

Abstract Submitted
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Local perturbation caused by a particle driven through a 2-D colloidal suspension CARA HAGEMAN, VIKRAM PRASAD, ERIC R. WEEKS, Emory University — When polystyrene colloids are placed at a decane-water interface they form different phases based on their area fraction. These phases are: liquid, liquid-hexatic, hexatic and crystalline. In particular, the hexatic-crystal transition is characterized by a change in the functional form of the correlation functions and the density of defects. We study this system for area fractions near the hexatic-crystal transition. Using a laser tweezer we trap and drag a particle along the interface and observe its effect on the surrounding colloids. We observe a change in the local density of defects and a decay in the perturbed motion of colloids away from the trapped particle, revealing a length scale. We measure this length scale as a function of area fraction of the colloids and the applied velocity of the trapped particle.

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