VIBRATIONAL RED SHIFTS OF HCN ADSORBED ON SMALL NEUTRAL COPPER CLUSTERS IN SUPERFLUID HELIUM DROPLETS

P. L. STILES, and R. E. MILLER, *Department of Chemistry, The University of North Carolina at Chapel Hill, Chapel Hill, NC 27599*.

The vibrational red shifts of the free C-H stretch of HCN adsorbed on small neutral copper clusters are presented as a function of metal cluster size. The copper clusters are first formed in helium droplets by sequential pick-up of gas phase atoms. The HCN is then added to the droplets and pendular spectroscopy is used to determine the vibrational origin of the C-H stretching frequency with the use of a color center laser. Several of the field-free spectra are also reported and compared to ab initio calculations.