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Stability of an iodate arsenous-acid reaction front in the presence of Poiseuille flow ROBERT S. SPANGLER, BOYD F. EDWARDS, West Virginia University Department of Physics — An iodate arsenous acid reaction front propagating against gravity provides an excellent context in which to examine stability. The system tends to be unstable since the heavier fluid component is above the lighter. A front profile whose propagation speed is slowed by curvature tends to stabilize the front. The Navier-Stokes equations predict a parabolic (Poiseuille) velocity profile for a fluid moving between to no-slip boundaries. We extend the existing theory that describes the iodate arsenous acid reaction front to include this Poiseuille flow.

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