

MAR14-2013-001746

Abstract for an Invited Paper  
for the MAR14 Meeting of  
the American Physical Society

**Dipolar interactions of lattice-confined polar molecules**

DEBORAH JIN, NIST and Univ of Colorado, Boulder

Long-range dipolar interactions can be used to realize lattice spin models for exploring quantum magnetism. I will discuss experiments where we observe dipolar spin-exchange interactions for ultracold KRb molecules confined in a deep three-dimensional optical lattice. The long-range dipolar interactions exist even in the absence of tunneling and extend beyond nearest neighbors. This enables coherent spin dynamics even for gases with relatively low lattice filling.