Stretching and colliding surfactant-coated drops
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Equilibrium and kinetic properties of interfacial tension govern the structure, dynamics, stability and performance of immiscible fluids, such as polymer blends, detergents and reaction and separation media. These properties also play a substantial role in microcapillary devices. Using extension flow to stretch drops, we develop a microfluidic approach to probe equilibrium and kinetic surfactant adsorption. We also monitor drop population dynamics in simple shear (over a wide range of capillary number) and identify surfactant properties and mechanisms that regulate the coalescence of drops in emulsions.