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**Killing mediated spatial structure in *V. Cholerae* biofilms** DAVID YANNI, Georgia Inst of Tech — Most bacteria live in biofilms, which are implicated in $60-80\%$ of microbial infections in the body. The spatial structure of a biofilm confers advantages to its member-cells, such as antibiotic resistance, and is strongly affected by competition between strains and taxa. However, A complete picture of how competition affects the self-organized structure of these complex, far-from-equilibrium systems, is yet to emerge. To that end, we investigate phase separation dynamics driven by T6SS-facilitated bacterial warfare in a system composed of two strains of mutually antagonistic *V. cholerae*. T6SS is a contact mediated killing mechanism present in 25% of all gram negative bacteria, and has been shown by recent work to play a major role in the spatial assortment of biofilms. T6SS events induce lysis, causing variations in local mechanical pressure, and acting as thermalizing events. We study cells immobilized in biofilms at the air-solid interface, so our experimental system represents a different type active matter, wherein activity is due to cell death and reproduction, not mobility. Here, we show how that activity imposes a constraint of minimal curvature on strain-strain interfaces; an effective Laplace pressure is characterized which governs interfacial dynamics.

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