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Absolute Instability of Miscible Coreannular Flow BALAKRISHNAN SELVAM, UCSB, LAURENT TALON, Universites P. et M. Curie, ECKART MEIBURG, UCSB — In this study, we perform a spatial stability analysis of variable viscosity, miscible coreannular flows. Although it is well known that this configuration can be unstable, recent experiments have shown that instability appears at a fixed location in the laboratory frame of reference. This behavior suggests that the system might have the behavior of absolute instability, exhibiting intrinsic characteristics. In order to validate this hypothesis, we perform a local spatial stability analysis of the flow. We investigate the influence of different parameters, namely the core radius, the viscosity contrast, the Reynolds and Peclet numbers, and the interface thickness. In accordance with the experiments, the results show that this system does exhibit the characteristics of absolute instability for some range of core radius and Reynolds number.

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