

Curriculum Vitae

Guangfu Li, PhD

Room 230H, Science and Engineering Building 2
Thermal and Electrochemical Energy Laboratory
University of California, Merced, CA, 95343
Phone: 209-7772351
Email: gli27@ucmerced.edu

Education

- Dalian Institute of Chemical Physics, Chinese Academy of Science Sep/2007-5/Jan/2014
PhD, Chemical Engineering
Dissertation: *Electrocatalysts for Oxygen Evolution Reaction in a Proton Exchange Membrane Water Electrolyzer*
Advisors: Prof. Baolian Yi and Prof. Hongmei Yu
- Dalian University of Technology Sep/2003-Jul/2007
BE, Chemical Engineering & Technology

Research Experience

- University of California, Merced, Post Doctor Jan/2016-Present
- Dalian Institute of Chemical Physics, Research Assistant Jan/2014-Jul/2014
- Synthesis H₂O₂ in H₂-O₂ fuel cells
 - Develop alkaline anion exchange membrane water electrolysis
 - Evaluate long-term stability of kilowatt PEM/AAEM fuel cells
- Dalian Institute of Chemical Physics, Graduate Student Researcher Sep/2007-Jan/2014
- Explore advantage preparation routes of nanocatalysts for oxygen evolution
 - Develop structural, electrochemical and cell measurements of nanomaterials to establish structure-function relationships

Research Interests

- New materials and systems for energy storage and conversion
- Catalysis reaction occurring nanomaterial surface and interfaces
- Innovative design, analysis and model methods to survey energy relevant materials

Scholarship and Awards

Merit student award, University of Chinese Academy of Sciences	2011-2012
DICP-CORNING excellent PhD student scholarship, sponsored by Corning Incorporated (USA), Dalian Institute of Chemical Physics	2012
Outstanding graduate award, Dalian University of Technology	2007
Merit student award, Dalian University of Technology	2005-2006
Integrated third prize scholarship, Dalian University of Technology	2005-2006
Three good student award, Dalian University of Technology	2003-2004
Integrated second prize scholarship, Dalian University of Technology	2003-2004
Third bank award in Advanced Mathematics Contest, Dalian University of Technology	2004
Second bank award in the 13 th Advanced Mathematics Contest, Dalian	2004

Publications

1. **Guangfu Li**, Hongmei Yu, Wei Song, Meiling dou, Yongkun Li, Zhigang Shao and Baolian Yi. A hard-template method for the preparation of IrO₂, and its performance in a solid-polymer-electrolyte water electrolyzer, *ChemSusChem*, 2012, 5: 858-61
2. **Guangfu Li**, Hongmei Yu, Xunying Wang, Yongkun Li, Zhigang Shao and Baolian Yi. Highly Effective Ir_xSn_{1-x}O₂ Electrocatalysts for oxygen evolution reaction in the solid polymer electrolyte water electrolyser. *Physical Chemistry Chemical Physics*, 2013, 15:2858-66
3. **Guangfu Li**, Hongmei Yu, Xunying Wang, Donglei Yang, Yongkun Li, Zhigang Shao and Baolian Yi. Triblock polymer mediated synthesis of Ir-Sn oxide electrocatalysts for oxygen evolution reaction. *Journal of Power Sources*, 2014, 249: 175-84
4. **Guangfu Li**, Hongmei Yu, Wei Song, Xunying Wang, Yongkun Li, Zhigang Shao and Baolian Yi. Zeolite-templated Ir_xRu_{1-x}O₂ electrocatalysts for oxygen evolution reaction in solid polymer electrolyte water electrolyzers. *International Journal of Hydrogen Energy*, 2012, 37: 16786-94
5. **Guangfu Li**, Hongmei Yu, Donglei Yang, Jun Chi, Xunying Wan, Shucheng Sun, Zhigang Shao, Baolian Yi. Iridium-Tin oxide solid-solution nanocatalysts with enhanced activity and stability for oxygen evolution. *Journal of Power Sources*, Under review.
6. Xunying Wang, Linsong Zhang, **Guangfu Li**, Geng Zhang, Zhigang Shao and Baolian Yi. The influence of Ferric ion contamination on the solid polymer electrolyte water electrolysis performance. *Electrochimica Acta*, 2015, 158, 253-7

7. Jun Chi, Hongmei Yu, **Guangfu Li**, Xunying Wang, Li Fu, Jia Jia and Zhigang Shao. The influence of the ionion content on the alkaline solid polymer electrolyte water electrolysis performance. Chinese Journal of Power Sources, 2015, Accept
8. Donglei Yang, Hongmei Yu, **Guangfu Li**, Yun Zhao, Yanxi Liu, Changkun Zhang, Wei Song and Zhigang Shao. Fine microstructure of high performance electrode in alkaline anion exchange membrane fuel cells. Journal of Power Sources, 2014, 267: 39-47
9. Shucheng Sun, Zhigang Shao, Hongmei Yu, **Guangfu Li** and Baolian Yi. Investigations on degradation of the long-term proton exchange membrane water electrolysis stack. Journal of Power Sources, 2014, 267: 515-20
10. Donglei Yang, Hongmei Yu, **Guangfu Li**, Wei Song, Yanxi Liu, Zhigang Shao. Effect of gas diffusion electrode parameters on anion exchange membrane fuel cell performance. Chinese Journal of Catalysis, 2014, 35:1091-7
11. Xunying Wang, Zhigang Shao, **Guangfu Li**, Linsong Zhang, Yun Zhao, Wangting Lu, Baolian Yi. A cocrystallized catalyst-coated membrane with high performance for solid polymer electrolyte water electrolysis. Journal of Power Sources, 2013, 240:525-9
12. Xunying Wang, Zhigang Shao, **Guangfu Li**, Linsong Zhang, Yun Zhao, Wangting Lu, and Baolian Yi. Preparation and characterization of partialcocrystallized catalyst-coated membrane for solid polymer electrolyte water electrolysis. International Journal of Hydrogen Energy, 2013, 38:9057-64
13. Yongkun Li, Hongmei Yu, Changkun Zhang, Li Fu, **Guangfu Li**, Zhigang Shao, and Baolian Yi. Electrodeposition of Ni oxide on TiO₂ nanotube arrays for enhancing visible light photoelectrochemical water splitting. Journal of Electroanalytical Chemistry, 2013, 688: 228-31
14. Yongkun Li, Hongmei Yu, Changkun Zhang, Li Fu, **Guangfu Li**, Zhigang Shao, and Baolian Yi. Enhancement of photoelectrochemical response by Au modified in TiO₂ nanorods. International Journal of Hydrogen Energy, 2013, 38: 13023-30
15. Yongkun Li, Hongmei Yu, Changkun Zhang, Li Fu, **Guangfu Li**, Zhigang Shao, and Baolian Yi. Effect of water and annealing temperature of anodized TiO₂ nanotubes on hydrogen production in photoelectrochemical cell. Electrochimica Acta, 2013, 107: 313-9
16. Meiling Dou, Ming Hou, Huabing Zhang, **Guangfu Li**, Wangting Lu, Zidong Wei, Zhigang Shao, and Baolian Yi. A highly stable anode, carbon-free, catalyst support based on tungsten trioxide nanoclusters for proton-exchange membrane fuel cells. ChemSusChem, 2012, 5:945-51

17. Geng Zhang, Zhigang Shao, Wangting Lu, **Guangfu Li**, Fuqiang Liu, and Baolian Yi. One-pot synthesis of Ir@Pt nanodendrites as highly active bifunctional electrocatalysts for oxygen reduction and oxygen evolution in acidic medium. *Electrochemistry Communications*, 2012, 22:145-8
18. Yongkun Li, Hongmei Yu, Wei Song, **Guangfu Li**, Zhigang Shao, and Baolian Yi. A novel photoelectrochemical cell with self-organized TiO₂ nanotubes as photoanodes for hydrogen generation. *International Journal of Hydrogen Energy*, 2011, 36: 14374-80

Conference Papers

1. Yongkun Li, Hongmei Yu, Changkun Zhang, **Guangfu Li**, Li Fu, Zhigang Shao, Baolian Yi, Enhancemet of photoelectrochemical response by Au modified in TiO₂ nanorods. The 12th International Conference on Clean Energy, Xi'an Jiaotong University, 2012. 10: 26-30
2. Xunying Wang, Zhi-gang Shao, **Guangfu Li**, Linsong Zhang, Yun Zhao, Wangting Lu and Baolian Yi. A cocrystallized catalyst-coated membrane for solid polymer electrolyte water electrolysis. DICP Symposium (XXXIII) on Fuel Cells & The 2nd DNL Conference on Clean Energy, Dalian, 13-15 June, 2013.
3. Xunying Wang, Zhi-gang Shao, **Guangfu Li**, Linsong Zhang, Yun Zhao, Wangting Lu and Baolian Yi. Preparation and characterization of cocrystallized catalyst-coated membrane for solid polymer electrolyte water electrolysis. International Conference on Electrochemical Materials and Technologies for Clean Sustainable Energy, Guangzhou, 5-9 July, 2013.
4. Xunying Wang, Linsong Zhang, **Guangfu Li**, Geng Zhang, Zhi-gang Shao and Baolian Yi. The effect of Fe³⁺ on the performance of solid polymer electrolyte water electrolysis. Proceeding of the Canadian Society for Mechanical Engineering (CSME) International Congress, June 1-4, 2014, University of Toronto, Canada.

Patents

1. **Guangfu Li**, Hongmei Yu, Zhigang Shao and Baolian Yi. A SiO₂ zeolite-template preparation method of the oxygen-evolution catalysts in water electrolysis. China patent: ZL 2011 1 0321473.8, issued September, 2014
2. Hongmei Yu, **Guangfu Li**, Wei song, Meiling Dou, Zhigang Shao and Baolian Yi. A Ru and/or Ir noble-metal oxide and its application in the oxygen-evolution electrocatalysis. China patent: 2011 1 0419158.9, issued November, 2014
3. Baolian Yi, GangXiao, **Guangfu Li**, Guangxin, Yu, Hongmei, Yu, Jinpeng Sheng, Zhaogang Shao. A preparation method of the anode catalysts for oxygen evolution reaction in SPE water electrolyser. China patent: ZL 2010 1 0554677.1, issued November, 2014

4. Hongmei Yu, **Guangfu Li**, Xunying Wang, Zhigang Shao and Baolian Yi. A preparation method of the Ir-Sn metal oxide. China patent: 201210560489.9, under a legal checkup, 2012
5. Ming Hou, Meiling Dou, **Guangfu Li**, Wangting Lu, Zhigang Shao and Baolian Yi. A preparation method of the fuel-cell catalyst support WO_3 . China patent: 201110290102.8, under a legal checkup, 2011
6. Ming Hou, Meiling Dou, **Guangfu Li**, Wangting Lu, Zhigang Shao and Baolian Yi. A fuel-cell catalyst Pt/ WO_3 and its application. China patent: 201110288928.0, under a legal checkup, 2011
7. Zhigang Shao, Xunying Wang, **Guangfu Li**, Linsong Zhang and Baolian Yi. A preparation method of the partial-cocrystallized catalyst coated membrane for SPE water electrolysis. China patent: 201210554625.3, under a legal checkup, 2012
8. Hongmei Yu, Jun Chi, Guangfu Li, Xunying Wang, Li Fu, Jia Jia and Zhigang Shao. An improved preparation method of the catalyst-coated membrane with the intermediate layer using anion exchange ionion. China patent: 201410419163.3, under a legal checkup, 2014