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**Convective and Absolute Instability of Two Miscible Fluids Core-Annular Flow** MARGUERITE D'OLCE, FAST UPMC Paris6, JEROME MARTIN, FAST CNRS, NICOLE RAKOTOMALALA, FAST UPMC Paris6, LAURENT TALON, FAST CNRS, DOMINIQUE SALIN, FAST UPMC Paris6 — To address the issue of the convective or absolute nature of the instability of core annular flows in a pipe, we report on experiments with two miscible fluids of equal density but different viscosities. The fluids were injected co-currently and concentrically into a cylindrical pipe. The resulting base state is an axisymmetric parallel flow. For a given viscosity ratio, the two experimental control parameters are the total flow rate of the two fluids which monitors the Reynolds number  $Re$  whereas the ratio of the two fluid flow rates leads to the relative radius of the core fluid  $R_I$ , under condition of parallel flow. In the space of these two parameters, we characterize experimentally the convective or absolute nature of the instability and delineate the transition between absolute and convective instability. These results are compared linear stability analysis of the problem and numerical simulations.

Dominique Salin  
UPMC Paris6

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