MAR08-2008-020574

Abstract for an Invited Paper
for the MAR08 Meeting of
the American Physical Society

Sensing and Selection in Bacteria

EDO KUSSELL, Department of Biology, New York University

The ability to sense changes in the environment allows bacteria to respond by altering their phenotype, or behavior, to adapt to new conditions. Alternatively, bacteria have the ability to spontaneously change their phenotype, without sensing. Such behavior is known as stochastic switching. By simply observing dividing bacteria, is it possible to tell whether the cells are sensing their environment? This talk presents a theory that can decouple the action of sensing from the action of natural selection using single-cell observation of bacteria.