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Fluid dynamics and noise in bacterial scattering JORN DUNKEL, KNUT DRESCHER, University of Cambridge, LUIS CISNEROS, University of Arizona, SUJOY GANGULY, RAYMOND GOLDSTEIN, University of Cambridge — Bacterial communication through chemical and physical channels is permanently challenged by internal and external noise. While the role of stochastic fluctuations in quorum sensing has been widely studied both theoretically and experimentally, our understanding of hydrodynamic interactions between bacteria is limited by the absence of empirical data. Here, we report the first direct measurement of the fluid flow generated by an individual bacterium far away from and near to a wall. The experiments show that the micro-hydrodynamics of *E. coli* are considerably different from that of more complex eucaryotes as, for example, *Chlamydomonas* algae. We discuss the implications of our results for bacterial cell-cell and cell-wall interactions.

Raymond Goldstein
University of Cambridge

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