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Symmetry of the N-H_2 complex in GaAsN S. KLEEKAJAI, M. STAVOLA, Lehigh University, K.R. MARTIN, W.B. FOWLER, Lehigh University, M. CAPIZZI, A. POLIMENI, Univ. Roma — The III-N-V alloys have attracted much recent attention because of a large reduction of the band-gap energy that occurs for N concentrations of a few percent. The hydrogenation of these alloys eliminates the effect of N [1]. A previous IR study of the vibrational properties of GaAsN:H showed that the dominant N- and H-containing defect has two weakly coupled N-H modes [2], a finding that is inconsistent with an H_2* structure proposed in earlier studies. Recent theory [3-5] suggests a defect with C_{1h} symmetry. While uniaxial stress results do not provide vibrational splittings sufficiently large to reveal the symmetry of the N-H_2 center, new IR absorption experiments performed for the H-wagging modes of GaAsN:H yield results that are consistent with the vibrational properties predicted for the C_{1h} structure [3]. This work is supported by NSF Grant DMR 0403641.

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