THE SPECTROSCOPY OF THE H_2-HF AND D_2-HF BINARY COMPLEXES IN LIQUID HELIUM DROPLETS

DAVID T. MOORE, ROGER E. MILLER, *Deptartment of Chemistry, University of North Carolina, Chapel Hill NC, 27599.*

Rotationally resolved liquid helium droplet spectra of the HF-H_2 and HF-D_2 van der Waals complexes have been recorded. The different nuclear spin states of the H_2 and D_2 molecules produce distinguishable complexes, and while the ortho-H_2[a,b] and ortho- and para-D_2[c,d] complexes have been observed in the gas phase, this is the first time the para-H_2 complex with HF has been observed. Comparsions of the gas phase and helium droplet spectra will be presented, with particular emphasis on the reduction of the rotational constants of the complexes from their gas phase values.

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