Abstract Submitted
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Atom-Molecule Coherence in a Bose-Fermi Mixture J.D. PERREAULT, T.D. CUMBY, M.L. OLSEN, D.S. JIN, JILA, National Institute of Standards and Technology, and Department of Physics University of Colorado - Boulder — Feshbach resonances have become a powerful tool for controlling the interaction between atoms in an ultracold gas. Experiments have shown that it is possible to create a coherent superposition of atoms and molecules when starting from a BEC. This presentation will show evidence indicating that it is also possible to create an atom-molecule superposition from a thermal Bose-Fermi mixture of Rb-87 and K-40 atoms. In particular, preliminary investigations into which experimental parameters influence the contrast and coherence time of the atom-molecule oscillations will be discussed. This could provide new insight into what the leading decoherence or dephasing mechanisms are for this novel quantum superposition state.

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