

# Weiran Zhou

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## EDUCATION

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School of Physical Sciences, University of science and technology of china, **China**

September 2017 - July 2021 (expected)

**GPA (Overall): 3.87/4.3 (90.21/100) Ranking: top 5% in Applied Physics department**

**Core Courses in Physics:** Optics: 98/100, Electromagnetism: 100/100, Theoretical Mechanics: 93/100, Electrodynamics: 98/100, Classic Mechanics: 91/100, Equations of Mathematical Physics: 98/100.

## RESEARCH EXPERIENCES

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### Nanosynthesis and Electrocatalysis

Advisor: **Prof. Jie Zeng, National laboratory for physical sciences at the microscale**

**Project 1: Electro-oxidation of propylene by using silver nanomaterial** July, 2019- Present

- Developed a synthesis method to finely control  $\text{Ag}_3\text{PO}_4$  crystal shapes by tuning the amount of reactants, thus different crystal facets ((100), (110), (111)) could be exposed.
- Studied the dependence of  $\text{Ag}_3\text{PO}_4$  crystal facet on catalytic activity and selectivity of propylene electro-oxidation process, where  $\text{Ag}_3\text{PO}_4$  crystal with (100) facet turned out to achieve the highest catalytic activity.
- Simulated the absorption energy of propylene on different crystal facets of  $\text{Ag}_3\text{PO}_4$ , with (100) facet having the highest absorption energy.
- Synthesized  $\text{AgX}$  ( $X = \text{Cl}, \text{Br}, \text{I}$ ) nanoparticles, and compared the possible effect of halogen on the electro-oxidation performance, where  $\text{AgI}$  particles (  $0.8 \sim 1\mu\text{m}$  ) were found to achieve the highest Faraday efficiency under constant voltage.
- Currently performing Infrared spectrum, X-ray photoelectron spectroscopy tests on silver phosphate materials.

**Project 2: Electro-reduction of  $\text{CO}_2$  by In Nanoparticles** March, 2019 - May, 2019

- Used  $\text{InNO}_3$  as metal precursor and acid-treated carbon as capping agent to synthesize Monodispersed In particles which were used as catalysis for electro-reduction of  $\text{CO}_2$ .
- Carried out electrocatalytic characterizations using chromatograms to obtain good catalytic activity.

## SCHOLARSHIP AND HONORS

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| 1. Suzhou Nanophysics Institute Scholarship      | 2019          |
| 2. Outstanding student scholarship               | 2017 and 2018 |
| 3. Natural Science Electromagnetic Essay Contest | 2015          |

## SKILLS

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**Programming Languages:** C, Java, Python, MATLAB, Latex;

**Applications:** Microsoft Office Suite, Photoshop, C-Free, Mathematica, Material Studio

**Material characterization techniques:** scanning electron microscop , X-ray diffraction

## STANDARDIZED ENGLISH TESTS

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**GRE** V-152 + Q-170 + AW-3.0

**TOEFL** 101 (Reading: 30; Listening: 26; Speaking: 22; Writing: 23)