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Coherent heteronuclear spin dynamics in an ultracold spin-1 mixture[1] BING ZHU, XIAOKE LI, XIAODONG HE, FUDONG WANG, MINGYANG GUO, Department of Physics, the Chinese University of Hong Kong, ZHIFANG XU, Department of Physics and Astronomy, University of Pittsburgh, PA, USA, SHIZHONG ZHANG, Department of Physics, the University of Hong Kong, Hong Kong, China, DAJUN WANG, Department of Physics, the Chinese University of Hong Kong — We report the observation of interspecies spin-spin interaction driven coherent heteronuclear spin dynamics in an ultracold spinor mixture, which manifests itself as periodical and well correlated magnetization transfer between two atomic species. In particular, we investigate the magnetic field dependence and control of the spin dynamics, and find excellent agreement with a many-body theoretical model. Furthermore, we present a unique knob for fine control of spinor mixtures with species dependent vector light shift.

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