

Abstract Submitted  
for the MAR08 Meeting of  
The American Physical Society

**Flow-induced attraction of swimming microorganisms by surfaces** ERIC LAUGA, University of California, San Diego, ALLISON BERKE, MIT, LINDA TURNER, HOWARD BERG, Rowland Institute and Harvard University — In this talk, we present an experimental and theoretical investigation of the accumulation of swimming cells by nearby surfaces. First, we present results of an experiment aiming at measuring the distribution of smooth-swimming *E. coli* when moving in a density-matched fluid and between two glass plates; the distribution for the bacteria concentration is found to peak near the glass plates. We then present a physical model for the observed attraction, based on the hydrodynamics interactions between the swimming cells and the walls. We show that such interactions result in a reorientation of the cells in the direction parallel to the surfaces, and an attraction of these (parallel) cells by the nearest wall. Our results are exploited to obtain an estimate of the propulsive force of smooth-swimming *E. coli*.

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Date submitted: 27 Nov 2007

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