Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Symmetry of the H-N-H center in dilute III-N-V alloys determined by vibrational spectroscopy with applied stress[1] M. STAVOLA, L. WEN, F. BEKISLI, W.B. FOWLER, Lehigh Univ., R. TROTTA, A. POLIMENI, M. CAPIZZI, Univ. of Rome, F. MARTELLI, S. RUBINI, TASC-INFM-CNR, Trieste — The addition of a few percent of N to GaAs causes a large reduction in the band gap. The further addition of H causes the band gap to recover to the value of the N-free host [1]. IR spectroscopy and theory have found a canted H-N-H defect structure with C_{1h} symmetry that is responsible for this surprising behavior caused by N and H [2-5]. A uniaxial-stress study of the IR lines of the H-N-H center has been performed. The splitting of the IR lines by stress confirms the C_{1h} symmetry proposed by theory and yields an estimate of the canting angle of the center. The application of stress also gives rise to dichroism from which the lowering of the energy that results from the canting of the defect is determined.

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[1]Supported by NSF grant DMR-0802278.

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Date submitted: 17 Nov 2009 Electronic form version 1.4