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Reversible plasticity near Jamming in foams GIJS KATGERT, WILSON C.K. POON, University of Edinburgh — We study the response of a disordered foam monolayer, confined between a soapy solution and a glass plate to an oscillatory compressive strain brought about by inflating a central bubble. We show that, when driven quasistatically slowly, the foam as a whole can exhibit kinematically reversible plasticity or *anelasticity*: the bubble packing alternates between two reproducible configurations, which are separated by multiple plastic events and global displacements. After establishing that the timescale beyond which the foam behaves quasistatically is set by the scaling of the foam compressive modulus with packing fraction ϕ, we map out the boundary between reversible and irreversible plasticity in the space spanned by ϕ and the compressive strain ε and tentatively find the strain to scale as $\varepsilon \sim (\phi - \phi_c)^{1/4}$, with ϕ_c the jamming point. We finally extract a plasticity lengthscale from our experiment and show it to grow on approach to ϕ_c.

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