# Ziqi Liu

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## Education

**PhD, Mechanical Engineering** Aug. 2017 - now
*University of California, Merced, CA* GPA: 3.69/4.0
Courses: Transport Phenoma,Fuel Cell Fundamentals, Modeling and Diagnostic etc.

**Master of Science, Materials Engineering** Aug. 2014 - May. 2016
*University of Southern California, Los Angeles, CA* GPA: 3.44/4.0
Courses: Basics of Atomistic Simulation of Materials, etc.

**Bachelor of Science, Material Chemistry** Sep. 2010 - Jul. 2014
*Qingdao University of Science and Technology, China* GPA: 3.10/4.0
Courses: Material Surface and Interface Chemistry, etc.

## Research Experience

**Trace Amount of Ceria Incorporation by Atomic Layer Deposition on Co-embedded N-doped Carbon for Efficient Bifunctional Oxygen Electrocatalysis: Demonstration and Quasi-operando Observations(In preparation)** Sept. 2019 - Dec. 2020
*Ziqi Liu, Angela Macedo Andrade, Simranjit Grewal, Art J. Nelson, and Min Hwan Lee*
- Prepared a mixed metal/metal oxide integrated N-doped 3-D carbon structure via ALD and achieved excellent bifunctional oxygen electrocatalytic performance.
- Quasi-operando XPS and XRD analysis to investigate the active sites for the enhancement.

**MOF-derived Co/Cu-embedded N-doped Carbon for Efficient Trifunctional Catalysis in Alkaline Media(Submitted)** Oct. 2019 - Nov. 2020
*Angela Macedo Andrade; Ziqi Liu; Simranjit Grewal; Art J Nelson; Min Hwan Lee, Ph.D.*
- Syntesis of Co/Cu doped carbon based trifunctional catalysts for both ORR, OER and HER reaction under alkaline environment.

**Electrochemical catalystic properties (ORR and OER) for Crabon based transition metal materials** Aug. 2017 - Now
*Electrochemical Energy Conversion Lab, University of California, Merced, CA*
- Synthesis and fabrication of carbon based transition metal materials.
- Improvement of the oxygen reduction reaction and oxygen evolution reaction for fuel cell catalysts.
*Skills: EC-lab, SEM, TEM, ALD, XPS, XRD, FTIR*

**Basics of Atomistic Simulation of Materials** Aug. 2015 - Dec. 2015
*University of Southern California, Los Angeles, CA*
- Monte Carlo and Molecular dynamic simulation project were designed for computing the structural and the transport properties and thermodynamics.
*Skills: Fortran, Unix/Linux*

**The Graphene/Nickel Materials' Electrocatalytic Activity For Methanol Oxidation in Alkaline Environment** Mar. 2014 - Jul. 2014
*Qingdao University of Science and Technology.*
- Graphene-supported different proportion of Pt, Ni catalysts were prepared with ethylene glycol as the reducing agent.
- Funded by Chinese National Natural Science Foundation and Supervised by Dr. Lifeng Dong, Taishan Scholar.
*Skills: Electrochemical Workstation, SEM, TEM, Matlab*

**Controllable Synthesis and Electrichemical Property of two Dimensional Antimony Chalcogenide Nanomaterials, Journal of Alloys and Compounds** Jun. 2013 - Sep. 2013
*School of Chemistry & Materials Science, Ludong University*
- Employed polyacids and polyols as templates to prepare nanostructured Antimony Chalcogenide via hydrothermal/solvothermal method.
- Investigated the formation mechanism of these antimony chalcogenide nanomaterials.
*Skills: Electrochemical Workstation, SEM, TEM, Li-ion Batteries Test System*

# Publication

[1] S. Grewal, A. Macedo Andrade, Z. Liu, J. A. Garrido Torres, A. J. Nelson, A. Kulkarni, M. Bajdich*, M. H. Lee*, "Highly Active Bifunctional Oxygen Electrocatalytic Sites Realized in Ceria–Functionalized Graphene", Advanced Sustainable Systems, 4, 2000048, 2020
[2] Rencheng Jin, Ziqi Liu, Lixia Yang, Junshen Liu, Yanbin Xu, Guihua Li. Facile synthesis of sulfur doped Sb2Se3 nanosheets with enhanced electrochemical performance. Journal of Alloys and Compounds, 2013, 579, 209-217. (SCI)
[3] Lixia Yang, Feng Wang and Ziqi Liu. Fabrication and Characterization of Manganese Ferrite Nanospheres as a Magnetic Adsorbent of Chromium. Journal of Nanomaterials, 2013, Article ID 293464. (SCI)

# Conference

**PRiME 2020** Oct.04 - Oct.09, 2020
Ceria Nanodots Anchored on ZIF67-Derived Framework By Atomic Layer Deposition for Efficient Bifunctional Oxygen Electrocatalysis.

**236th ECS Meeting** Oct.13 - Oct.17, 2019
Bimetallic Cobalt-Copper MOF Material for Bifunctional Oxygen Electrocatalysis.

**AiMES 2018 Meeting** Sep.30 - Oct.4, 2018
Co-Embedded Carbon Nano-Polyhedron Supported on Functionalized Graphene Oxide for Efficient Oxygen Reduction Reaction.
Uio-66 As an Effective Support of Metal Oxides for Oxygen Evolution Catalysis.

# Fellowship

**School of Engineering ME Graduate Bobcat Fellowship Award** Jun. 2020 - Aug. 2020

# Teaching Experience(Teaching Assistant)

**Engineering Computing** Fall 2017/Spring 2018/Fall 2018/Fall 2019
- Introduction to Python, Matlab and Fortran.
- Concepts of formatted input/output,data types, variables, arrays, strings, variable scopes, logic statements, loopsand repetition, functions and subroutines, and data graphing

**Statics and Dynamics** Spring 2019/Fall 2020
- Guide student on developing an understanding of the fundamentals and principles of engineering mechanics: statics and dynamics of particles and rigid bodies in two and three dimensions
- Theory and applications are complemented by demonstrations, hands-on exercises, and lab assignments. The labs endeavor to give students a hands-on feel for both quantities and concepts. In addition, the labs get students working in small groups.

**Engineering Capstone Design** Spring 2020
- Guidance of students working on multidisciplinary teams on selected and approved design projects, practice design methodology, complete project feasibility studyand preliminary design, including optimization, product reliability and liability, economics, and application of engineering codes