INVESTIGATION OF THE LOW-n^* RYDBERG STATES OF CALCIUM MONOFLUORIDE NEAR THE INTERSECTION WITH THE $^2\Sigma^+$ DISSOCIATIVE POTENTIAL

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Previous work in our laboratory has shown that a single repulsive state (assigned as $^2\Sigma^+$) is responsible for predissociation of all $^2\Sigma^+$ Rydberg states of CaCl in the low-n^* region. The difference between the dissociation limit of CaCl and its first ionization potential is 15,500 cm^{-1} while the difference is only 2,800 cm^{-1} in CaF, suggesting that lower Rydberg states in CaF will not be as extensively predissociated. However, we have recently observed significant predissociation in CaF. The double resonance spectra of the low-n^* (n^*=5–7) Rydberg states of CaF have been reinvestigated in an attempt to characterize the repulsive $^2\Sigma^+$ state responsible for the predissociation in CaF.