Abstract Submitted
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Droplets and stratifications in square microchannels[1] THOMAS CUBAUD, RUOPENG SUN, Stony Brook University — We experimentally investigate the interactions between a microfluidic train of droplets and stratifications formed by side-flow injections into a square microchannel. A system composed of a two-step hydrodynamic focusing junction is used to produce droplets upstream and to introduce a third liquid downstream. The additional liquid is selected to form miscible stratifications with the continuous phase. Using different liquids, we focus on the effect of viscosity stratifications and interfacial tension stratifications on droplet dynamics, including deformation, relaxation, and breakup.

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