

218	HKrS	Mercapto – krypton (1/1)	C_{∞v}
LIF		(weakly bound complex)	(effective symmetry class) (large-amplitude motion)
			SH · Kr

State	$\tilde{X}^2\Pi$	$\tilde{A}^2\Sigma^+$
Energy [eV]	0.00	
$r_0(\text{Kr}\dots\text{H}) [\text{\AA}]$	2.9680	1.896 ^{a)}
$r_0(\text{Kr}\dots\text{D}) [\text{\AA}]$	2.9768	1.882 ^{a)}

A mixture of *ca.* 1% H₂S/D₂S in helium to which 1...5% of krypton was added, was expanded into a vacuum chamber and radicals were produced by laser photolysis. Fluorescence was excited by a probe laser derived from a CW dye laser which was pulse amplified and frequency doubled. By scanning the dye laser, spectra of the Kr · SH/SD radicals were obtained. Rotational analysis provided molecular constants from which structural information was derived. In both the $\tilde{X}^2\Pi$ and $\tilde{A}^2\Sigma^+$ states the Kr · SH van der Waals complex is best described as a nearly free SH whose rotation is slightly hindered by the presence of the Kr atom.

^{a)} Extrapolated value.

Carter, C.C., Miller, T.A.: J. Chem. Phys. **107** (1997) 3447.