Abstract Submitted
for the DFD12 Meeting of
The American Physical Society

Brownian Swimming via Taylor Dispersion JOE GODDARD, ERIC LAUGA, University of California, San Diego — We show that the theory of generalized Taylor dispersion can be employed to analyze a model of a low-Re swimmer undergoing Brownian tumbling coupled with systematic translation along a preferred axis. The resulting formula for translational diffusivity confirms a previous analysis[1] based on Langevin dynamics. This present approach may provide a useful method for treating more complex stochastic swimmers.

[1]Lauga, E., PRL 106, 178101 (2011)

Joe Goddard
University of California, San Diego

Date submitted: 13 Aug 2012 Electronic form version 1.4