



**Impacting Cancer Diagnostics through Innovative
Microfluidic Technologies**

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Dupuis Hall, Room 215

Cancer continues to be a challenging disease to diagnose early and treat, despite the many advances enabled since the establishment of the National Cancer Institute, which has seen well over \$40B investment by the US federal government alone. In order to advance the science and technology for enabling better care and provide earlier diagnosis, our lab has focused on developing technologies that rely on both microelectromechanical (MEMS) technologies and microfluidics. In this talk, I will share our team's work in developing a unique impedance mapping system that can potentially allow real-time imaging of tissues to determine surgical margins. The impedance mapping system showed the need for rapid fluid analysis and allowed our creative team to consider developing microfluidic tools for potential point-of-care diagnostics through biomarker identification and use of liquid biopsies. I will close this talk by describing an emerging, blood-vessel-on-chip technology from our group that tackles the fundamental question in cancer biology for how tumors grow and how this technology can potentially transcend disease boundaries and be applied to pathologies beyond cancer.