

Abstract Submitted  
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**Instabilities and waves in thin films of living fluids** SUMITHRA SANKARARAMAN, SRIRAM RAMASWAMY — We formulate the thin-film hydrodynamics of a suspension of polar self-driven particles and show that it is prone to several instabilities through the interplay of activity, polarity and the existence of a free surface. Our approach extends, to self-propelling systems, the work of Ben Amar and Cummings [Phys Fluids **13** (2001) 1160] on thin-film nematics. Based on our estimates the instabilities should be seen in bacterial suspensions and the lamellipodium, and are potentially relevant to the morphology of biofilms. We suggest several experimental tests of our theory.

Sumithra Sankararaman  
Centenary Post-doctoral fellow

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