

Abstract Submitted
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Dipolar gas dynamics in periodically modulated traps¹ REUBEN WANG, ANDREW SYKES, JOHN BOHN, JILA — We study the nonequilibrium dynamics of an ultracold dipolar gas in a cylindrically symmetric harmonic trap, subject to periodic axial-frequency modulations. These dipolar atoms have a differential scattering cross-section that is highly anisotropic, leading to interesting dynamics absent in similar systems of ordinary hard spheres. The gas is dilute and in a temperature regime above quantum degeneracy, allowing its dynamics to be well modeled by the Boltzmann equation. We thus interpret the normal modes of this gas through analytic means via the Chapman-Enskog procedure as well as numerical Monte Carlo methods.

¹NSF

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