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Front tracking velocimetry for chemical reaction fronts in a flow THOMAS NEVINS, DOUGLAS KELLEY, Univ of Rochester — Chemical or biological quantities that react create fronts which separate reacted from unreacted regions. These fronts have non-trivial dynamics, especially when advected by fluid flows. To understand the motion of fronts, we have created a tracking method which measures reaction front speed at many points in space and time. We use a simultaneous measurement of reaction and flow which allows us to separate dynamics due to advection, and those due to reaction. In the case of sharp fronts, we will demonstrate front tracking in simulation results, as well as tracking in experiments using the Belousov-Zhabotinsky reaction. We will present the measurements, examine their statistics, and discuss future studies in fundamental properties of reactive mixing that are enabled by this tool.

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