

Abstract Submitted
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Stretched Inertial Jets ELISABETH GHABACHE, ARNAUD ANTKOWIAK, THOMAS SEON, Institut Jean Le Rond d'Alembert, UPMC & CNRS, Paris, EMMANUEL VILLERMAUX, IRPHE, Aix Marseille Université — Liquid jets often arise as short-lived bursting liquid flows. Cavitation or impact-driven jets, bursting champagne bubbles, shaped-charge jets, ballistospores or drop-on-demand inkjet printing are a few examples where liquid jets are suddenly released. The trademark of all these discharge jets is the property of being stretched, due to the quenching injection. The present theoretical and experimental investigation, the structure of the jet flow field will be unraveled experimentally for a few emblematic occurrences of discharge jets. Though the injection markedly depends on each flow configuration, the jet velocity field will be shown to be systematically and rapidly attracted to the universal stretching flow z/t . The emergence of this inertial attractor actually only relies on simple kinematic ingredients, and as such is fairly generic. The universality of the jet velocity structure will be discussed.

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