ANALYSES OF THE $A^2\Delta$-$X^2\Pi$ TRANSITIONS OF CH-Ne AND CH-Ar

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Although there have been several spectroscopic studies of open-shell complexes that involve radicals in $^2\Sigma$ or $^2\Pi$ states, spectra for a $^2\Delta$ radical complex have yet to be published. We examined the $A^2\Delta$-$X^2\Pi$ transitions of CH-Ne and CH-Ar in order to characterize the rotational structures of prototypical $^2\Delta$ complexes.

Five A-X bands of CH-Ne have been rotationally resolved. These features were all associated with the monomer 0-0 transition. The rotational structure was found to be very congested, due to overlapping of the rotational manifolds built on the internal rotation $j_{CH}$=5/2 and $j_{CH}$=3/2 levels. Fluorescence depletion measurements have been used to simplify the spectrum.

The A-X system of CH-Ar also yielded five bands with resolvable rotational structure. The stronger interaction between Ar and CH produces larger splittings between the internal rotation levels, so the spectra are appreciably less congested than those for CH(A)-Ne.

Theoretical analyses of the CH-Ne and CH-Ar A-X bands are in progress. The results will be presented and compared with predictions derived from *ab initio* calculations.