Nonlinear Instability of an Electrohydrodynamic Planar Jet

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The nonlinear breakup of a fluid jet forming a plane sheet stressed at the surface by an electric field is studied. A third-order theory using the method of strained coordinates is applied to study the capillary instability of the jet. The time of breakup of the jet is obtained numerically.

Key words: Electrohydrodynamic Planar Jet; Method of Strained Coordinates; Capillary Instability.