SEARCHING FOR THE LOW-LYING TRIPLET STATE OF CCl_2

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Dispersed fluorescence spectra have been recorded pumping several $\widetilde{A} - \widetilde{X}$ electronic transition of CCl_2. The analysis of the data yield well defined values for the harmonic and anharmonic constants for the symmetric ground state vibrations. Additional lines are observed at red shifts from 5000 cm^{-1} from the origin, which cannot be not assigned to any $\widetilde{X}$ vibrational levels. A possible explanation for these transitions would be perturbations of the singlet $\widetilde{A}$ by the low-lying triplet $\widetilde{a}$ state. This observation is in fair agreement with the theoretical predictions for the singlet-triplet state energy separation, and supports the new, alternative interpretations of the photodetachment spectrum of Lineberger et al.

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