REU Site: Engineering research in a liberal arts and entrepreneurship context

Nanomaterials for Flexible Sensors

Mentor: Prof. Yijing Stehle

This research harnesses the extraordinary properties of Graphene, a versatile two-dimensional (2D) nanomaterial, to develop next-generation flexible sensors. Graphene's outstanding electrical and mechanical performance makes it an ideal candidate for wearable devices, remote health monitoring, and smart materials.

This project offers intensive, hands-on experience in advanced manufacturing techniques. The students will focus on the fabrication of graphene-based flexible sensors using cutting-edge additive processes and will gain proficiency in techniques such as Direct Ink Writing (DIW) printing (gel-ink) and laser-assisted reduction/printing to precisely pattern functional materials onto flexible substrates. The students will also gain valuable skills in nanomaterial synthesis, ink formulation, advanced manufacturing equipment operation, and electrical characterization. This project directly connects fundamental materials science with impactful societal applications, showing how nanotechnology solves real-world engineering problems. Participants will also gain invaluable experience in micro-fabrication and functional device prototyping.

Learn more about Prof. Yijing Stehle