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The Saturn-rings instability: streaming from the equator of a drop in a uniform electric field[1] PETIA VLAHOVSKA, Northwestern University, QUENTIN BROSSEAU, NYU, Courant Institute — Drops in electric fields or flow can develop pointy ends emitting thin threads (tip-streaming). The instability results from destabilization of the interface near a stagnation point of a convergent flow. I will present experimental realization of a streaming due to stagnation line instability. A drop placed in a uniform electric field flattens and develops a sharp edge around the equator, which is the stagnation line of the electrohydrodynamic flow. The flow draws from the rim a thin sheet which destabilizes and sheds fluid threads encircling the drop. Subsequently the fluid rings breakup, due to capillary instability, into droplets. The rim streaming creates visually striking Saturn-rings around the equator of a drop.

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