Rotationally resolved liquid helium droplet spectra of the HF-H₂ and HF-D₂ van der Waals complexes have been recorded. The different nuclear spin states of the H₂ and D₂ molecules produce distinguishable complexes, and while the ortho-H₂\textsuperscript{a,b} and ortho- and para-D₂\textsuperscript{c,d} complexes have been observed in the gas phase, this is the first time the para-H₂ complex with HF has been observed. Comparisons 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.

\textsuperscript{a}K. W. Jucks, R. E. Miller, \textit{J. Chem. Phys.} \textbf{87}, 5629 [1987]
\textsuperscript{d}E. J. Bohac, R. E. Miller, \textit{J. Chem. Phys.} \textbf{98}, 2304 [1993]