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Splitting a Jet SRINIVAS PARUCHURI, Harvard University, DAVID BERDY, Rose-Hulman Institute of Technology, HENRY CHONG, DAVID WEITZ, MICHAEL BRENNER, Harvard University — Splitting a fluid jet using surface stresses is explored using thermal gradients and electrical stresses. Feasibility estimates are calculated for both methods and a splitting criteria for the minimum stress is developed. We explore the electrical case in greater detail. A one dimensional model is constructed and studied numerically. We show that splitting is set by a balance of in plane inertia and the applied shear stress. Using this balance an estimate for the time to splitting is calculated. Finally we discuss experimental attempts to observe jet splitting using electric fields.

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