

FOURIER TRANSFORM EMISSION SPECTROSCOPY OF THE $E^2\Pi-X^2\Sigma^+$ TRANSITION OF CaH AND CaD

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The emission spectra of CaH and CaD have been recorded at high resolution using a Fourier transform spectrometer and bands belonging to the $E^2\Pi-X^2\Sigma^+$ transition have been measured in the 20100–20700 cm^{-1} region. A rotational analysis of 0–0 and 1–1 bands of both the isotopologues has been carried out. The present measurements have been combined with the previously available pure rotation and vibration-rotation data to provide improved spectroscopic constants for the $E^2\Pi$ state. The constants $\Delta G_{1/2} = 1199.8810(32) \text{ cm}^{-1}$, $B_e = 4.344659(45) \text{ cm}^{-1}$, $\alpha_e = 0.121869(88) \text{ cm}^{-1}$, $r_e = 1.986718 \text{ \AA}$ for CaH, and $\Delta G_{1/2} = 868.7438(46) \text{ cm}^{-1}$, $B_e = 2.212496(51) \text{ cm}^{-1}$, $\alpha_e = 0.036509(97) \text{ cm}^{-1}$, $r_e = 1.993396(23) \text{ \AA}$ for CaD have been determined.

An analysis of the corresponding transitions of SrH and SrD in the 18600–19300 cm^{-1} region will also be reported.