## **Physics of Microbial Motility**



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## Influence of motility and hydrodynamics on phage-bacteria encounters

Bacteriophages - or "phages" for short - are viruses that can infect and kill bacteria. They are small particles that rely on thermal diffusion to find target cells, but are also advected in the flow-field generated by motile bacteria. We use coupled lattice-Boltzmann and coarse-grained molecular dynamics simulations to investigate the encounter between phages and bacteria. We find that while motility increases the encounter rate, the effect is much smaller than what would be predicted if hydrodynamic interactions were neglected. This has important implications for our understanding of the evolutionary cost that bacteria have to pay for their motility.

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