

Abstract Submitted
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Metal clusters in helium droplets: Fulfilling the promise PAUL L. STILES, ROGER E. MILLER¹, University of North Carolina — In 2001 we demonstrated that superfluid helium droplets, coupled to high-resolution infrared spectroscopy, could be used to investigate the intermolecular interactions and structures of metal cluster-adsorbate systems. The HCN-Mg_n (n = 1-6) clusters investigated provided several interesting surprises and taught us many valuable lessons but nevertheless remained a somewhat uninteresting system from the point of view of catalysis and reactivity. Recently, we have overcome some significant experimental challenges and are finally beginning to fulfill the promise of using superfluid helium droplet spectroscopy for the investigation of more “chemically interesting” systems. In this talk we will present the infrared spectra of a single HCN molecule bound to copper and silver clusters. From these spectra we were able to obtain information about the adsorbate-metal cluster interactions, as well as obtaining direct structural information through high-resolution spectra.

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