Zhaofeng Peng

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Education

Peking University Expected graduation date: Jun. 2025

Bachelor of Science in Theoretical and Applied Mechanics, Minor in Biomedical Engineering Beijing, China

- **GPA:** Overall - 3.731/4.0
- **Coursework:** Ordinary Differential Equations, Mathematics in Engineering, Theoretical Mechanics, Engineering Fluid Mechanics, Basic Physics Lab, Molecular Cell Biology, Physiology, Biomedical Signal Processing

Research Experience

Exploration of the Swelling Mechanism for Charged Soft Matter Sep. 2023 - Present

Advisor: Prof. Guang Chen Peking University

- Probed the relationship between electrostatic free energy and osmotic pressure of polyelectrolyte solutions, and derived a new set of formulae for osmotic pressure
- Compared the theoretical results with some experimental data to explain the unsolved scaling laws
- Reconsidered the swelling mechanism of polyelectrolyte gels from the perspective of the balance between electrostatic free energy and elastic energy

Porous Hydroxyapatite Ceramic Designing Sep. 2023 - Jan. 2024

Course Project Peking University

- Investigated the methods for preparing porous ceramics, and used wet sponge method to fabricate a few pieces of hydroxyapatite ceramics for laboratory mouse skull repair
- Attempted to prepare ion-doped hydroxyapatite using ion exchange method

Flexible Biosensor Designing Mar. 2023 - Jun. 2023

Course Project Peking University

- Investigated the clinical need for flexible biosensor to monitor the pressure change in stretch sock therapy
- Proposed the idea of utilizing soft magnets as the key parts of the sensor, and designed a way to measure the small change in magnetic field intensity
- Simulated the scenarios with COMSOL to support the idea

Technical Skills

Technologies & Tools:

Proficient in MATLAB, SolidWorks. Experienced in Unity, COMSOL.

Languages:

Proficient in LaTeX. Experienced in C, Python, HTML.

Extracurricular Activities

Designer of Lissajous Figure Unity Project Aug. 2022 - Dec. 2022

- Designed a Unity project for visualizing 3D Lissajous figures
- Explored the relationship between patterns and parameters of 3D Lissajous figures

Member of Student Academic Department at College of Engineering Sep. 2021 - Jun. 2022

- Interviewed several professors about their scientific research experience, and wrote some reports for the WeChat official account of the college

Awards and Honors

Award for Academic Excellence Dec. 2023

Peking University

Peking University Scholarship, Third Prize Dec. 2023

Peking University

China Mechanics Competition in Honor of Zhou Peiyuan, Honorable Mention Aug. 2023

The Chinese Society of Theoretical and Applied Mechanics, Chou Pei-yuan Foundation

Chinese Chemistry Olympiad in Provinces, First Prize Oct. 2020

Chinese Chemical Society