

Abstract Submitted
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Interfacial Microrheology with a Magnetic Needle Viscometer and Two-Particle Correlated Motion JAMES SEBEL, KENNETH W. DESMOND, ERIC R. WEEKS, Emory University — We measure the viscoelastic moduli of thin films using two different methods. First, we use a magnetic needle viscometer. Our apparatus employs Helmholtz coils to control the position and orientation of the needle in the film. By driving the needle we can produce a response in the film which allows us to probe the bulk viscoelastic properties of the film. Second, we use two particle microrheology to probe the local properties of the film. Tracking the correlated motion between two particles as they undergo Brownian motion probes the local viscoelastic properties of any heterogeneous domains. Examining the correlations between pairs of particles with large separations helps us infer information about the bulk properties. Coupling this technique with the magnetic needle viscometer provides information on the effect local viscoelastic properties have on the bulk properties.

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