KAI HONG

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EDUCATION

University of Michigan, Ann Arbor *Fall 2023 - Present*
Master Program GPA: 3.73/4
Department of Material Science & Engineering

Rensselaer Polytechnic Institute *Fall 2019 - Srping 2023*
BS Degree GPA: 3.87/4
Department of Physics

SKILLS

Software:
Python, Matlab, C++, Mathematica, Excel, Word, Linux, Fiji (ImageJ), Logger Pro, Adobe Lightroom Classic.
Laboratory:
Spray coating, Surface design and characterization, Contact angle goniometer, Electron microscope, Laser scanning Microscope, Fabrication of FSNP, Schlenk line, machining.
Languages:
English, Chinese (Mandarin), French (basic).

RELEVANT COURSES

Kinetics & Phase Transformation and Transport, Advanced Functional Polymers, Polymer Physics, Physics and chemistry of Materials, Advanced Thermodynamics of Materials, Foundation of Battery Design, Quantum Mechanics I, Intro to Quantum Mechanics, Electromagnetic Theory, Theoretical Mechanics, Computational Physics, Solid State Physics, Numerical Computing, Computer Science I (Python), Data Structure ($C++$), Intro to Complex Variable, Advanced Calculus, Linear Algebra.

RESEARCH EXPERIENCE

University of Michigan, Ann Arbor Michigan, USA
Passive Surface Drag Reduction with Closed Loop Design *Winter 2023 to Present, paid during summer*

- Optimize parameters of the spray coating machine to achieve higher drug reduction effect.
- Collect data with the contact angle goniometer and laser scanning microscope to characterize surface. Visualize the surface detail with SEM.
- Assembled a high-gas-tightness chemical reactor cascade for the fabrication of fluorinated silica nanoparticles.Using a Schlenk line and cannulation techniques.

Rensselaer Polytechnic Institute New York, USA
DFT Calculations led by Prof. Shengbai Zhang *Spring 2022 to Spring 2023*

- Performed first principle density functional theory calculations (DFT) on common semiconductors using VASP. Examined non-metal binary systems in space group 216.
- obtained the cutting ratios of each two atoms in 27 binary lattice structures considering the charge neutrality and geometry.

Rensselaer Polytechnic Institute New York, USA
MilkyWay@home led by Prof. Heidi Newberg *Summer 2021*

- Gathered data of Palomar 5 stream from Sloan Digital Sky Survey (SDSS) and estimate its beta distribution along and across the stream.
- data analyzing using Pyhton and fed these data into Milkyway@home project to calculate the potential position of dark matter in the Milky Way.