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Microbial jets in metabolically driven flows SEVERINE ATIS, University of Chicago - James Frank Institute, VAMSI SPANDAN, MICHAEL P. BRENNER, Harvard University - School of Engineering and Applied Sciences, DAVID R. NELSON, Harvard University - Department of Physics — In liquid environments, interactions between microbial activity and hydrodynamic flows can lead to a large variety of behaviors. In this talk, I will show that when grown on a viscous liquid S. cerevisiae (baker's yeast) can behave like "active matter". The collective metabolism drives a fluid flow many times larger than the colony expansion speed, resulting in mechanical stresses and preferential growth which can generate a jetting phenomenon with yeast cells. I will present laboratory experiments, combined with numerical modeling, and discuss how microbial expansions on a liquid interface provide a versatile system to explore the interplay between hydrodynamics, growth and competition.

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