XIANG SHI

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EDUCATION

Sept.2020 – Present | **University of Science and Technology of China (USTC)**
School of Chemistry and Materials Science *Hefei, China*

- Major in Physical Chemistry at Lu Jiaxi Talent Program (**B.S. expected**)
  Overall GPA: **3.93** / 4.30 (**90.85** / 100); Major Rank: **2**/28; Rank at School of Chemistry**: 3**/105
  TOEFL: **109** (R 30; L 27; S 28; W 24); GRE: **330** (V 160; Q 170; AW 3.0)
- **Scholarships:**
  Sept. 2022 | Minglong Huang Scholarship (top 5%), USTC
  Sept. 2022 | Talent Award, Institute of Chemistry, Chinese Academy of Sciences (top 5%)
  Sept. 2021 | National Scholarship 2021 (top 1%), USTC
  Sept. 2021 | Suzhou Yucai Scholarship (top 1%), USTC
- **Research Interests:** Electrochemistry, Photocatalysis, Chemical Engineering, Fuel Cell, Carbon Dioxide Reduction (CO2R), Single Atom Catalysis, Nanomaterial

PAPERS

- Bin Liu[+], Jake Heinlein[+], **Xiang Shi** and Shu Hu. *"CH4 Capture and Utilization"* **(in submission)**
- Bin Liu , **Xiang Shi**, Haoqing Su, Zheng Qian, Yuze zheng and Shu Hu "Ocean current floating reactor for CO2 capture and in-situ conversion"（**in preparation**）
- Wenjie Wang[+], Haofeng Sun[+], **Xiang Shi**, Lin Wang and Changzheng Wu *"2D BiTeBr with Low Thermoconductivity Using Electrochemical Intercalation Stripping"* **(in preparation)**
- Wenjie Wang, **Xiang Shi**, Chun Wang and Changzheng Wu *"MOF-derived Fe-Ce Single-Atom Pairs Doped Electrocatalyst for Hydrogen-Oxygen Fuel Cells"* **(in submission)**
- Wenjie Wang[+], Tianpei Zhou[+], Kai Zhang[+], Chun Wang, **Xiang Shi**, Lin Wang, et al. (2022). "*Sulfur-induced dynamic reconstruction of iron-nitrogen species for highly active neutral oxygen reduction reactions"*. SCIENCE CHINA Chemistry, 2022. https://doi.org/10.1007/s11426-022-1384-1

RESEARCH EXPERIENCE

Department of Chemistry, iChEM (Collaborative Innovation Center of Chemistry for Energy Materials)

- **Single Atom Catalyst@Piezocatalyst & Pyrocatalyst**

Sept. 2022 – Present | *Undergraduate researcher advised by Prof. Yuen Wu*

Work as the major researcher, in charge of the whole project

Modify $BaTiO_3$'s surface structure and morphology, load metal atoms to generate active hydroxyl radicals and do the characterization

Hefei National Laboratory for Physical Sciences at Microscale & Department of Chemistry

- **Researches into Modified Layered BiTeBr and its Thermoconductivity Behavior**

Jun. 2022 – Present | *Undergraduate researcher advised by Prof. Changzheng Wu*

In charge of the whole synthesis, figure out the most favorable intercalation and exfoliation conditions and the following modification of single layer BiTeBr to BiTeSe and BiTeO

- **MOF-derived Fe-Ce Single-Atom Pairs Doped Electrocatalyst for Hydrogen-Oxygen Fuel Cells**

Jun. 2021 – Jun. 2022 | *Undergraduate researcher advised by Prof. Changzheng Wu*

Responsible for the synthesis of Ce-Fe single atom pairs @ZIF, the fuel cell testing part and characterization

- **Planar FeS_1N_3 Sites with Adjacent Sulfur Anions Realizing Superior Neutral Zinc-air Batteries Performance**

Apr. 2021 – Jun.2021 | *Undergraduate researcher advised by Prof. Changzheng Wu*

Undertook the synthesis of S-doped-FeN_4, the fuel cell testing and characterization

VISIT AND EXCHANGE PROGRAMS

Jun. 2023 – Present | **Summer Research at Yale University** *New Haven, CT*

Undergraduate researcher advised by Prof. Shu Hu

CO2 photoreduction to CO using photodeposited Ag on GaP in Seawater

CO electroreduction in alkaline solution using deposited Cu on interdigitated array microelectrodes (IDA)

Using Comsol to understand the complicated non-equilibrium state in carbonic system with flow during reaction

Reactor design and flow field analysis

Two papers titled "*CH4 Capture and Utilization*" and "*Ocean current floating reactor for CO2 capture and in-situ conversion*" were produced and in submission

Jun. 2022 | **Summer Research at University of Texas, Austin** *Remote*

Undergraduate researcher advised by Professor Guihua Yu

Studied hyrdrogel, Li+ storage, Ni-N-P for Hydrogen Evolution Reaction (HER)

TECHNICAL SKILLS

- Common Characterization: SEM, UV-Vis, Raman, TEM, EDS, XRD, XPS, IR
- Operation of electrochemical testing station and fuel cell system
- Software: Comsol, MATLAB, Origin, Photoshop, Premier, Audition, Latex

EXTRACURRICULAR ACTIVITIES

- *2022* | **Chair** of the Student Union of the School of Chemistry and Materials Science in USTC
- *2023-Present* | **Assistant Leader** of USTC Chorus