

Abstract Submitted  
for the DAMOP16 Meeting of  
The American Physical Society

**Characterizing the nature of superfluid to Mott-insulator transitions via microwave spectroscopy** LICHAO ZHAO, ZIHE CHEN, TAO TANG, YINGMEI LIU, Oklahoma State University — Superfluid to Mott-insulator quantum phase transitions can be first order or second order in a spin-1 sodium spinor Bose-Einstein condensate confined by a three-dimensional optical lattice. This is mainly due to the antiferromagnetic nature of spin-dependent interactions in the sodium system. We experimentally demonstrate that the nature of the phase transitions in spinor condensates can be characterized via microwave spectroscopy in a quantum quench scenario. A comparison between our observations and the mean-field theory is also discussed.

Lichao Zhao  
Oklahoma State Univ

Date submitted: 29 Jan 2016

Electronic form version 1.4