

Abstract Submitted  
for the MAR16 Meeting of  
The American Physical Society

**Magnetic and Magnetoelastic Excitations in the Multiferroic  
CuBr<sub>2</sub> determined by Raman, Infrared and Neutron Spectroscopy**

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tiferroicity was recently discovered in anhydrous copper (II) bromide CuBr<sub>2</sub> with a  
rather high transition temperature ( $T_N = 73.5$  K). By the combination of the Ra-  
man, Infrared (IR) and inelastic neutron scattering (INS) experiments, evidences for  
strong magneto-elastic coupling and magneto-elastic excitations are found in CuBr<sub>2</sub>.  
In the Raman spectra, a range of broad peaks were observed with the indications  
of magnetic and phonon origin at the same time. The inelastic neutron scattering  
experiment reveals that those nontrivial broad peaks originate from the sites of the  
phonons at incommensurate  $Q$  vectors that correspond to the spiral magnetic order.  
These results strongly suggest the existence of hybrid excitations that involve both  
the spin and lattice degrees of freedom, and render CuBr<sub>2</sub> a promising platform for  
studying dynamic magneto-elastic coupling.

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Date submitted: 30 Oct 2015

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