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Node dynamics and cusps size distribution at the border of liquid sheets EMMANUEL VILLERMAUX, CHRISTOPHE ALMARCHA, Aix Marseille Université, CNRS, Centrale Marseille, IRPHE UMR 7342, 13384 Marseille, France — We study the intrinsic dynamics of cusps, or indentations, moving along a liquid sheet border, an characterize their ensemble statistics. Gordillo and collaborators (*J. Fluid Mech.,* **754** (2014)) have shown that the symmetrical stationary cusp is the only structure accommodating for both mass and momentum conservation at a steadily receding liquid sheet rim. Cusps are also known to typically move along a sheet border, to present an asymmetry, and to be distributed in size around a mean. We show here why an heterogeneous assembly of cusps travelling along the sheet rim occurs spontaneously, why big and small cusps coexist at the same time and, more precisely, we establish the specific link between the microscopic dynamics directing their motion, and the ensemble averaged distribution of their sizes.

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