THE HCN-X (X=Na, K, Rb, Cs) COMPLEXES FORMED ON THE SURFACE OF HELIUM NANODROPLETS

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Complexes of hydrogen cyanide with alkali atoms are formed on the surface of helium nanodroplets. The surface bound complexes are probed with infrared laser spectroscopy, and the B" rotational constants for HCN-X (X=Na, K, Rb, Cs) are found to be strongly droplet size dependent. Varying the droplet size, the moment of inertia of each complex scales as the square of the helium droplet radius. In addition, for a fixed droplet size, the moment of inertia scales linearly with the total mass of the complex. These results are consistent with complex rotation on the surface of the droplet with the center of mass at the droplet center.