

# Stirring by microswimmers

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Because of their size bacteria and fabricated micro-swimmers swim at low Reynolds number, a regime where the effect of hydrodynamics can be counterintuitive. Moreover micro swimmers provide experimentally accessible examples of active systems that create their own energy and operate out of thermodynamic equilibrium.

The mechanisms by which bacteria interact with particles in their environment are relevant to their feeding strategies and may contribute to oceanic mixing. We discuss how passive tracers are advected by swimmers, and hence estimate the diffusion constant of particles in a bacterial suspension.

We also examine encounters between a swimming bacterium and an inert spherical particle across a range of particle sizes, from tracers, through particles of intermediate size that are capable of deflecting the paths of the bacteria, to particles much larger than the swimmer that effectively behave as curved surfaces as a swimmer approaches.