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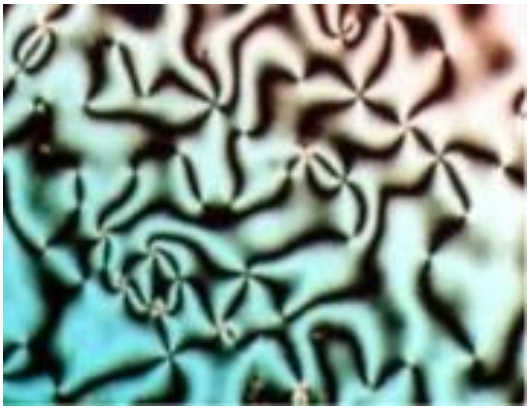

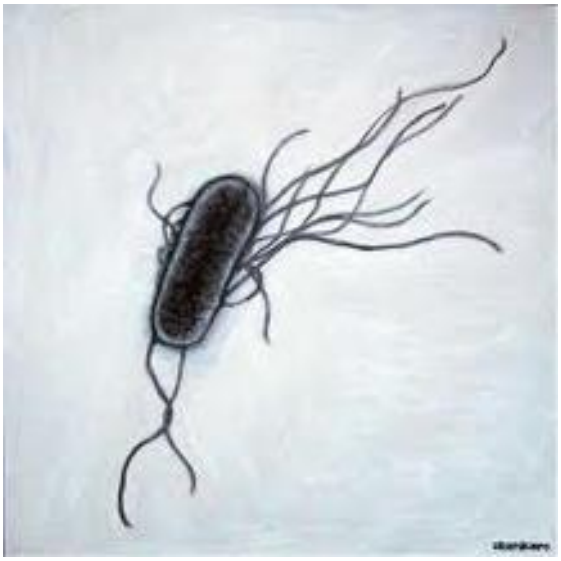

Dr. Art Evans
University of Wisconsin

Life and mad science at low Reynolds number: bacteria, liquid crystals and micro-machines far from equilibrium

Abstract

In 1977, E.M. Purcell published a paper entitled "Life at low Reynolds number", where he discussed the peculiarities associated with swimming in a microscopic environment. These difficulties arise due to the symmetries of fluid mechanics at scales much smaller and slower than we are generally accustomed to. In this talk I will explore the implications of hydrodynamics and statistical physics in the world of the very small, and show how the concept of symmetries arising from our study of equilibrium phase transitions can be applied to understand non-equilibrium systems like liquid crystals, swarms of bacteria, flocks of birds, and self-propelled micro-machines.

3:00-4:30 p.m., Friday, November 17th in McLane 162