

Abstract Submitted
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Bacterial fluid flows in thin spherical shells JEREMY YODH, Harvard University, SHREYAS GOKHALE, Massachusetts Institute of Technology, AMIT NAGARKAR, L MAHADEVAN, Harvard University — A dense suspension of motile bacteria confined to a plane can exhibit turbulent-like flow structures due to broken detailed balance at the bacterium scale. While bacterial turbulence has been experimentally studied in the plane, relatively little work has addressed how swarming couples to more complex sample geometries. To explore this question, we confine dense suspensions of fluorescent *E. coli* within the spherical shell of an oil-bacteria-oil double emulsion, and we then image resultant bacterial fluid flows using confocal microscopy. By varying the radius of the double emulsion, we can explore how motile bacterial turbulence couples to curvature. Preliminary results suggest that the bacterial turbulence organizes into fluctuating azimuthal flows, but more work is needed for corroboration of these results. This work is underway and will be reported.

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