



FRONTIERS IN MICRORHEOLOGY



Application of Magnetic Nanowires to Interfacial Microrheology

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Abstract: The rheological properties of polymeric or amphiphilic interfacial layers are of considerable importance in a wide range of fields including biology and food science. The goal of our research is to develop an experimental approach to measure the shear rheology of very thin layers at an air-water interface using an active microrheology technique. We employ ferromagnetic nanowires as microrheological probes, and subject the wires to precise torques from externally applied magnetic fields. We monitor and quantify the response of the nanowires to magnetic fields via video microscopy and particle tracking. Because of their high-aspect ratio, these wires are ideally suited for interfacial rheology and potentially more sensitive than macroscopic probes. This poster will present details regarding the experimental approach and will describe potential areas of application.



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