FLUORESCENCE SPECTRA AND LIFETIMES OF THE NH_2 $^2A_1$- $^2B_1$ SYSTEM: EXPERIMENT AND THEORY

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We report new calculations and measurements of the fluorescence properties of the title system, which is important in astrochemical processes. Calculations were done omitting the molecular rotation and employing recent ab initio potential energy surfaces. Dispersed fluorescence spectra show extensive X^2B_1 vibrational progressions that depend on the initial A^2A_1 state. Observed and calculated (0,ν_2',0) lifetimes are in good accord, save for ν_2'=4 (bent molecule notation), and calculated (1, ν_2'-2,0) lifetimes are longer than the (0,ν_2',0) ones. The electronic transition moment determined from a fit of the observed and calculated lifetimes is in good agreement with ab initio predictions, and the calculated laser-induced fluorescence spectrum will be compared with experimental absorption data.