

# Curriculum Vitae

**Tinghan Zhang**

Region: Wuxi-Chengdu-Baltimore

Date of Birth: May 27<sup>th</sup> 2000

Mobile Phone: +86-13861716715

+1-6673915362

E-mail: CookieFZhang@gmail.com



## Education Background

---

**Johns Hopkins University**

**September 2022 ~ May 2024**

**Major: Materials Science & Engineering**

**Sichuan University (University of 985 & 211 Project, World-class university)**

**September 2018 ~ June 2022**

**Major: Materials Chemistry**

**Major courses:** Biomaterials Principles and Applications, Materials Characterization, Micro & Nano Structured Materials & Devices, Electroanalytical Chemistry & Energy Conversion, Chemistry & Physics of Polymers

**Language Skills:** Chinese (Native), English (Fluent)

**Technical skills:** Calligraphy, Guitar, Badminton, Proficiency in operating office, mapping software origin. Proficiency and understanding of operation of multiple experimental and analytical software (SEM, XRF, XRD etc).

## Research & Projects

---

### **1. Analysis and characterization of mortar and pestle in ancient Rome**

**Team leader, Supervisor: Patricia McGuiggan**

**September 2023 ~ January 2024**

- ❖ As the leader of the ancient mortar and pestle research project, the characterization experiments that needed to be conducted were planned due to the small portion of samples, and the experimental scheduling of the group members was coordinated to complete the experimental goals earlier.
- ❖ Experimental methods such as SEM, EDS, XRD, and XRF were used to thoroughly analyze the mortar samples. The material composition was determined through testing of elemental compositions, while its exterior features and corrosion were carefully observed and analyzed to infer its possible historical period and use. All the experimental data were summarized to write a report, which was presented at the seminar.
- ❖ The results of the research included an inference of the possible age and use of the mortar, and an exploration of its importance in history and culture. This research provides an important reference and understanding of the historical and cultural value of ancient mortar.

### **2. Exploration of the synthesis process of sulfonated polyphenylene sulfide**

**Team Leader, Supervisor: Wang Gang**

**September 2021 ~ January 2022**

- ❖ As the project leader, he organized the team to explore various preparation methods, and thoroughly investigated the degree of sulfonation of SPPS, the regulation of membrane interfacial structure, and the design and preparation of membranes. He chaired several seminar group meetings to discuss the procurement and preparation of raw materials, and actively explored the possible direction of application.
- ❖ Organized the team to conduct several preparation experiments to evaluate the structure of the membrane and the design of the proton transport channel, as well as the construction of the physicochemical environment. The preparation methods and

processes were optimized, and the selection and application of sulfonating agents were thoroughly studied to ensure the safety and environmental protection of the experiments.

- ✧ Summarizing the failures and the pros and cons of the process after several rounds of controlled tests. The SPSS proton exchange membrane with suitable sulfonation degree was successfully prepared and tested for its water absorption and proton transport properties (including DC conductivity test and AC impedance spectroscopy). The thermal stability properties were evaluated by thermogravimetric analysis (TGA) and differential scanning calorimetry (DSC), and the mechanical properties and chemical stability were evaluated. The proton exchange membrane was applied to a real single cell, and the measurements of electrochemical performances, including the open-circuit voltage, polarization curves and power density, were carried out.



## **Internship & Activity**

---

### **1. Wuxi ETEK Micro-Electronics Co., Ltd.**

*Intern Supervisor: Yang Zhen*

**June 2023 ~ August 2023**

- ✧ Assisted the project leader in investigating cutting-edge applications of piezoelectric actuators in the market, including potential application areas and industries. Discovered and compared the circuit characteristics of piezoelectric actuators from Texas Instruments and Boaz Technology, and studied and analyzed their performance in different application scenarios in depth, and hosted group meetings to share insights and knowledge.
- ✧ Fully utilized the professional knowledge and researched the latest advances in piezoelectric ceramic technology, involving new materials, manufacturing processes and other innovative aspects. Starting from the perspective of material selection, we analyzed the impact of different materials on the cost and effect of actuators. After choosing the pre-products of Boyas Technology for study, we worked with the team to manipulate and customize the effect of haptic feedback through the software to further understand its performance and advantages in practical applications.

### **2. Laboratory of ARLANXEO High Performance Elastomer (Changzhou) Co.**

*Intern Supervisor: Mao Jie*

**June 2018 ~ August 2018**

- ✧ Responsible for synthesizing raw rubber materials and performing physicochemical property tests, including aging and tensile strength. Prepare samples and install them in batteries and conduct electrical performance tests to ensure data accuracy. Learned and mastered various testing mechanisms and experimental methods and familiarized with the operation of testing instruments.
- ✧ Assisted the project leader to successfully complete the preparation and testing of electrode raw materials for synthetic batteries and improved the performance index of batteries by optimizing the formulation and process. In-depth understanding of the internal principle of the combination of rubber and battery, which provides important theoretical support for the smooth progress of the project.

### **3. JHU Materials Graduate Society**

*Associated Representative*

**October 2022 ~ May 2023**

- ✧ Planning and organizing material seminars, helping to prepare for festivals and other activities, and providing a solid platform for academic exchanges and cooperation between clubs.
- ✧ Coordinating the conduct of seminars, accelerating the registration of participants, enhancing the impact of seminars, and obtaining support from school and club resources
- ✧ Helping to build friendships among its members, aiming to establish a solid professional network and providing participants with opportunities to expand their communication, social and networking skills.

### **4. Publicity Department in ChuangXiaoGuan**

*Associated Director in the Publicity Department*

**September 2018 ~ June 2019**

- ✧ Responsible for establishing the competition program and the division of work of the competition organization team, competition publicity, recruitment of participating members, the whole process of the competition management and other work.
- ✧ Coordinate with contest members to speed up the registration process, enhance the impact of the contest, and obtain support from schools and clubs.
- ✧ Good at publicity planning ability, making easy-to-use posters, making public tweets.