Abstract Submitted
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Accurate Determination of the Dynamical Polarizability of Dysprosium .[1] EMIL KIRILOV, CORNELIS RAVENSBERGEN, VINCENT CORRE, ELISA SOAVE, MARIAN KREYER, SLAVA TZANOVA, RUDOLF GRIMM, Univ of Innsbruck — We report a measurement of the dynamical polarizability of dysprosium atoms in their electronic ground state at the optical wavelength of 1064 nm, which is of particular interest for laser trapping experiments. Our method is based on collective oscillations in an optical dipole trap, and reaches unprecedented accuracy and precision by comparison with an alkali atom (potassium) as a reference species. Our experiments have reached a level that permits meaningful tests of current theoretical descriptions and provides valuable information for future experiments utilizing the intriguing properties of heavy lanthanide atoms. In our future experiments, we are particularly interested in mass-imbalanced Fermi-Fermi mixtures and possible new superfluid pairing regimes.

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