HIGH-RESOLUTION INFRARED SPECTROSCOPY OF HCN-Mg_n CLUSTERS

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Rotationally resolved infrared spectra have been obtained for the first time for metal complex-adsorbate systems. In particular, bare Mg clusters have been grown in helium nanodroplets, to which are added a single HCN molecule. The IR spectra associated with the C-H vibrational band have been recorded for HCN-Mg_n ($n = 1 - 6$). The results indicate that there is a qualitative change in the HCN-Mg cluster bonding (highly non-additive) in going from $n = 2$ to $n = 4$.