

Paper-Based Microfluidic Biosensors (*New - Winter 2019*)

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Paper-based microfluidics, the technology of manipulating small amounts of fluids in patterned channels in a single- or multi-layer paper device, has emerged as a simple yet powerful tool for bioanalysis. We are focused on developing paper-based biosensors for a wide range of applications, such as point-of-care diagnosis, environmental sampling testing, and large-scale drug screening. In this project, the student will fabricate new paper substrates integrating novel functional nanomaterials, and fabricate paper-based microfluidic devices with unique surface chemistries and sensing capabilities. The fluid-transport dynamics in these microfluidic devices will also be investigated. Proof-of-concept experiments will be conducted for disease marker detection.

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Research Areas: microfluidics; laboratory automation; bioengineering; cancer cell biology