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Surface tension propulsion of fungal spores by use of micro-droplets XAVIER NOBLIN, Laboratoire de Physique de la Matiere Condensee, CNRS - Universite de Nice Sophia Antipolis, Nice, France, SYLVIA YANG, Department of Biology, University of Washington, Seattle, USA, JACQUES DUMAIS, Department of Organismic and Evolutionary Biology, Harvard University, Cambridge, USA — Most basidiomycete fungi (such as edible mushrooms) actively eject their spores. The process begins with the condensation of a water droplet at the base of the spore. The fusion of the droplet onto the spore creates a momentum that propels the spore forward. The use of surface tension for spore ejection offers a new paradigm to perform work at small length scales. However, this mechanism of force generation remains poorly understood. To elucidate how fungal spores make effective use of surface tension, we performed high-speed video imaging of spore ejection in *Auricularia auricula* and *Sporobolomyces* yeast, along with a detailed mechanical analysis of the spore ejection. We developed an explicit relation for the conversion of surface energy into kinetic energy during the coalescence process. The relation was validated with a simple artificial system.

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