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Laser-induced jet formation in liquid films FREDERIK BRASZ, CRAIG ARNOLD, Princeton University — The absorption of a focused laser pulse in a liquid film generates a cavitation bubble on which a narrow jet can form. This is the basis of laser-induced forward transfer (LIFT), a versatile printing technique that offers an alternative to inkjet printing. We study the influence of the fluid properties and laser pulse energy on jet formation using numerical simulations and time-resolved imaging. At low energies, surface tension causes the jet to retract without transferring a drop, and at high energies, the bubble breaks up into a splashing spray. We explore the parameter space of Weber number, Ohnesorge number, and ratio of film thickness to maximum bubble radius, revealing regions where uniform drops are transferred.

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