METAL CLUSTER FORMATION IN HELIUM NANODROPLETS

PAUL L. STILES, KLAAS NAUTA, and ROGER E. MILLER, *Department of Chemistry, University of North Carolina, Chapel Hill, NC 27599*.

We will discuss the formation of HCN-Mg_n complexes in superfluid helium nanodroplets. The magnesium clusters are first formed in the helium droplets by sequential pick-up of gas phase atoms. The HCN is then added to the droplets and an F-center laser is used to excite the free C-H stretch. To aid in the search for the spectra of these metal complexes, we make use of the pendular method to collapse the ro-vibrational spectrum into a single peak. The dependence of the spectra on HCN pressure, Mg vapor pressure, droplet size and field strength provided assignments of HCN-Mg_n ($n = 1 - 6$).