

Abstract Submitted  
for the DFD16 Meeting of  
The American Physical Society

**Dynamics of water uptake in spreading bacterial colonies** C. NADIR KAPLAN, L. MAHADEVAN, Harvard University — Bacteria can colonize a moist, nutrient-rich surface by secreting osmolytes to recruit water from the underlying substrate. We consider the outermost region of an expanding *Escherichia coli* biofilm, where the rim width is set by the cell growth rate and the colony expansion speed. Based on the hypothesis that sliding due to the mechanical contact between cells governs their speed, we model the interplay between the flow of cells and the water uptake via osmolyte production. This allows us to determine the front expansion speed and the non-uniform biofilm thickness, in agreement with experiments.

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Date submitted: 01 Aug 2016

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