal of Materials Chemistry A*, 2014, 2 (13), 4580–4587.

30. Shenglian Luo, Xiangli Xu, Guiyin Zhou, **Chengbin Liu**, Yanhong Tang, Yutang Liu "Amino siloxane oligomer-linked graphene oxide as an efficient adsorbent for removal of Pb(II) from wastewater" *Journal of Hazardous Materials*, 2014, 274, 145–155.

31. Liming Yang, Yanhong Tang, Shenglian Luo, **Chengbin Liu**, Hejie Song, Dafeng Yan "Palladium nanoparticles supported on vertically oriented reduced graphene oxide for methanol electro-oxidation" *Chemical Engineering Journal*, 2014, 7(10), 2907–2913.

32. Shanli Yang, Jiasheng Liang, Shenglian Luo, **Chengbin Liu**, Yanhong Tang "Supersensitive detection of chlorinated phenols by multiple amplification electrochemiluminescence sensing based on carbon quantum dots/graphene" *Analytical Chemistry*, 2013, 85(16), 7720–7725.

33. Yanhong Tang, Gan Zhang, **Chengbin Liu**, Shenglian Luo, Xiangli Xu, Liang Chen, Bogu Wang "Magnetic TiO<sub>2</sub>-graphene composite as a high-performance and recyclable platform for efficient photocatalytic degradation of herbicides from water" *Journal of Hazardous Materials*, 2013, 252–253, 115–122.

34. Xilin Zhang, Yanhong Tang, Yue Li, Yao Wang, Xuanneng Liu, **Chengbin Liu**, Shenglian Luo\* "Reduced graphene oxide and PbS nanoparticles co-modified TiO<sub>2</sub> nanotube arrays as a recyclable and stable photocatalyst for efficient degradation of pentachlorophenol" *Applied Catalysis A: General*, 2013, 457, 78–84.

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*Communications*, 2011, 13, 133-137.

37. **Chengbin Liu**, Ke Wang, Shenglian Luo, Yanhong Tang, Liuyun Chen "Direct electrodeposition of graphene enabling the one-step synthesis of graphene-metal nanocomposite films" *Small*, 2011, 7(9), 120

38. **Chengbin Liu**, Yarong Teng, Ronghua Liu, Shenglian Luo, Yanhong Tang, Liuyun Chen, Qingyun Cai "Fabrication of graphene films on TiO<sub>2</sub> nanotube arrays for photocatalytic application" *Carbon*, 2011,

39. Yutang Liu, Ronghua Liu, **Chengbin Liu**, Shenglian Luo, Lixia Yang, Fan Sui, Yarong Teng, Renbin Yang, Qingyun Cai "Enhanced photocatalysis on TiO<sub>2</sub> nanotube arrays modified with molecularly imprinted film" *Journal of Hazardous Materials*, 2010, 182, 912-918.

## 奖励与荣誉

湖南省自然科学一等奖 (2014)

中国科学院院长优秀奖 (2003)

湖南大学研究型教学比赛一等奖 (2010)

教育部新世纪优秀人才支持计划 (2011)

湖南省青年骨干教师 (2011)

湖南大学刘奎雄优秀青年教师奖 (2011)

湖南省杰出青年基金获得者 (2013)

亚太材料研究学会会士 (2016)

岳麓学者 (2016)

2013年度顶尖和新兴材料科学家国际会议大会杰出贡献奖 (Award for outstanding achievement and contribution to IC-TEMS 2013)

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