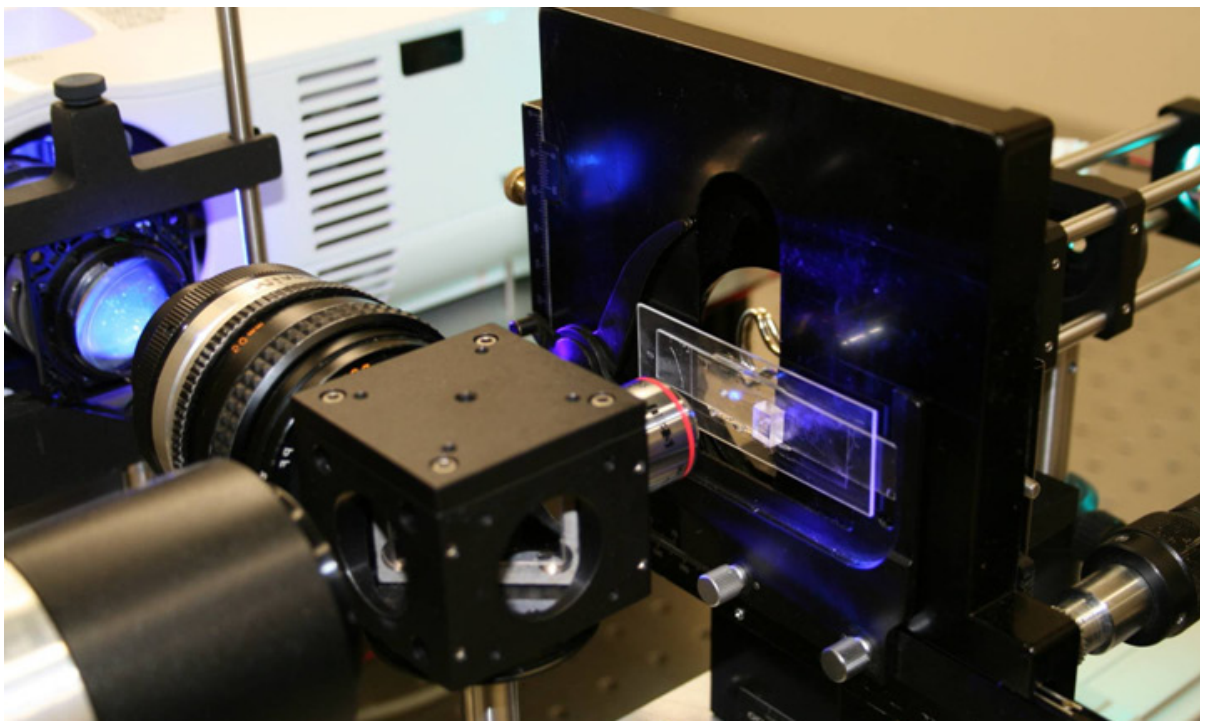
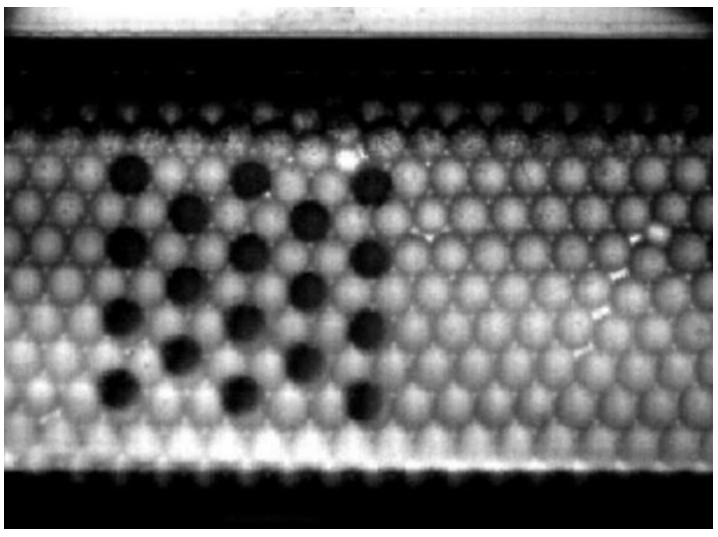
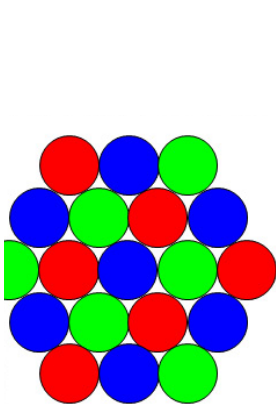
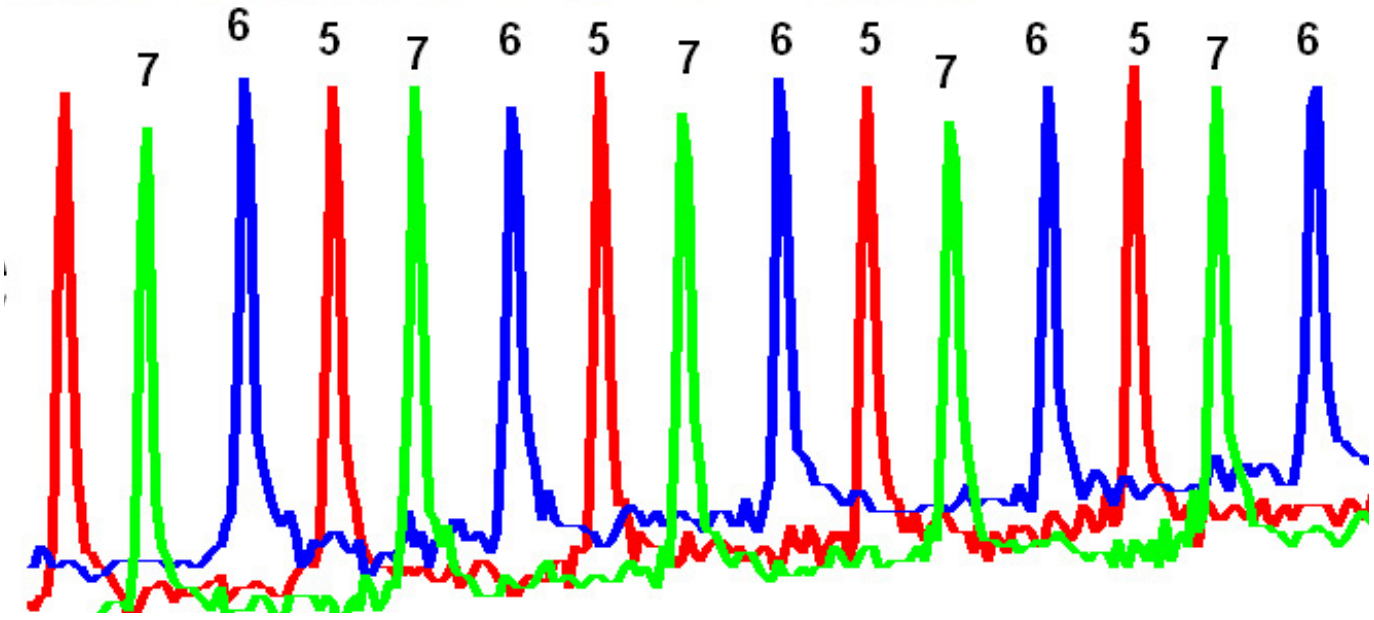
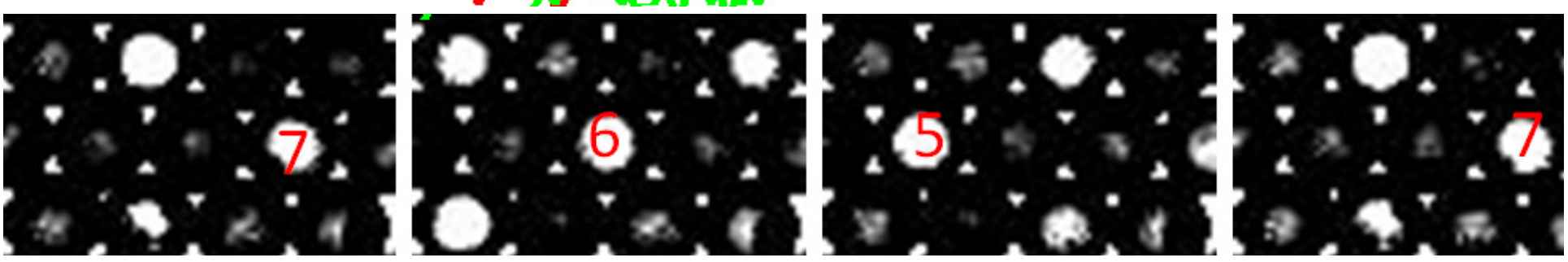
Boston University Physics Colloquium











Active Emulsions

Many phenomena of biological importance involve synchronization of oscillatory components. We explore here, in several geometries, the behavior of diffusively coupled, nanoliter volume, aqueous drops containing the reactants of the oscillatory Belousov-Zhabotinsky(BZ) reaction. A variety of synchronous regimes are found, including in- and anti-phase oscillations, stationary Turing patterns, and more complex combinations of stationary and oscillatory BZ-drops. A differential equation model based on a simplified description of the BZ chemistry and diffusion of messenger species reproduces a number of experimental results. Materials science applications and possibilities for a chemical computer are discussed.

Seth Fraden

Brandeis University

November 2, 2010 (Tuesday) at 3:30pm (Refreshments at 3:15pm)

SCI 107, Metcalf Science Center, Boston University

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Host: Rama Bansil