

Abstract Submitted  
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**Heteronuclear coherent spinor dynamics in an ultracold spin-1 mixture** XIAOKE LI, BING ZHU, XIAODONG HE, FUDONG WANG, JUN CHEN, MINGYANG GUO, DAJUN WANG, Department of Physics, The Chinese University of Hong Kong — Coherent spin mixing dynamics in ultracold spinor gases is a signature of macroscopic quantum coherence. It has been studied intensively in both thermal and degenerate single species atomic gases. In this talk, we present the first observation of such dynamics in a heteronuclear spinor system. Our experiment is carried out with an ultracold spinor mixture of  $^{87}\text{Rb}$  and  $^{23}\text{Na}$  atoms in their  $F = 1$  hyperfine states. Heteronuclear spinor dynamics induced by interspecies spin-spin interactions manifests as coherent oscillations in both the spin state populations and magnetization of each species with the system's total magnetization conserved. We have also observed clear dependence of these dynamics on external magnetic fields and atomic sample parameters. Theoretical modeling of our observations is underway.

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