Abstract Submitted
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Initial transients and normal-mode analysis of capillary jets[1] F. JAVIER GARCÍA[2], EHD and Cohesive Granular Media Group, Fac. de Física, Universidad de Sevilla, Avda. Reina Mercedes s/n, 41012-Sevilla, Spain, HELIODORO GONZÁLEZ[3], EHD and Cohesive Granular Media Group, Fac. de Física, Universidad de Sevilla, Avda. Reina Mercedes s/n, 41012-Sevilla, Spain — In many numerical and experimental works on the evolution of axisymmetric capillary jets, it is evident the existence of an initial transient with non-exponential growth of the initially induced perturbation, previous to the classical exponential-growth phase. Contrary to previously thought, it is proven here that a careful normal-mode analysis accounts for those transients for any possible initial conditions. We deduce simple formulae for the transient duration, useful for measuring the growth rate of perturbations accurately. Analytic predictions are contrasted against previous computations of the initial-value problem, experiments and our own numerical simulations with a one-dimensional model.

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