

LadHyX Seminar – March 26th, 10:45

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**Microfluidic reactors for high throughput single-cell biology**

The study of biology at the single-cell level has relied on the development of high-throughput, precision measurement tools and, for the past two decades, microfluidic technology has been one of the primary catalysts for increasing the throughput and the precision of single-cell measurements. A primary example of this is the adoption of droplet microfluidics for encapsulating single cells and measuring their genomic properties. Our research is aimed at developing new microfluidic devices for multimodal measurement of single cells to move beyond cataloging cell types and push towards gaining a mechanistic understanding of the relationship between the molecules that define and maintain cell state. This talk will focus on some of our recent work on high-throughput, multimodal measurement and screening of single cells using microfluidic droplet generators and hydrogel microbeads. Specifically, I will discuss ongoing work to develop aqueous core, semi-permeable hydrogel capsules for multistep single-cell genomic assays.