Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

The relative influence of many body and molecular motion effects for near-threshold N K x-ray emission spectra in ionic nitrogen insulating compounds T. JACH, J. VINSON, National Institute of Standards & Technology, Gaithersburg, MD, W.T. ELAM, Applied Physics Laboratory, University of Washington, Seattle, J. DENLINGER, Advanced Light Source, Lawrence Berkeley Laboratory — Our previous studies of the factors affecting the N K x-ray emission spectra of ammonium chloride and ammonium nitrate have revealed the importance of many body effects and molecular motion at an excitation energy well above the K edge. Quasiparticle lifetimes of the valence bands and zero point motion of the molecular groups have proven to be unusually significant. Large changes are observed experimentally in the x-ray emission spectra of these compounds as the excitation energy is progressively lowered towards threshold. We compare experimental results with initial calculations of the spectra including excitonic effects, self-energy contributions, and molecular motion.

Terrence Jach
National Institute of Standards & Technology,
Gaithersburg, MD

Date submitted: 15 Nov 2013 Electronic form version 1.4