

Abstract Submitted  
for the DAMOP07 Meeting of  
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**Bragg spectroscopy of a strongly interacting BEC**<sup>1</sup> S.B. PAPP, J.M. PINO II, R.J. WILD, D.S. JIN, C.E. WIEMAN, E.A. CORNELL, JILA: NIST and the University of Colorado — The ability to tune the scattering length in ultracold atomic gases has enabled access to strongly interacting Bose-Einstein condensates (BECs). Particularly intriguing physics is expected to occur when the scattering length is increased to on order of the interatomic spacing; in this case many-body interactions are important. The capability to probe the excitation spectrum of the BEC will be important in understanding this experimental regime. We will report initial Bragg spectra of a strongly interacting BEC. Using a Feshbach resonance, we vary the scattering length in a <sup>85</sup>Rb BEC to study the Bragg spectra over a wide range of interaction strength.

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