

Portfolio Paper

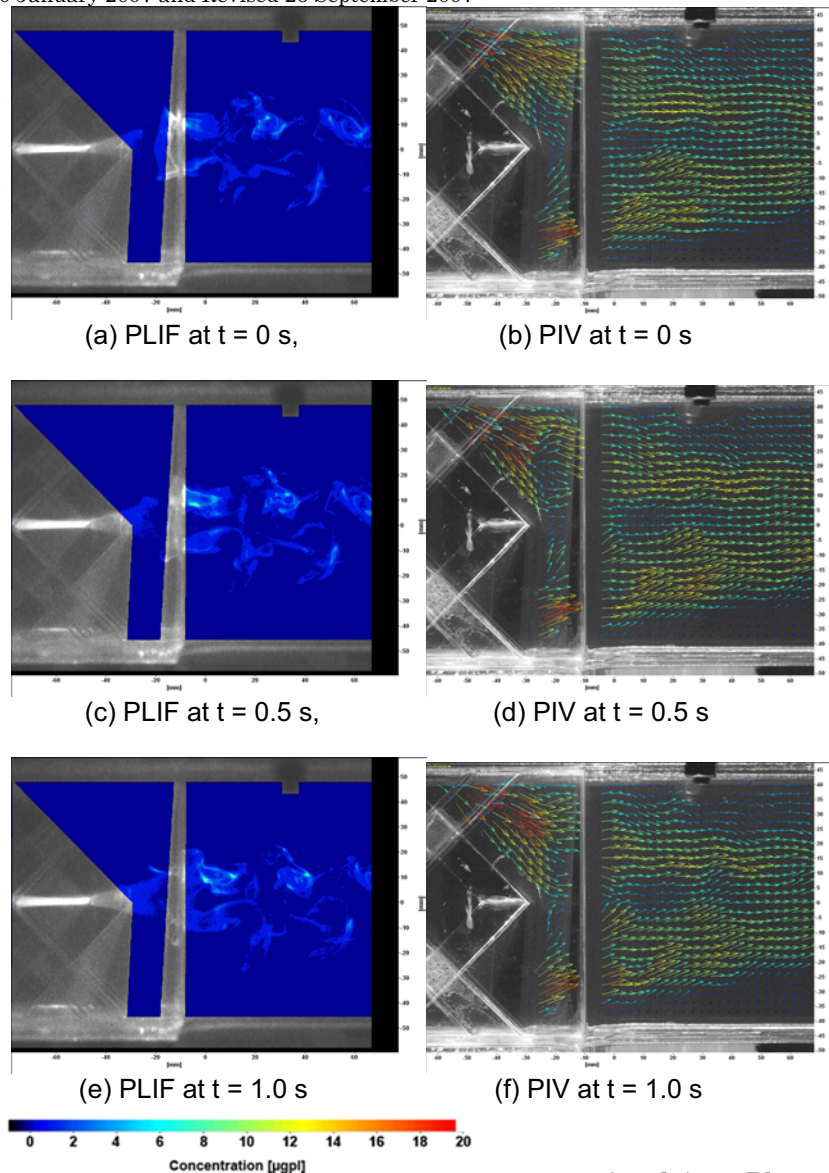
Fluid Dynamics and Mixing Behavior of a SMX-Type Static Mixer

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These images correspond to simultaneous measurements involving Planar Laser-induced Fluorescence (PLIF, left) and Particle Image Velocimetry (PIV, right) for the examination of mixing processes in a static mixer at $Re = 562$. For PLIF, Rhodamine 6G is injected on the centerline in front of the mixer. The PLIF images have been acquired using an intensified CCD camera during the first of two PIV laser pulses (NdYAG, 532 nm, 80 mJ per pulse), while the CCD camera used for PIV takes double images, used to calculate the two-dimensional velocity fields. Thanks to these measurements it becomes possible to characterize quantitatively the flow behind the static mixer, in particular to determine characteristic flow frequencies as well as correlations between velocity and concentrations.