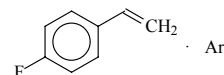


825
LIF

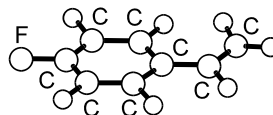
 $\text{C}_8\text{H}_7\text{ArF}$
1-Ethenyl-4-fluorobenzene – argon (1/1)
 C_1

 4-Fluorostyrene – argon (1/1)
(weakly bound complex)

(large-amplitude motion)



State	\tilde{X}^1A'	\tilde{A}^1A''
Energy [eV]	0.00	4.249
$r_0(\text{C}_8\text{H}_7\text{F}\dots\text{Ar})$ [Å]	3.469(2)	3.423(3)



A mixture of 5% argon in helium was passed over heated 4-fluorostyrene and expanded through a heated nozzle and into a vacuum chamber. After passing through a skimmer the beam was excited by UV radiation from an intracavity doubled single-mode ring dye laser and the fluorescence was detected by a photomultiplier. Spectra were obtained by scanning the ring dye laser and rotational analysis yielded rotational constants for the ground and excited states. These constants are consistent with a structure in which the argon atom lies above the plane of the 4-fluorostyrene molecule in both the S_0 and S_1 states.

Lakin, N.M., Pietraperzia, G., Becucci, M., Castellucci, E., Coreno, M., Giardini-Guidoni, A., van der Avoird, A.: J. Chem. Phys. **108** (1998) 1836.