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**Non-affine bubble motion in a two-dimensional, linearly sheared foam** MATTHIAS MOBIUS, GIJS KATGERT, MARTIN VAN HECKE, Leiden University — Two-dimensional foams are an excellent model system to study the non-affine deformations of a disordered, jammed medium under shear. In our experiment we apply linear shear to a monolayer of bubbles that is confined between a soap solution and a glass plate. Through video imaging we track the motion of individual bubbles. We characterize the non-affine motion by looking at the distribution of relative displacement angles, $\alpha$, of neighboring bubbles [1]. A peak at 90 degrees emerges, which corresponds to bubbles sliding past each other. We investigate the change of the probability distribution of this angle, $P(\alpha)$, as a function of liquid fraction and shear rate. We discuss $P(\alpha)$ in the context of the jamming transition and show that near the transition the bubble motion is dominated by sliding. Moreover, we look at the relationship between the local velocity fluctuations and the shear rate. [1] W. Ellenbroek et al. , accepted for Phys.Rev.Lett.

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