

# SINERGY SEMINAR SERIES

NUS Synthetic Biology for Clinical and Technological Innovation (NUS SynCTI)  
Member of Singapore Consortium for Synthetic Biology (Sinergy)



## David A. Weitz

### Mallinckrodt Professor of Physics and Applied Physics

Director of the Materials Research Science and Engineering Center

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<https://weitzlab.seas.harvard.edu>

## Droplet microfluidics: how to do millions of experiments in picoliter volume

Weitz and his group study the physics of soft condensed matter, materials easily deformed by external stresses, electric, magnetic or gravitational fields, and even thermal fluctuations. These materials typically possess structures much larger than atomic or molecular scales; the structure and dynamics at these mesoscopic scales determine the macroscopic physical properties. The goal of their research is to probe and understand the relationship between mesoscopic structure and bulk properties. The group studies both synthetic and biological materials, with interests ranging from fundamental physics to technological applications and from basic materials questions to specific biological problems. His group develops drop-based microfluidics for biophysics and biotechnology applications. This is a microfluidic technique where minute drops immersed in an inert carrier fluid are used as reaction vessels of only a few picoliters in volume. They are used to collect biological data at very high rates, and Weitz and his group are applying them to investigate issues in biology and for biotechnology applications. Weitz and his group have extensive interactions with industry, with some of their work motivated by the science that directly addresses technologically important problems. In addition, some research in the group has led to promising new technologies, and several start-up companies have emerged from the research.

Thursday, 18 April 2019 at 11am  
CeLS Seminar Room 2 #01-05

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