Zheng Taizhong

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Academic Background

Chongqing University **School of Material Science and Engineering** **2020.9 ~ 2024.6**

- **Major：Materials Science and Engineering** • **Average Mark:** 80.15 • **Cohort ranking:** 22/72
- **Relevant Courses:**Introduction to Quantum Computation and Quantum Information(95), Quantum Mechanics(83), Thermodynamics and Statistic Physics(84), Atomic Physics(80), Polymer Chemistry and Physics(81), Advanced Methods for Materials Characterization(87), Physical Chemistry(92), Fundamental of Material Science(84), Training and Practice for Material Innovation Ability(95)

Professional Skills

- **Experimental instruments**: Arc furnace, Muffle furnace, Tube furnace, Glove box, Transport Property Testing, Electrochemical Property Testing, XRD, SEM and EDX Analysis
- **Research software**: Chi660e, Origin, MDI jade, Vesta, Minitab, Mathematica
- **Programming language**: Python, Tex, Wolfram • **English Proficiency**: IELTS(6.0)

Independent Research

Research on single crystal growth and transport properties of novel quantum material

through this research program, I have mastered various single crystal growth methods (flux method, solid-state growth method, and CVD method, etc.) and crystal structure analysis techniques (XRD, TEM, EDX analysis, etc.). At the same time, I have also honed my skills in operating transport property testing instruments (PPMS, MPMS) and developed the ability to analyze and summarize related data (specific heat,electrical resistivity, Hall resistivity, and angular magnetoresistance, etc.). I have successfully grown new materials such as CrI_3 and $LiFe_6Ge_6$ and conducted research on their transport properties.

Study on electrochemical properties of diatomite modified by cobalt-based phosphide and P vacancy

This research, supported by Chongqing's Undergraduate Innovation Program, developed a strategy to enhance cobalt phosphide electrodes by introducing phosphorus vacancies and vanadium doping. Using diatomite as a template and KOH etching, the modified material exhibited improved crystal structure, reduced Co oxidation states, and superior energy storage and cycling stability. The findings were published in the journal *Applied Surface Science*.

[1]Li K[1], Xiao Y[1], Zheng T, et al. Vanadium doping and phosphorus vacancy co-regulation of biotemplate derived three-dimensional cobalt phosphide to enhance pseudocapacitance performance[J]. Applied Surface Science, 2023, 622: 156950.

Undergraduate thesis

Study on the effect of stearate types on water absorption of cement-based materials

In this study, the influence of different types and dosage of alkali slag cement-based materials on water absorption performance was investigated, and the change of capillary water absorption coefficient and conductivity of mortar with water absorption time was tested. According to the results of experiments, the incorporation of stearate can effectively reduce the capillary water absorption rate of alkali-activated slag cement.

Campus practice

Diatom Intelligent Materials Association *Minister of the Publicity Department*

Responsible for managing the association's WeChat official account and writing articles; designing posters for academic conferences and events; conducting pre-event publicity, news editing, and event photography.

Honors and Awards

- Successful completion with distinction of The Sixth Chongqing Undergraduate Training Program for Innovation and Entrepreneurship.
- Graduate with Honors in the Outstanding Engineer Education and Training Program of Ministry of Education of the People's Republic of China