

Abstract Submitted  
for the MAR13 Meeting of  
The American Physical Society

**Terahertz Time-Domain Spectroscopy of Nitrogen Ice<sup>1</sup>** BAGVANTH R. SANGALA, PERRY A. GERA KINES, DAVID J. HILTON, Department of Physics, The University of Alabama at Birmingham, Birmingham, AL 35294-1170, USA — We have used terahertz time-domain spectroscopy from 0.1-1.6 THz to study thin films of solid N<sub>2</sub> from 10-25 K. A temperature dependent absorption line shift was observed near 1.46 THz as the temperature increased from 10 to 25 K, where the center frequency of the absorption line decreased with temperature. We can fit these data to a model assuming a standard Lennard-Jones potential with the addition of a quadrupole-quadrupole interaction. We modeled the shift in the resonant absorption with a lattice expansion that includes previously published thermal expansion coefficients in N<sub>2</sub> ice, the gas-phase Lennard-Jones parameters, and the gas-phase quadrupole moments.

<sup>1</sup>The Authors thank NASA for supporting this research under the grant NSPIRES 07- APRA07-NNX09AI28G

Bagvanth R. Sangala  
Department of Physics, The University of Alabama at Birmingham,  
Birmingham, AL 35294-1170, USA

Date submitted: 07 Nov 2012

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