THE $\text{A}^6\Sigma^+ \rightarrow \text{X}^6\Sigma^+$ TRANSITION OF CrH, EINSTEIN COEFFICIENTS AND AN IMPROVED DESCRIPTION OF THE A STATE

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The spectrum of CrH has been reinvestigated in the 9000-15000 cm$^{-1}$ region using the Fourier transform spectrometer of the National Solar Observatory. The 1-0 and 1-1 bands of the $\text{A}^6\Sigma^+ \rightarrow \text{X}^6\Sigma^+$ transition have been measured and improved spectroscopic constants have been determined. A value for the 2-0 band origin has been obtained from the band head using estimated spectroscopic constants. These data provide a set of improved equilibrium vibrational and rotational constants for the $\text{A}^6\Sigma^+$ state. An accurate description of the A-X transition has been obtained using a multireference configuration interaction approach. The inclusion of both scalar relativity and Cr 3s3p correlation are required to obtain a good description of both states. The \textit{ab initio} computed Einstein coefficients and radiative lifetimes are reported.