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Glassy Dynamics of Charge Density Waves in Chromium[1] HYEKYUNG KIM, JONATHAN LOGAN, University of Chicago, OLEG SHPYRKO, University of California San Diego, ERIC ISAACS, Argonne National Laboratory; University of Chicago — Charge-density waves provide theoretically tractable systems for exploring longstanding questions posed by the physics of elastic media in the presence of quenched disorder. Interaction of quenched pinning fields and phase elasticity of CDWs results in a complex energetic landscape of metastable states, which in turn gives rise to "glassy" phenomena such as aging and hysteresis. Using synchrotron x-rays we have observed aging of CDW order parameter Q in bulk chromium following thermal quench to out-of-equilibrium configuration. Although temperature stabilization occurs in under two minutes, Q relaxes exponentially over the course of hours toward metastable configurations that depend on sample history.

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