



Department: School of Chemical Engineering  
Professional field: Chemical Engineering and Technology  
E-mail: xszhang@ecust.edu.cn

## Profile

### Education

1997: PhD, Chemical Reaction Engineering, East China University of Science and Technology, China.

1992: MS, Fine Chemical Engineering, East China University of Chemical Technology, China.

1984: BS, Organic Chemical Engineering, Hunan University, China.

### Academic Experience

2003-present: Professor, School of Chemical Engineering, ECUST, China.

1999-2003: Associate professor, School of Chemical Engineering, ECUST, China.

1997-1999: Lecturer, School of Chemical Engineering, ECUST, China

2011.1-2012.2, Visiting Professor, Center of Electrochemistry, University of Texas at Austin, USA.

2016.7-2016.8, Visiting Professor, Chemical & Biomolecular Engineering, the Georgia Institute of Technology, USA.

## Research Field

1. Organic electrochemical technology: new process and technology of organic chemical electrosynthesis, new technology of super clean microelectronic chemical electrochemical preparation
2. Environmental electrochemical technology: treatment of salty wastewater, electrolysis of waste salt to produce acid and alkali, recovery of waste acid and other resource utilization, deep degradation of organic pollutants, electrochemical conversion of greenhouse gas carbon dioxide
3. New energy electrochemical technology: Research on visible light response iron oxide photocatalyst, research on electrolytic water electrode materials, research on new energy technologies such as fuel cell, lithium sulfur cell and lithium air battery
4. Electrochemical engineering technology: process optimization, pilot test and industrial scale-up research of electrolysis process, R & D of new structure electrolyzer and development of industrial electrolysis device
5. Chemical process optimization and reactor amplification: optimize chemical process and reactor structure, carry out process amplification design and new process research according to reaction process characteristics and hydrodynamics simulation

## Research results and selected published papers

1. Wenjiao Huang, J.M. Ahlfield, P.A. Kohl, Xinsheng Zhang\*, Heat treated Tethered Iron Phthalocyanine Carbon Nanotube-based Catalysts for Oxygen Reduction Reaction in Hybrid Fuel Cells, *Electrochim. Acta.* 257 (2017) 224–232.
2. Huicheng. Li, Dongfang Niu, Deying Liu, Wenjiao Huang, Xinsheng Zhang\*, Understanding the enhanced photoelectrochemical activity of Ta doped hematite, *J. Mol. Struct.* 1139 (2017) 104–110.
3. Wenjiao Huang, John M. Ahlfield, Xinsheng Zhang, and Paul A. Kohl, Platinum Supported on Functionalized Carbon Nanotubes for Oxygen Reduction Reaction in PEM/AEM Hybrid Fuel Cells *J. Electrochem. Soc.* 2017 164(4): F217-F223
4. Chi Chen, Zhiyou Zhou, Yucheng Wang, Xue Zhang, Xiaodong Yang, Xinsheng Zhang, Shigang Sun, Fe, N, S-doped porous carbon as oxygen reduction reaction catalyst in acidic medium with high activity and durability synthesized using CaCl<sub>2</sub> as template, *Chinese Journal of Catalysis* 38 (2017) 673–682.
5. Dongfang Niu, Zhijuan Wu, Lipu Zhang, Rongbin Du, Heng Xu, Xinsheng Zhang, \* Synthesis of cyclic carbonates from epoxides and CO<sub>2</sub> in acetonitrile via the synergistic action of BMIMBr and electrogenerated magnesium, *Chinese Journal of Catalysis* 37 (2016) 1076–1080
6. Chi Chen, Xue Zhang, Zhi-You Zhou, Xiao-Dong Yang, Xin-Sheng Zhang, Shi-Gang Sun, Highly active Fe, N co-doped graphene nanoribbon/carbon nanotube composite catalyst for oxygen reduction reaction, *Electrochimica Acta*, 222(2016):1922-1930
7. Chi Chen, Xiao-Dong Yang, Zhi-You Zhou, \* Yu-Jiao Lai, Muhammad Rauf, Ying Wang, Jing Pan, Lin Zhuang, \* Qiang Wang, Yu-Cheng Wang, Na Tian, Xin-Sheng Zhang and Shi-Gang Sun, Aminothiazole-derived N,S,Fe-doped graphene nanosheets as high performance electrocatalysts for oxygen reduction, *Chem. Commun.*, 2015, 51, 17092
8. Dongfang Niu, Haiyang Wang, Huicheng Li, Xinsheng Zhang. The effect of the alkyl chain length of the tetraalkylammonium cation on CO<sub>2</sub> electroreduction in an aprotic medium. *Electrochemistry Communications*, 2015, 52: 58-62.
9. Dongfang Niu, Haiyang Wang, Huicheng Li, Zhijuan Wu, Xinsheng Zhang, Roles of ion pairing on electroreduction of carbon dioxide based on imidazolium-based salts. *Electrochimica Acta*, 2015, 158: 138-142
10. Xin-Sheng Zhang, Hui-Cheng. Li, Shi-Jun Wang, F. R. Fan, Allen J. Bard\*, Improvement of hematite as photocatalyst by doping with tantalum, *J. Phys. Chem. C*, 118 (2014) 16842-16850
11. Ren-Sheng Zhong, Yuan-Hang Qin, Dong-Fang Niu, Xin-Sheng Zhang\*, Xin-Gui Zhou, Shi-Gang Sun, Wei-Kang Yuan, Effect of carbon nanofiber surface groups on oxygen reduction of supported Pt electrocatalyst, *Electrochim. Acta* 89 (2013) 157-162
12. Dongfan Niu, Hui-Cheng Li, Xin-Sheng Zhang\*, Improved synthesis of 3-methoxy-4-hydroxymandelic acid by glyoxalic acid method, *Tetrahedron*, 69 (2013) 8147-8177
13. Ling. Jin. Chaoxia Pang, Xinsheng Zhang\*, Li Niu, W. K. Yuan, Determination of glyoxylic acid in organic electrosynthesis using the differential pulse polarography, *Asian J. Chem*, 25 (2013) 10102-10106
14. Ren-Sheng Zhong, Yuan-Hang Qin, Dong-Fang Niu, Jing-Wei Tian, Xin-Sheng Zhang\*, Xin-Gui Zhou, Shi-Gang Sun, Wei-Kang Yuan, Effect of carbon nanofiber surface functional groups on oxygen reduction in alkaline solution, *Journal of Power Sources*, 225 (2013) 192-199.