# $^{14}NH_3$ ROVIBRATIONAL IR ANALYSIS AT 6000 $CM^{-1}$

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Ammonia is an important "weed" molecule in interstellar medium, planetary and exoplanetary atmosphere studies. In last ten years, new experimental IR analysis have been reported in the extended region between 5000 $\mathrm{cm}^{-1}$(or 2 $\mu$m) and 10,000 $\mathrm{cm}^{-1}$(or 1 $\mu$m). But before 2020, there was not a reliable $NH_3$ line list for the 6000 $\mathrm{cm}^{-1}$(or 1.63 $\mu$m) region. We combined the line position predicted on our Ames-Pre3 potential energy surface and the 296K intensity predicted in the UCL-C2018 line list [Coles et al JQSRT (2018) 219, 199-212], to analyze the Kitt Peak FTS spectra archived at JPL. More than 1300 transitions (J=0-10) have been assigned to following bands in the range of 5700 - 6200 $\mathrm{cm}^{-1}$: $\nu_2$+$\nu_3$+$\nu_4$ (0111), $\nu_1$+$\nu_2$+$\nu_4$ (1101), 3$\nu_2$+$\nu_3$ (0310), $\nu_1$+3$\nu_2$ (1300), and a "hot" band 2$\nu_2$+$\nu_3$+$\nu_4$ (0211) – $\nu_2$ (0100). The combination difference for the determined experimental energy levels are about 1E-3 $\mathrm{cm}^{-1}$, close to the resolution of lab measurements. The Ames-Pre3 based line positions are usually found to be accurate within $\pm$ 0.05-0.10 $\mathrm{cm}^{-1}$. Assignments and derived rovibrational levels will be compared to those reported recently in Cacciani et al [JQSRT (2021) 258, 107334].

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