LINGJIE ZHANG

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EDUCATION

Graduate Student, Texas A&M University College Station, TX   *Jan. 2022 - Present*
Graduate Student, Indiana University Bloomington, IN   *Jan. 2021 - Dec. 2021*
B.S. Chemistry, Southern University of Science and Technology, China *Sept. 2016 - June. 2020*

RESEARCH EXPERIENCE

Graduate Research Assistant, Department of Chemistry, Texas A&M University & Indiana University Bloomington
Advisor: Prof. Lane A. Baker   *Jan. 2021 – Present*

Research Project #1: *Development of the Array Microcell Method (AMCM) Instrument System*

- Instrumentation development of electrochemical scanning droplet method for micro/nanoscale, high-throughput electroanalysis at micro/nanoelectrodes. Developed automatic control software for AMCM instrument system with LabVIEW. Accelerated system by using filed-programmable gate array (FPGA).

Research Project #2: *Machine Learning for Fitting Approach Curves of Scanning Ion Conductance Microscopy (SICM)*
- Synthesized approach curves of scanning ion conductance microscopy (SICM). Developed a SICM and collected thousands of approach curves data. Trained models by using deep learning method for fitting approach curves of SICM. Predict electrochemical properties by using deep learning models.

Undergraduate Research & Research Assistant, Southern University of Science and Technology, Shenzhen, China
Advisor: Prof. Chongyang Liu   *Feb. 2018 - Oct. 2020*

Research Project #1: *Development of Fast and Ultra-High-Resolution Hopping Scanning Ion Conductance Microscopy*

- Maintained and improved SICM instrumentation system. Quartz probes prepared by the laser puller for experiments. Basic data processed by Python program using Laplacian smoothing and median filtering. Enhanced resolution of scanning at least 5nm and obtain an 1100 * 100 HSQ (hydrogen silsesquioxane) channel-crossed 1.5nm resolution sample image.

Research Project #2: *Probe-based Electrochemical Three-Dimensional Copper Nano-Printing*

- Applied patch-clamp amplifier and piezoelectric nano-manipulators as core components to compose direct current scanning probe microscopy. Filled Quartz probes with copper sulfate solution and controlled voltage to reduce copper on the gold film. Designed, assembled and improved instrumentations system. Programmed with LabVIEW and applied FPGA hardware to accelerate piezoelectric step and receive real-time current signal feedback. Nano-copper column automatically printed by setting appropriate parameters into the system. Successfully printed

300nm diameter of copper columns.

AWARDS & FELLOWSHIPS

National Endeavor Fellowship	2019 - 2020
SUSTech Scholarship for Outstanding Academic Performance	2018 - 2019
SUSTech Scholarship for Outstanding Academic Performance	2017 - 2018
Freshmen Scholarship of SUSTech	2016 - 2017

TEACHING EXPERIENCE

Associate instructor: C127 General Chemistry Lab	Fall 2021