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Non-equilibrium dynamics in particle-interface systems ANNA WANG, School of Engineering and Applied Sciences, Harvard University, RYAN MCGORTY[1], University of California, San Francisco, DAVID M. KAZ[2], University of California, Berkeley, VINOTHAN N. MANOHARAN[3], School of Engineering and Applied Sciences, Harvard University — When a particle is at equilibrium at a fluid-fluid interface, its position can be calculated with Young's law (which has been used since 1805). The non-equilibrium behavior of particles at fluid-fluid interfaces, however, is only just beginning to be studied. In this talk, we will discuss the behavior of colloidal particles as they approach and meet an oil-water interface. A variety of different systems, such as approach from both the aqueous and oil phases and using aqueous phases of various salt concentrations will be compared. The motion of the polymer microspheres is captured using digital holographic microscopy in real time. As the holograms are simply two-dimensional images, the frame rate is limited only by the CMOS sensor and frame rates of up to 2000fps are used in this study. We then analyze the high frame rate data to recover the three-dimensional trajectory and fluctuations of the particles.

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