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Alkaline Earth Metal Atom Complexes with HCN Trapped On/In Helium Droplets: Vibrational Excitation Induced Solvation and Desolvation GARY DOUBERLY, University of Georgia — Infrared laser spectroscopy is used to probe the rotational dynamics of the binary HCN-M (M=Ca, Sr) complexes, either solvated within or bound to helium droplets. The "surface bound" spectral signatures reported previously for the HCN-alkali atom complexes are observed for both species, while a second band is observed for HCN-Ca that corresponds to a solvated species. IR-IR double resonance spectroscopy is used to probe the interconversion of the two distinct HCN-Ca populations. Above a threshold droplet size, vibrational excitation results in the solvation of the surface bound HCN-Sr complex.

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