

## Two Funded PhD Positions Immediately available at The University of Maine, Orono

### Introduction:

We are looking for two highly motivated PhD students to join Dr. Xiaoxiao Zhao's group in the Mechanical Engineering at the University of Maine (starting immediately). Our research interest focuses on surface and interface engineering, an interdisciplinary field encompassing the disciplines of mechanical engineering, material science, chemistry, and biomedical engineering. Our research goal is to understand the fundamental physicochemical mechanics of liquid-solid and solid-solid interfaces for designing materials with desirable surface properties and functionalities.

### Openings:

**PhD position #1:** The successful candidates will work on implementing surface and interface engineering in cellulose-based materials. This involves (1) developing bio-based barrier coating for paper food packaging, (2) using cellulose-based materials to fabricate membranes for emerging contaminant remediation, (3) cellulose nanofibrils-based triboelectric nanogenerators. This PhD position will be collaborated across interdisciplinary fields.

**PhD position #2:** The successful candidates will work on implementing surface and interface engineering in sustainable per- and polyfluorinated substances (PFAS)-free materials. This involves (1) tailoring and strengthening sustainable PFAS-free coatings for paper and textile applications, (2) developing highly efficient and sustainable strategies for PFAS removal and degradation, (3) developing PFAS alternatives in semiconductor manufacturing.

### Education and Qualifications:

A BS or MS degree in Mechanical Engineering, Material Science, Chemical Engineering, biobased products, Environmental Engineering or related areas. If the candidate is international, they should also include TOEFL (>80) or IELTS (>6.5) scores.

### How to apply:

Applicants should email Dr. Xiaoxiao Zhao ([xiaoxiao.zhao@maine.edu](mailto:xiaoxiao.zhao@maine.edu)) a CV, unofficial transcripts, and a brief statement that discuss research ideas and future career goals. Please specify which position you are applying for by including the title "*Position#1/#2\_Your Name*" in the email subject line. The successful applicant is expected to start immediately. Review of applications will continue until the position is filled. Only short-listed applicants will be contacted.

### About the University of Maine and the Department of Mechanical Engineering:

The University of Maine is a Carnegie R1 top-tier research institution. The University of Maine is a land, sea and space grant university, and maintains a leadership role as the University of Maine System's flagship institution. The Department of Mechanical Engineering has an ABET-accredited BS program as well as MS and PhD degree programs. The Mechanical Engineering Department is housed in the brand-new Ferland Engineering Education and Design Center, a 115,000 sf, \$78-million state-of-the-art teaching and laboratory facility on the UMaine campus in Orono.