

CHEMICAL ENGINEERING / MATERIALS SCIENCE
COLLEGE OF ENGINEERING AND APPLIED SCIENCE

SUMMER RESEARCH OPPORTUNITIES FOR UNDERGRADUATE students

FOR APPLICATION YEAR: 2024

PROJECT TITLE: General research project in soft materials

Jonathan Pham

Project Description

The Soft Materials and Interfaces group at the University of Cincinnati focuses broadly on soft materials by combining concepts in polymer and materials science, mechanics, physics, chemistry, surface science, and unique characterization methods. Currently, the specific areas being actively studied in our group are related to adhesion, wetting, friction, rheology, microparticles, and lubricating grease. Potential applications for our work are diverse, ranging from adhesives and advanced coatings to biomaterials and lubricants. The potential project for this UPRISE summer program would be related to one of these topics. Students should be eager to conduct hands-on experiments in a laboratory setting, and have experience with hands-on work - this can be form of labs or from hobbies. For example, skills in DIY style projects can be beneficial for developing characterization methods. Experience in LabView and/or Matlab, or similar software would be useful. Students typically gain experience in various experimental methods, including microscopy and imaging, mechanical characterization, materials preparation/synthesis, and custom-building techniques on microscopic and mesoscopic size scales. Moreover, students will have the opportunity to gain fundamental knowledge on soft materials by reviewing scientific literature, discussing with the group, and presenting at group meetings.