Qiushi Miao

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EDUCATION

B. E. in School of Materials Science and Engineering, Shanghai Jiao Tong University Aug 2016 - present

'Hsu Tzuyao' Honor Class - 27 students selected from SMSE

Major: Materials Science and Engineering, Minor: Computer Science

Major grades: 88.7/100 Ranking: 6/106 (3/27 in Honor Class)

RESEARCH EXPERIENCE

Self-Supported Electrocatalyst Design for Water Splitting| Shanghai Jiao Tong University | Research Assistant

Advisor: Jianbo Wu, Associate Professor at SMSE, SJTU Nov 2018 - present

- OER：In-situ grew Ni NW@NiOOH NS on Ni foam, showing an overpotential of 260mV@100 mA cm^{-2} in 1M KOH
  Utilized hydrothermal method and electro-oxidation method to acquire NiOOH nanosheet with large ECSA on subtle nanoarray
- HER：Investigated the function of substrates on activity of MoS_2 in self-supported MoS_2 NS/X foam(X=FeNi, CuNi,CoNi)
  Used CVD to grow MoS_2 on bimetal foam, showing an overpotential of 180mV@10 mA cm^{-2} for CuNi@MoS_2 in 1M KOH

Self-Supported Electrocatalyst Design for CO_2RR | Shanghai Jiao Tong University | Research Assistant

Advisor: Jianbo Wu, Associate Professor at SMSE, SJTU Nov 2019 - present

- Sulfurized ZnO nanoarray into ZnO@ZnS core-shell nanoarrays for elctrochemical reduction of CO_2 to CO and H_2.
- Synthesized ZnCu-NC derived from ZIF-8 for CO_2RR, with a high FE efficiency of 96% and investigated the promotion function of MOF structure on CO_2RR

Investigated Cation effect of ironic liquid on NRR| University of Illinois at Urbana-Champaign | Summer Intern

Advisor: Yingjie Zhang, Assistant Professor at DMSE, UIUC July 2019 - Oct 2019

- Investigated the cation effect of ionic liquid in electrolyte on NRR and HER, with a primary conclusion that EMIM and BMIM will inhibit HER reaction
- Set up the NRR test equipment and calibration process in the lab in traditional H-cell

Radiative-cooling materials Design | Shanghai Jiao Tong University | Research Assistant

Advisor: Han Zou, Professor at SMSE, SJTU Oct 2017 - Dec 2018

- Used FDTD simulation to design a Photonic Cooler with 1D and 2D combined Photonic Crystals via Passband Broadening, showing a 10.1K temperature decrease on mid-IR transparent solar cells, and 2.9K decrease on mid-IR absorptive solar cells
- Used FDTD simulation to set up a model with radiative-cooling property based on the bionic structure of cactus spines

PUBLICATION

Qian Xiang[1], Jiale Wang[1], **Qiushi Miao[1]** et al. “Recent Process in Self-supported Nanoarray Electrocatalysts for Water-splitting with Diverse Substrates” **to be submitted** to Materials Today Nano

Qiushi Miao[1] , Jianbo Wu. “Nickel hydroxide nanosheets deposited on Nickel nanowire arrays for high performance towards Oxygen Evolution Reaction” **to be submitted**

Shifan Cui[1], **Qiushi Miao[1]**, Zhiwei Yang, Han Zhou. “Solar Cell Photonic Cooler Design with 1D and 2D Combined Photonic Crystals via Passband Broadening.” **submitted** to Physical Chemistry Chemical Physics

Qian Xiang[1], Fan Li, Jiale Wang, Wenlong Chen, **Qiushi Miao** et al. “Heterostructured Catalyst with Highly Enhanced Edge Surface for Efficient CO_2 Electrochemical Reduction to CO” **submitted** to AFM

AWARDS

College Scholarship provided by Shanghai Institute of Silicate, Chinese Academy of Sciences (5/108) Oct 2018

Third-class Prize in Mathematics contest for University Students division in Shanghai Jan 2018

B-class Academy Excellence Scholarship Dec 2017, Nov 2018

SKILLS

FDTD simulation, HER, OER, ORR, CO_2RR, NRR test experience, common chemical synthesis skills, C/C++ programming