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Whipping of electrified jets

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Whipping is a non-axisymmetric instability characteristic of electrified jets. It is exploited in electrospinning to reduce the average diameter of the fibers that result in this process. In air, it usually manifests in a chaotic fashion and thus, its structure and properties have been hard to quantify experimentally. We show that by applying electric fields to coflowing liquids, we can generate steady-state whipping structures. This allows for a detailed characterization of this non-axisymmetric instability. In addition, we will also discuss other emission regimes not typically seen in electrospray.