

LASER FLUORESCENCE EXCITATION SPECTROSCOPY OF THE Ar-HCO COMPLEX

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The fluorescence excitation spectrum of the Ar-HCO van der Waals complex in the vicinity of the $\tilde{B}^2A'(000) - \tilde{X}^2A'(000)$ band of free HCO is reported. At least 8 bands associated with the complex have been detected. We observe a spectral shift of the lowest energy Ar-HCO band with respect to the origin of the free HCO transition, and from this estimate the binding energy in the excited electronic state to be at least 10 cm^{-1} greater than that in the ground state. Rotational analysis of some of the bands has been carried out, and average Ar-HCO separations in both electronic states determined. Several of the bands were assigned as hot bands from the first excited bend-stretch level ($K'' = 1$) in the ground electronic state. Decay lifetimes of several Ar-HCO (\tilde{B}) levels were measured and were found to be somewhat smaller than those previously measured for free HCO.