MILLIMETER AND SUB-MILLIMETER SPECTROSCOPY OF CRCCH ($X^6\Sigma^+$)

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The pure rotational spectrum of CrCCH has been measured using millimeter/sub-millimeter direct absorption methods in the frequency range of 445-485 GHz. The molecule was created in an AC discharge of $Cr(CO)_6$, acetylene and argon. Six rotational transitions were measured. The spectra clearly indicate that the electronic ground state is a sextet. Spectra of CrCCD have also been recorded using the mixture of $Cr(CO)_6$, deuterated acetylene and argon in an AC discharge. The data were fit with a Hunds case (b) Hamiltonian and rotational, spin-rotation and spin-spin parameters have been determined. The structure has been calculated based on the rotational constants.