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 $\Delta G_{1/2} = 1199.8810(32)$ cm^{-1}, B_e=4.344659(45) cm^{-1}, α_e=0.121869(88) cm^{-1}, r_e=1.986718 Å for CaH, and $\Delta G_{1/2}$=868.7438(46) cm^{-1}, B_e=2.212496(51) cm^{-1}, α_e=0.036509(97) cm^{-1}, r_e=1.993396(23) Å 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.