

Abstract Submitted
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Stretching surfactant- or protein-coated droplets in a high frequency electric field¹ GREG RANDALL, General Atomics — Surfactant-stabilized and protein-coated droplets are stretched in a high-frequency AC electric field. This is the first work to study aqueous droplets stretching at a frequency (20 MHz) high enough that water behaves as a pure dielectric. Consequently, the water/oil system is free of steady electrohydrodynamic flow. The absence of a steady flow provides a potential way to measure interfacial rheological properties of water soluble additives with droplet stretching models. Results are presented for both the wide gap and thin gap geometries. Adding dilute protein additives (e.g. bovine serum albumin, switchable peptides, hydrophobins) to form interfacial elastic layers inhibits stretching, which is an important milestone in our efforts to engineer a continuous, uniform wall thickness shell production process.

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