

Abstract Submitted  
for the DAMOP13 Meeting of  
The American Physical Society

**Coherent Photoassociation of an  $^{88}\text{Sr}$  BEC** B.J. DESALVO, M. YAN, Y. HUANG, T.C. KILLIAN, Rice University — We present a study of the coherent regime of one-photon photoassociation of a Bose-Einstein condensate using a photoassociative transition to a state on the  $^1S_0 + ^3P_1$  molecular potential in  $^{88}\text{Sr}$ . The high density of the initial  $^{88}\text{Sr}$  atomic condensates ( $10^{15}/\text{cm}^3$ ) and the long lifetime of the metastable  $^1S_0 + ^3P_1$  molecular state allows us to observe Rabi oscillations of population between atomic and molecular condensates. We also observe large asymmetries and shifts of the excitation spectrum with time. Simulations suggest we are creating condensates in an excited molecular state with approximately 500 molecules.

Brian DeSalvo  
Rice University

Date submitted: 25 Jan 2013

Electronic form version 1.4