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LEHIGH UNIVERSITY | Institute for Functional Materials and Devices (I-FMD)

What our lab does:

- We develop microfluidics and microsensors to study bioanalytes in complex sample matrices.
- Our devices work with cells, pathogen particles and various biomolecules.

How we do this:

- We use multiphysics simulations to guide device design.
- Micro- and nanofabricated materials and structures are incorporated into the devices to improve performance.
- We seek-out close collaborations with clinicians to validate device design and performance.

Why we are investigating this area:

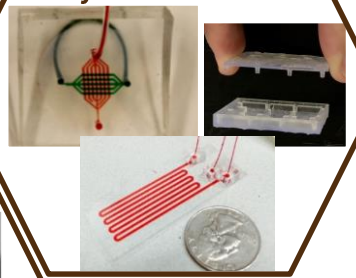
- These devices have applications in global health diagnostics, environment surveillance, point-of-care testing and defenses.
- Our research also contributes to the understanding of microscale transport and sensing mechanisms.

Microdevices for separation & biosensing

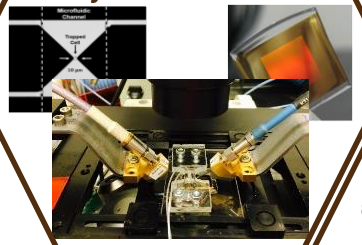
- Microfluidic sample processing
- Integrated electrical and optical sensors
- Machine learning for signal analysis

10.1039/D1RA09462A

Analyte enrichment by microfluidics



Cell, pathogen and molecular detection by microsensors



10.1016/j.aca.2021.338678

Data analysis by machine learning