

SPECTROSCOPY AND DYNAMICS OF I₂-Ne^a

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The spectroscopy and dynamics of I₂-Ne have been re-examined using OODR and fluorescence depletion techniques. Action spectra for I₂(B, ν)-Ne, detected by monitoring the I₂(B, $\nu-1$) predissociation fragments, show that the $\Delta\nu=-1$ predissociation channel is suppressed for levels above $\nu=33$, and closed for $\nu>36$. From these data we obtained a revised estimate for the dissociation energy for I₂(B)-Ne of $D_0=57.5 \text{ cm}^{-1}$.

Action spectra for I₂(B, $\nu=34$)-Ne, detected by monitoring I₂(B, $\nu=33$) fragments, revealed a progression of nine intermolecular vibrational levels that had not been observed previously. These levels have been assigned to T-shaped or linear geometries of I₂(B, $\nu=34$)-Ne. Assignments were based on characteristic vibrational distributions exhibited by the I₂(B, $\nu-\Delta\nu$) predissociation fragments. Fluorescence depletion measurements show that all of the bands in the action spectrum originate from a common ground state level. Furthermore, the one atom cage effect fluorescence from I₂(B)-Ne can be depleted by transitions from the zero-point level of I₂(X)-Ne. These observations show that the ground state wavefunction is delocalized, sampling both the T-shaped and linear configurations of the complex.

^aWork supported by National Science Foundation.