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Electrospinning of a viscous-capillary jet within dielectric liquid bath GUILLAUME RIBOUX, Sevilla University — An experimentally characterization of the whipping motion of an electrified micro-jet of glycerine immersed within a liquid bath is carried out. In particular, the determination of the evolution of the frequency, the wavelength and the amplitude of the whipping oscillations as a function of the dimensionless parameters: the capillary number, the electrical Bond number and a residence to electrical relaxation time ratio. The presence of whipping requires threshold values of the three parameters to be reached. The electrified cone radius strongly depend on the capillary and electrical Bond numbers. The whipping behaviour, which depends on the capillary number but only weakly on the electrical Bond number, presents three different regimes: periodic, quasi-periodic or chaotic. Results showed that the wavelength and the frequency of the jet whipping depend strongly of the electrical Bond number. The phase velocity of the whipping jet is constant and proportional to the visco-capillary velocity. The detected whipping envelope showed self-similar behavior after appropriate normalization and evolved downstream as a 3/2 power law of the normalized distance.

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