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Autocatalytic Reaction Fronts in Confined Flows IBRAHIN BOU MALHAM, FAST CNRS, NOLWENN JARRIGE, FAST UPMC Paris6, JEROME MARTIN, FAST CNRS, NICOLE RAKOTOMALALA, FAST UPMC Paris6, LAU-RENT TALON, FAST CNRS, DOMINIQUE SALIN, FAST UPMC Paris6 — An autocatalytic reaction front between two reacting species is able to propagate as a solitary wave, that is at a constant velocity and with a stationary concentration profile, resulting from a balance between molecular diffusion and chemical reaction. We analyze both experimentally and with lattice BGK simulations the effect of hydrodynamic flows on the propagation and on the shape of the fronts in the Iodate-Arsenous Acid autocatalytic reaction. We address the issue of the flow induced by the buoyancy difference between reactants and products in micro-sized Hele-Shaw cells and in packed beads porous media.

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