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Dynamics of the Chemotactic Boycott Effect LUIS CISNEROS, CHRIS DOMBROWSKI, JOHN KESSLER, RAYMOND GOLDSTEIN, University of Arizona, CHARLES WOLGEMUTH, University of Connecticut Health Center, IDAN TUVAL, UIB, Palma de Mallorca, Spain — Aerobic bacteria often live in thin fluid layers on irregular surfaces, near solid-air-water contact lines where the interplay between fluid interface geometry, nutrient transport, and chemotaxis is central to the micro-ecology. To elucidate these processes, we use the simplified geometry of a sessile drop and provide direct experimental evidence for the "chemotactic Boycott effect" in suspensions of *B. subtilis*: upward oxygentaxis toward the drop surface leads to accumulation of cells in a thin layer, which flows down to the contact line and produces there a persistent vortex which traps cells near the meniscus. These phenomena are explained quantitatively with a mathematical model consisting of coupled oxygen diffusion and consumption, chemotaxis, and viscous fluid dynamics; they are shown to be associated with a singularity in the chemotactic dynamics at the contact line.

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