

Measuring the dipolar interaction shift of the BEC critical temperature

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The effect of dipolar interactions on harmonically trapped BECs has been the subject of intense and fruitful research over recent years, but despite being theoretically calculated over 15 years ago [1] the modification of the BEC transition temperature due to dipole-dipole interactions has, up to now, not been experimentally observed. We will present our experimental findings on this topic; using an ultracold erbium gas confined in a highly prolate trap we directly observe the dependence of the critical temperature on the orientation of the dipoles relative to the trap.

[1] Phys. Rev. Lett. 98, 080407 (2007)

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