171h Microfluidic Interfacial Tensiometry

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A microfluidic approach to rapidly measure interfacial tension of immiscible fluids is reported. This method rests upon quantitative real-time analysis of two-phase flow and drop-shape dynamics. Drops of prescribed dimension and spacing are produced, accelerated and deformed under extensional flow. These measurements, and comparison to previously reported standard measurements, demonstrate our ability to rapidly measure a wide range of interfacial tension (e.g., from 2.5 to 60 mN/m).