

Abstract Submitted  
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**Observation of dipolar collisions in a near quantum-degenerate gas of polar molecules** DAJUN WANG, K.-K. NI, S. OSPELKAUS, G. QUÈMÈNER, B. NEYENHUIS, M.H.G. DE MIRANDA, J.L. BOHN, J. YE, D.S. JIN, JILA, NIST and University of Colorado — We have studied dipolar collisions in an ultracold molecular gas prepared close to quantum degeneracy [1]. By applying a modest external electric field to fermionic KRb molecules produced in a single quantum state, we tune the dipolar interaction strength in the molecular gas. We observe a steep power law dependence of the chemical reaction rate on the induced dipole moment. In addition, we directly observe the spatial anisotropy of the dipolar interactions manifested in measurements of the thermodynamics of the dipolar gas.

[1] K-K. Ni et al., arXiv:1001.2809 (2010)

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