

Abstract Submitted
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Probing many-body physics with a resonantly interacting Bose gas¹ CATHERINE KLAUSS, XIN XIE, CARLOS LOPEZ-ABADIA, JOSE D'INCAO, ERIC CORNELL, University of Colorado, Boulder and JILA — By sweeping a resonantly interacting Bose-Einstein Condensate (BEC) onto weak interactions, we are able to create a mixture of atoms and molecules. We realize a mixture of free atoms, Feshbach molecules and Efimov molecules, using loss rate measurements to distinguish these components. In particular, the creation of Efimov molecules suggests the presence of three-body correlations in the resonantly interacting BEC, revealing opportunities to study few- and many-body phenomena in a controlled system. We present further investigation into this possibility by studying the overall loss of the resonantly interacting BEC over two orders of magnitude in density.

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