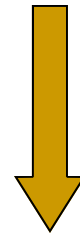


Thursday, January 21st
Time: 3:30 p.m. Room 1315

SPECIAL SEMINAR

Dr. Adam Abate
Harvard University
Dept. of Physics & Engineering



“Complex Systems with Emulsion Microfluidics”

Emulsions consist of drops surrounded by a carrier liquid. They are usually made in bulk by shaking or shearing two immiscible liquids, with surfactants present; however, this creates drops over a wide range of sizes, which are of limited usefulness. I have developed microfluidic methods to create emulsions consisting of drops of exactly one size. These drops are useful for creating micro-particles and micro-capsules, which can be used to encapsulate active materials, such as drugs, nutrients, and pesticides. The drops can also be used as tiny "test tubes" for chemical and biological reactions. This allows reactions to be performed at thousands per second, while using miniscule amounts of total reagent. I will describe how I am using this approach for directed evolution, genetic sequencing, and the study of microbial populations.