

CURRICULUM VITAE

Wu, Gang, Ph.D. Associate Professor

309 Furnas Hall,
Department of Chemical and Biological Engineering
University at Buffalo (UB), The State University of New York(SUNY)
New York 14260
Phone: 716-645-8618 (office); 803-338-4924 (cell)
E-mail: gangwu@buffalo.edu; Web: www.cbe.buffalo.edu/wu
Citizenship: U.S.A.

6235 Country Walk Ct.,
Clarence, NY 14032

EDUCATION

- 2004. Ph.D. Environmental (Chemical) Engineering, Harbin Institute of Technology, Harbin, China.
Thesis: “*Electrodeposited Co-Ni alloy composite coatings and their oxide films for high-temperature and electrocatalysis applications*”
- 1999, M. S. Applied Chemistry, Harbin Institute of Technology, Harbin, China.
- 1997, B.S. Electrochemical Engineering, Harbin Institute of Technology, Harbin, China.

EMPLOYMENT HISTORY

- Aug 2018- *Associate Professor*, University at Buffalo, SUNY, Buffalo, NY
- Aug 2014-Aug 2018, *Assistant Professor*, University at Buffalo, State University of New York (SUNY), Buffalo, NY
- May 2010-Aug 2014 *Scientist*, Los Alamos National Laboratory, Los Alamos, NM
- Jan 2008-May 2010, *Postdoc*, Los Alamos National Laboratory, Los Alamos, NM
- Feb 2006-Jan 2008, *Postdoc*, Chemical Engineering, University of South Carolina, Columbia, SC
- Jan 2004-Jan 2006, *Postdoc*, Department of Chemistry, Tsinghua University, Beijing, China
- 1999-2000, *Chemist*, Chugoku Marine Paints, Ltd. Guangzhou, China

RECOGNITION

- To date (August 2018), Dr. Wu has been granted *more than **\$4.1 M** funding for UB from external federal agencies (DOE and NSF) since August 2014 when he joined UB*. Those **14** projects (3 NSF and 11 DOE) focus on the development of advanced materials for electrochemical energy conversion and storages such as fuel cells, water splitting, batteries, and renewable fuel (NH₃).
- More than **180** scientific publications including *Science*, *Nature Catalysis*, *JACS*, *Angew Chem.*, *Adv. Mater*, *Nano Lett.*, *ACS Nano*, etc.; **>14,200** citations (*h* index: **58**; *i10* index: 139); **6** patents; **9** invited book chapters, **80** invited presentations;
- Dr. Wu is internationally recognized as one of leading researchers in the field of fuel cell catalysts, especially the platinum group metal (PGM)-free catalysts. It is evident by his *Science* paper published in 2011 (*Wu G et al., Science, 332, 443, 2011*; cited > 2400 times to date in *Google Scholar*), in which, for the first time, feasible catalysts from earth abundant elements

(C, N, Fe, or Co) were developed to catalyze the sluggish oxygen reduction reaction in low-temperature fuel cells. He has received more than \$4.1 M funding from NSF and U.S. DOE since 2014.

- More than 1000 times peer-review (~one time per day) for renowned journals in his field including *Nature*, *Nature Nanotechnology*, *Nature Commun.*, *Nature Energy*, *Nature Catalysis*; *JACS*, *Angew Chem.*, *Adv. Mater.*, *Nano Letters*, *ACS Nano*, *Nano Today*, *Energy Environ. Sci.*, *Adv. Energy Mater.*, *Adv. Func. Mater.*, *Small*, *Chem. Mater.*, *Nano Energy*, *Applied Energy*, *Nanoscale*, *J. Phys. Chem.*, *ACS Catal.*, *Carbon*, *ACS Appl. Mater. Interfaces*, *PCCP*, *Electrochem. Commun.*, *Electrochim Acta*, *J. Power Sources*, etc.

ACADEMIC AWARDS / SCHOLARSHIPS

- UB SEAS Early Career Researcher of the Year Award, 2017
- LANL LDRD-ER Award, 2014
- DOE, EERE office Outstanding Research Team Award, 2011
- LANL Early Career LDRD Award, 2010
- Fuel Cell Tech Team's 2009 highlights by USCAR, 2010
- Postdoctoral Science Research Award of China, 2004
- Petroleum Excellent Ph. D student Scholarship of China, 2003

HONORS

- At-large Member of Energy Technology Division, Electrochemical Society
- Advisor of a Ph.D. student (Mr. Shiva Gupta) received Travel Grant of 231st Electrochemical Society Meeting, New Orleans, IN, May 2017.
- Advisor of a senior undergraduate student (Miss. Jingyun Wang) received UB Excellence of Undergraduate Research and Scholarship, 2017.
- Selected as the most Favorite Professor in CBE by AIChE UB Student chapter, 2016.
- Advisor of a Ph.D. student (Mr. Shiva Gupta) received UB CBE Graduate Research Poster Award, 2015.
- Rank as Top 1% reviewer for ACS Catalysis, 2015
- The Science paper was ranked as Top 10 cited articles in Chemistry, 2013
- Selected as a Featured Scientist at LANL, 2011
- The Top 10 Cited Paper in the journal of Electrochemistry Communications, 2010

PROFESSIONAL MEMBERSHIPS AND ACTIVITIES:

- Member of American Institute of Chemical Engineering (AIChE), 2014-
- Member of Electrochemical Society (ECS), 2008-
- Member of American Chemical Society (ACS), 2008-
- Member of Materials Research Society (MRS), 2013-
- Board Committee Members of The International Academy of Electrochemical Energy Science
- Editorial Board of *ChemistrySelect* (a new journal from ChemPubSoc Europe, Wiley-VCH Publisher)
- Editorial Board Member for *Scientific Reports*, (Nature Publishing Group)
- Associate Editor of *RSC Advances* (a journal in the Royal Society of Chemistry, UK)

UNIVERSITY SERVICE:

- Panel reviewer for “IMPACT” proposals, 2016 and 2017.
- Panel reviewer for pre-selection of NSF Major Research Instrumentation Program (MRI) proposals at UB, 2016
- Reviewer for “RENEW” seed proposal

COLLEGE OR PROFESSIONAL SCHOOL SERVICE:

- Promotion Committee in the School of Engineering and Applied Science.
- Taught 4th Grade students (60, most of them are African American) about battery principles and fabrication during the Field trip of Westminster Elementary School (an event hosted by SEAS), January 2015.
- Participate “Science in Elementary” (SIE) program organized by the School of Engineering and Applied Science, 2015-2016.

DEPARTMENTAL SERVICE:

- Serving as a co-organizer for annual Graduate Research Symposium in Department of Chemical and Biological Engineering at UB, 2014-2016.

COMMUNITY SERVICE:

- National Science Foundation (NSF) Panel Reviewer for *Chemical Catalysis* program 2018.
- Leading organizer for symposia “*Fundamentals of Electrochemical Processes*” and “*Materials for Electrochemical Energy Storages*”; co-organizer for “*Electrocatalysis and Photocatalysis*” at American Institute of Chemical Engineering (AIChE) meeting, 2016, 2017, and 2018.
- Symposium co-organizer for “*Innovative Chemistry & Electrocatalysis for Low-Carbon Energy & Fuels: Discovery to Application*” at 257th American Chemical Society National Meeting, Orlando FL, March 2018.
- Co-organizer for symposia “*Advances and Perspectives on Modern Polymer Electrolyte Fuel Cells - Symposium in Honor of Shimshon Gottesfeld*”, “*Energy Conversion Systems Based on Nitrogen*”, and “*Materials for Low Temperature Electrochemical Systems*” at 235th Electrochemical Society (ECS) Meeting in Dallas , May 2019.
- Leading organizer for symposium “*Energy Conversion Systems Based on Nitrogen*” and co-organizers for symposia “*Materials for Low Temperature Electrochemical Systems*” and Society (ECS) Meeting in Seattle, May 2018.
- Leading organizer for Symposium “*Advanced Electrocatalysis for Clean Energy and Environment*” at 256th American Chemical Society National Meeting, Boston, MA, August 2018.
- Symposium co-organizer for “*Innovative Chemistry & Electrocatalysis for Low-Carbon Energy & Fuels: Discovery to Application*” at 254th American Chemical Society National Meeting, Washington DC, August 2017.

- Co-organizers for Symposia “*Electrocatalysis and Photoelectrocatalysis*”, and “*Composites for Environmental applications*”, at American Institute of Chemical Engineering (AIChE) meeting, 2015, 2016, and 2017.
- Co-organizer for symposium “*Multiple electron redox for battery technologies*” at 232nd Electrochemical Society Meeting (ECS), National Harbor, MD, October, 2017.
- Co-organizer for symposium “*Innovative Chemistry & Electrocatalysis for Low-Carbon Energy & Fuels: Discovery to Application*” at 254th American Chemical Society (ACS) National Meeting, August, Washington DC, 2017.
- Leading organizer for symposium “*Electrochemical energy materials*” at Northeastern Region Meeting for American Chemical Society (NERM), Binghamton, NY, 2016.
- Co-organizer and session chair for symposium “*Electrochemical energy production, conversion, and storage*” at 252rd American Chemical Society (ACS) National Meeting, Philadelphia, PA, August, 2016
- A session chair in *Electrochemical Society Meetings (ECS)*, 2015, 2016, and 2017.
- A co-organizer for International Electrochemical Science and Energy Conference, November, Nanning, Guangxi, China, 2015
- Serving as a peer reviewer for more than 1000 times (3-4 per week) for renowned journals in my fields including *Nature Nanotechnology*, *Nature Energy*, *JACS*, *Adv. Mater.*, *Nat. Commun*, *Nano Letters*, *ACS Nano*, *Nano Today*, *Energy Environ. Sci.*, *Adv. Energy Mater.*, *Adv. Func. Mater.*, *Chem. Mater.*, *Nano Energy*, *Small*, *J. Mater. Chem.*, *ChemSusChem*, *Nanoscale*, *J. Phys. Chem.*, *ACS Catal.*, *Carbon*, *ACS Appl. Mater. Interfaces*, *PCCP*, *Scientific Reports*, *Electrochem. Commun.*, *Electrochim Acta*, *J. Power Sources*, etc.
- Serving as proposal reviewer for *Natural Sciences and Engineering Research Council of Canada*, *Ontario Research Fund*, and *US-Israel Binational Science Foundation*.

COURSES TAUGHT:

- CE 433/534, Materials Science and Corrosion (*Spring*), 90-110 undergraduate/graduate students
- CE 422/522, Electrochemical Energy and Environment (*Fall*), 40-50 undergraduate/graduate students

GRADUATION OF Graduate Students (1):

Ph.D. student (1): Shiva Gupta, graduated on December, 2017.

M.S. students (6): Anix Casimir (*African American*); Haiyang Sheng; Kuo Ma; Surya Vamsi Devaguptapu, Min Wei, Zhi Qiao, Shuo Ding, Qing Lan, Benjamin Hultman

RESEARCH SUPERVISION:

- Postdocs (3): Qiang Tan; Lin Guo, and Xiaolin Zhao
- Ph.D. students (11): Shiva Gupta, Hanguang Zhang, Shreya Mukherjee (*female*), Mengjie Chen, Yanghua He (*female*), Zhi Qiao, Hao Zhang, Nadia Mohd Adli (*female*), Jiazhan Li (exchange student from Harbin Institute of Technology), Yi Li (exchange student from

Jiangnan University), and Huanhuan Wang (exchange student from Harbin Institute of Technology)

- M.S. students (**14**): Anix Casimir (*African American*), Kuo Ma, Haiyang Shen, Surya Vamsi Devaguptapu, Min Wei, Qing Lan, Shuo Ding, Hengyu Pan, Jingyun Wang (*female*), Jing Xue, Yingjie Chen, Kemakorn Ithisuphalap (*female*), Janel Abbott (*female*), Bryan Matthews
- Undergraduate researchers (**14**): Vyomika Sangwan (*female*), Obianuju Joy Obiano (*African American female*), Jing Xue, Hannah Osgood (*female*), Ana Santandreu (*female*), Emmanuel Nsengiyumva (*African American*), Hengyu Pan, William Kellogg, Daniel Matera, Qinqin Xiao (*female*), Victor Pang, Anna Sviripa (*female*), Ziming Wang (*female*), Dylan Tiffany.
- Visiting scholar and students(**6**): Xiaojuan Wang (*Peking University*); Deyu Li (*Harbin Institute of Technology*); Xiaoxia Wang (*East China University of Science and Technology*); Leilei Lu (*Xi'an University of Technology*)

GRANT SUPPORT (3 NSF AND 11 DOE PROJECTS):

To date (October 2017), secured more than **\$4.1 M** (\$4,112,445) for UB from external federal funding since August 2014 when joining UB. (All of funding listed below are for UB)

PI of National Science Foundation (NSF) Awards

- “Collaborative Research: Designing Nitrogen Coordinated Single Atomic Metal Electrocatalysts for Selective CO₂ Reduction to CO”, National Science Foundation (NSF) - CBET-Catalysis-1804326, **\$200, 000**, 2018-2021 (**PI at UB**)
- “Engineering Nanocarbon Air Cathodes for High-Temperature Solid-State Li-O₂ Batteries”, National Science Foundation (NSF) - CBET-Process & Reaction Engineering-1604392, **\$300, 000**, 2016-2019 (**PI**); Co-PI: Edward Furlani
- “Three-dimensional porous nanographene for highly efficient energy storage in Li-ion batteries”, National Science Foundation (NSF) - CBET-Energy Sustainability-1511528, **\$300, 000**, 2015-2019 (**PI**); Co-PIs: Chong Cheng and Johannes Hachmann

PI at UB from Department of Energy (DOE)

- “Mesoporous Carbon based PGM-free Catalyst Cathodes”, U. S. Department of Energy, Energy Efficiency Renewable Energy(EERE) Office, UB funding: **\$397,000**, 2019-2021 (PI at UB, led by Indiana University Purdue University)
- “Stationary Direct Methanol Fuel Cells Using Pure Methanol”, U. S. Department of Energy, Energy Efficiency Renewable Energy(EERE) Office, UB funding: **\$240,000**, 2019-2022 (PI at UB, led by University of Kansas)
- High-Efficiency Reversible Alkaline Membrane Fuel Cells, U. S. Department of Energy, Energy Efficiency Renewable Energy(EERE) Office, UB funding: **\$150,000**, 2019-2021 (PI at UB, led by Giner)
- “Advanced PGM-free Cathode Engineering for High Power Density and Durability”, U. S.

Department of Energy, Energy Efficiency Renewable Energy(EERE) Office, UB funding: **\$528,000**, 2017-2020 (PI at UB, led by *Carnegie Mellon University*)

- “*Durable Mn-based PGM-Free Catalysts for Polymer Electrolyte Membrane Fuel Cells*”, U. S. Department of Energy, Energy Efficiency Renewable Energy (EERE) Office, UB funding: **\$640,000**, 2017-2020 (PI at UB, led by *Giner Inc*)
- “*PGM-free OER Catalysts for PEM Electrolyzer*”, U. S. Department of Energy, Energy Efficiency Renewable Energy (EERE) Office, UB funding: **\$69,445** (Phase I), 2017-2018 (PI at UB, led by *Argonne National Laboratory*)
- “*Low Temperature NH₃ Cracking Membrane Reactor for H₂ Generation*” U. S. Department of Energy, Advanced Research Projects Agency-Energy (APRA-e) Office, UB funding: **\$285,000**, 2017-2020 (PI at UB, led by *Bettergy Corp*).
- “*High-Efficiency Ammonia Production from Water and Nitrogen*” U. S. Department of Energy, Advanced Research Projects Agency-Energy (APRA-e) Office, UB funding: **\$320,000**, 2017-2020 (PI at UB, led by *Giner Inc.*).
- “*Advanced Electrocatalysts through crystallographic enhancement*” U. S. Department of Energy, EERE, Fuel Cell Technologies Office, UB funding: **\$240,000**, 2016-2019 (PI at UB, led by *Los Alamos National Laboratory*).
- “*Advanced catalysts and MEAs for reversible alkaline fuel cells*”, U. S. Department of Energy, EERE, Fuel Cell Technologies Office, UB funding: **\$280,000**, 2015-2017 (PI at UB, led by *Giner Inc.*)
- “*Nanographene anode for highly efficient energy storage*”, Los Alamos National Laboratory, UB funding: **\$150,000**, 2014-2017 (PI).

SUNY and UB internal funding

- “*Atomic-metal-rich carbon electrocatalysts for sustainable energy via CO₂ reduction*” **\$35,000**, RENEW Award (co-PI); PI: Luis Velarde (CHE), Michel Dupuis (CBE), 2017-2018.
- “*Si Nanocomposite Anode Coated with Lithium-Rich Ferroelectric Layer for High-Performance Lithium-Ion Batteries*”, **\$35,000**, SMART Award (co-PI); PI Fei Yao at MDI. 2017-2018.
- “*Engineering graphene tubes as fuel cell supports*”, New York State Center of Excellence in Materials Informatics, **\$27,000**, (PI), 2016-2017.
- “*3D Printing Flexible Solid-State High-Energy-Density Graphene Supercapacitors*”, UB SMART Award **\$34,500** (co-PI); PI: Chi Zhou from Industry System Engineering, 2016-2017.
- “*Engineering Photocatalysts for Clean H₂ Generation*” IMPACT Award, **\$33,000**, (PI); Co-PIs: Hao Zeng and Peihong Zhang, 2016-2017.
- “*Advanced carbon nanomaterials for supercapacitor energy storage*”, SUNY Network of Excellence in Materials and Advanced Manufacturing. **\$12,500**, (PI at UB, led by *Stony Brook*), 2015-2016.
- “*Solid-state graphene-based high-performance supercapacitors*”, New York State Center of Excellence in Materials Informatics, **\$25,000**, 2015 (PI), 2014-2015.

PUBLICATIONS: (More than 180 scientific publications in total with >13,900 citations [Google Scholar], h-index: 58 (i10 index: 137);

Google Scholar profile: <http://scholar.google.com/citations?user=fRf374gAAAAJ&hl=en>

(I) Refereed journals

The Papers published after joining UB (August 2014-now)

Graduate students from my group are marked using **Bold**;

Undergraduate students are highlighted in **Green**;

Corresponding authors are marked using **Asterisk (*)**

As the leading author for the papers contributed from my own groups

(a) Accepted and published

1. **J. Li, M. Chen**, D. A. Cullen, S. Hwang, M. Wang, B. Li, K. Liu, S. Karakalos, M. Lucero, **H.G. Zhang**, C. Lei, H. Xu, G. E. Sterbinsky, Z. Feng, D. Su, K. L. More, G.F. Wang, Z. Wang **G Wu***, Atomically Dispersed Manganese Catalysts for Oxygen Reduction in Proton Exchange Membrane Fuel Cells, *Nature Catalysis*, accepted, 2018.
2. K. Liu, **Z Qiao** (co-first author), S. Hwang, Z. Liu, H. Zhang, D. Su, H. Xu, **G. Wu,*** G. F. Wang*, Prediction and Validation of Mn and N Co-doped Carbon as Promising High-Performance Catalysts for Oxygen Reduction Reaction, *Applied Catalysis B: Environmental*, under minor revision, 2018.
3. **M. Chen**, S. Hwang, S. Karakalos, **K. Chen, Y. He, S. Mukherjee**, D. Su, **G. Wu***, Pt-M Alloy Nanoparticles Decorated on Large-Size Nitrogen-Doped Graphene Tubes for Highly Stable Oxygen-Reduction Catalysts, *Nanoscale*, accepted, Doi:10.1039/C8NR05888A, 2018.
4. **H. Zhang, J. Li**, Q. Tan, L. Lei, Z. Wang, **G. Wu***, Metal-Organic Frameworks and Their Derived Materials as Electrocatalysts and Photocatalysts for CO₂ Reduction: Progress, Challenge, and Perspective, *Chemistry – A European Journal*, doi:10.1002/chem.201803083, 2018.
5. **N. Mohd-Adli**, H. Zhang, S. Mukerjee, **G. Wu*** Electrocatalysis for Ammonia Electrooxidation for Fuel Cell and Hydrogen Generation Applications, *Journal of the Electrochemical Society*, accepted, 2018.
6. **X. X. Wang**, S. Hwang, Y. T. Pan, K. Chen, Y. He, S. G. Karakalos, H. Zhang, J. S. Spindelov, D. Su, **G. Wu**, Ordered Pt₃Co Intermetallic Nanoparticles Derived from Metal-organic Frameworks for Oxygen Reduction, *Nano Lett.* 18, 7, 4163-4171, 2018.
7. **Mukherjee, S.**; Cullen, D. A.; Karakalos, S.; Liu, K.; Zhang, H.; Zhao, S.; Xu, H.; More, K. L.; Wang, G.; **Wu, G***. Metal-organic framework-derived nitrogen-doped highly disordered carbon for electrochemical ammonia synthesis using N₂ and H₂O in alkaline electrolytes. *Nano Energy*, 48, 217-226, 2018.
8. Pan, F.; **Zhang, H** (co-first author).; Liu, K.; Cullen, D. A.; More, K. L.; Wang, M.; Feng, Z.; Wang, G.; **Wu, G.***; Li, Y.* Unveiling Active Sites of CO₂ Reduction on Nitrogen Coordinated and Atomically Dispersed Iron and Cobalt Catalysts. *ACS Catalysis*, 8, 3116–3122, 2018.

9. **Wang, Xiao Xia**; Cullen, David; Pan, Yung-Tin; Hwang, Sooyeon; Wang, Maoyu; Feng, Zhenxing; **Wang, Jingyun**; Engelhard, Mark; **Zhang, Hanguang**; **Yanghua He**; Shao, Yuyan; Su, Dong; More, Karren; Spendelow, Jacob; **Wu, G***, Nitrogen Coordinated Single Cobalt Atom Catalysts for Oxygen Reduction in Proton Exchange Membrane Fuel Cells, *Advanced Materials*, 30, 1706758, 2018.
10. **Yanghua He, Bryan Matthews**, Xiaoxia Wang, **Jingyun Wang**, and **Wu G.***, Innovation and Challenges in Materials Design for Flexible Rechargeable Batteries: from One-dimensional to Three-dimensional, *Journal of Materials Chemistry A*, 6, 735-753, 2018. (*Impact factor: 8.9*)
11. **Mukherjee S.; Devaguptapu S.; Sviripa A.**, Lund C. R.; **Wu G.*** Low-Temperature Ammonia Decomposition Catalysts for Hydrogen Generation, *Applied Catalysis B: Environmental*, 226, 162-181, 2018.
12. **Chen M**, Wang L, Yang H, Zhao S, Xu H, **Wu G.***, Nanocarbon/oxide composite catalysts for bifunctional oxygen reduction and evolution in reversible alkaline fuel cells: a mini review, *Journal of Power Sources*, 375, 277-290, 2018. (*Impact factor: 6.4*)
13. **Devaguptapu , S**; Hwang, S; Zhao, S ; Karakalos, S; Xu, H; **Gupta, S**; Su, D; **Wu, G.*** Morphology Dependent Performance of Carbon-free Spinel NiCo₂O₄ Catalysts for Bifunctional Oxygen Reduction and Evolution in Alkaline Media, *ACS Applied Materials and Interface*, 9, 44567–44578, 2017. (*Impact factor: 7.5*)
14. **Wei M.; Liang Q; Kuo M**; Karakalos S; Zhang H.; Fu Z.; Swihart, M.S.; **Wu G.*** Engineering Reduced Graphene Oxides with Enhanced Electrochemical Properties through Multiple-Step Reduction, *Electrochimica Acta*, 258, 735-743, 2017. (*Impact factor: 4.8*)
15. **Gupta, S.**; Zhao, S; Wang, X; Hwang, S; Karakalos, S; Devaguptapu, S; Mukherjee, S; Su, D; Xu, H; **Wu, G.***, FeCoNiMn-based nanocarbon electrocatalysts for bifunctional oxygen reduction and evolution: promotional role of Mn doping in stabilizing carbon, *ACS Catalysis* 7, 8386–8393, 2017. (*Impact factor: 10.6*)
16. **Zhang, H.**; Hwang, S.; Wang, M.; Feng, Z.; Karakalos, S.; Luo, L.; **Qiao, Z.**; Xie, X.; Wang, C.; Su, D.; Shao, Y.; **Wu, G.***, Single Atomic Iron Catalysts for Oxygen Reduction in Acidic Media: Particle Size Control and Thermal Activation, *Journal of the American Chemical Society*, 139, 14143-14149, 2017. (*Impact factor: 13.9*).
17. **Zhang, F.; Wei, M.**; Shao, Y.; **Wu, G.***; Zhou, C.*, 3D Printing Technologies for Electrochemical Energy Storage. *Nano Energy*, 40, 418-431, 2017. (*Impact factor: 12.3*).
18. **Qiao, Z.; Zhang, H.**; Karakalos, S.; Hwang, S.; **Xue, J.**; **Chen, M.**; Su, D.; **Wu, G.***, 3D polymer hydrogel for high-performance atomic iron-rich catalysts for oxygen reduction in acidic media. *Applied Catalysis B: Environmental*, 219, 629-639, 2017. (*Impact factor: 9.4*).
19. **Wei, M.**; Zhang, F.; Wang, W.; Alexandridis, P.; Zhou, C.; Wu, G*, 3D Direct Writing Fabrication of Electrodes for Electrochemical Storage Devices. *Journal of Power Sources* 2017, 354, 134–147. (*Impact factor: 6.4*)
20. **Gupta, S.**; Zhao, S.; **Ogoke, O.**; Lin, Y.; Xu, H.; **Wu, G.***, Engineering Favorable Morphology and Structure of Fe-N-C Oxygen-Reduction Catalysts Via Tuning Nitrogen/Carbon Precursors. *ChemSusChem*, 10 (4), 774–785, 2017. (*Impact factor: 7.2*)
21. **Zhang, H.**; **Osgood, H.**; Xie, X.; Shao, Y*.; **Wu, G.***, Engineering Nanostructures of PGM-Free Oxygen-Reduction Catalysts Using Metal-Organic Frameworks. *Nano Energy*, 31, 331-350, 2017. (*Impact factor: 12.3*)

22. **Ogoke, O.; Wu, G.*; Wang, X.; Casimir, A.;** Ma, L.; Wu, T.; Lu, J*., Effective Strategies for Stabilizing Sulfur for Advanced Lithium-Sulfur Batteries. *Journal of Materials Chemistry A*, 5, 448-469, 2017. (invited review; impact factor: 8.26)
23. **Paranjape, N.; Chandra, P.; Wu, G.*; Lin, H.*,** Highly-Branched Cross-Linked Poly (Ethylene Oxide) with Enhanced Ionic Conductivity. *Polymer*, 111, 1-8, 2017. (co-advisor with Prof. Haiqing Lin). (Impact factor: 3.7)
24. **Sheng, H.; Wei, M.; D'Aloia, A.; Wu, G*.** Heteroatom Polymer-Derived 3D High-Surface-Area and Mesoporous Graphene Sheet-Like Carbon for Supercapacitors. *ACS Appl. Mater. Interfaces*, 8 (44), 30212–30224, 2016. (Impact factor: 7.5)
25. **Osgood H.; Devaguptapu S. V.;** Xu H.; Cho J.; **Wu, G.*** Transition Metal (Fe, Co, Ni, and Mn) Oxides for Oxygen Reduction and Evolution Bifunctional Catalysts in Alkaline Media, *Nano Today*, 11, 11, 601–625, 2016. (invited review, Impact factor: 15.0)
26. **Gupta S.; Qiao L., Devaguptapu S.V.;** Zhao S; Xu H. Swihart M.T*.; **Wu G*.** Highly Active and Stable Graphene Tubes Decorated with FeCoNi Alloy Nanoparticles via a Template-free Graphitization for Bifunctional Oxygen Reduction and Evolution, *Advanced Energy Materials*, 6 (22), 1601198, 2016. (Impact factor: 15.23)
27. **Casimir A.; Zhang H.; Ogoke O.;** Lu J*; **Wu G***, Silicon-based Anode for Lithium-ion Batteries: Effectiveness of Materials Synthesis and Electrode Preparation, *Nano Energy*, 27, 359–376, 2016. (invited review; impact factor: 12.3)
28. **Gupta S.; Kellogg W.;** Xu H.; Liu X.; Cho J*.; **Wu G.***, Bifunctional Perovskite Oxide Catalysts for Oxygen Reduction and Evolution in Alkaline Media. *Chemistry-An Asian Journal*, 11 (1), 10–21, 2016. (invited Focus Review article; impact factor: 4.59)
29. **Wang, X.;** Li, Q.; **Pan, H.;** Lin, Y.; **Ke, Y.;** **Sheng, H.;** Swihart, M. T*.; **Wu, G*.** Size-controlled large-diameter and few-walled carbon nanotube catalysts for oxygen reduction. *Nanoscale*, 7, 20290-20298, 2015. (co-advisor with Prof. Swihart; impact factor: 7.3)
30. **Wang X; Ke Y; Pan H; Ma K; Xiao QQ; Wu G*;** Swihart MT*, Cu-Deficient Plasmonic Cu_{2-x}S Nanoplate Electrocatalysts for Oxygen Reduction, *ACS Catalysis*, 5 (4), 2534-2540, 2015. (co-advisor with Prof. Swihart; impact factor: 10.6).
31. **Wu, G*.; Santandreu, A.; Kellogg, W.;** **Gupta, S.;** **Ogoke, O.;** **Zhang, H.;** Wang, H.-L.*; Dai, L*., Carbon Nanocomposite Catalysts for Oxygen Reduction and Evolution Reactions: from Nitrogen Doping to Transition-Metal Addition. *Nano Energy*, 29, 83–110, 2016. (invited review; impact factor: 12.3)
32. **Wang, X.;** **Zhang, H.;** Lin, H.; **Gupta, S.;** Wang, C.; Tao, Z.; Fu, H.; Wang, T.; Zheng, J*.; **Wu, G*.**; Li, X. Directly converting Fe-doped metal–organic frameworks into highly active and stable Fe-N-C catalysts for oxygen reduction in acid. *Nano Energy* 2016, 25, 110-119. (the first author was a visiting Ph.D student at UB; impact factor: 12.3)
33. **Wu, G*.**, Current Challenge and Perspective of PGM-Free Cathode Catalysts for PEM Fuel Cells. *Frontiers in Energy* 2017, doi:10.1007/s11708-017-0477-3. (Invited review)
34. **Tan, Q.;** Zhu, H.; Guo, S.; Chen, Y.; Jiang, T.; Shu, C.; Chong, S.; **Hultman, B.;** Liu, Y.*; **Wu, G.*** Quasi-zero-dimensional cobalt-doped CeO₂ dot on Pd catalysts for alcohol electrooxidation with enhanced poisoning tolerance. *Nanoscale*, 9, 12565-12572, 2017. (impact factor: 7.3)

As one of the leading authors for the papers collaborated with other institutes

35. X. Zheng, J. Wu, X. Cao, C. Jin, H. Wang, **J. Abbott**, P. Strasser, R. Yang,* X. Chen, G. Wu,* Enhanced Oxygen Chemisorption on N, P and S Co-doped Graphene Derived from Onium Salts for Zn-air Battery Cathodes, *Applied Catalysis B: Environmental*, accepted, 2018.
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