Seemingly mundane observations sometimes hide fascinating principles. I will start with a simple live demonstration of water droplets with food coloring dispensed on a clean glass slide. Curiously, the droplets display organic behavior where it appears as if they can sense each other. The usual canonical 'Young's Law' dictates that liquids should completely spread on a high-energy surface. But our droplets do not seem to spread on these surfaces. I will demonstrate that these droplets are indeed stabilized by an evaporation induced surface tension gradient. These unusual droplets have remarkable properties - they do not pin to substrates, and they can sense and attract each other over large distances. After explaining some of the underlying principles behind this mechanism, I will end with demonstration of simple fluidic machines we built based on these principles. The phenomena we will discuss has uncanny resemblance to artificial chemotaxis. The experiments described can be easily replicated anywhere with very simple materials. In the same spirit, I will close the talk with several other powerful but simple scientific tools our lab is developing to share with people around the world enabling "frugal science."

Refreshments available at 4pm. Seminar begins at 4:15 pm.

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