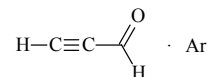
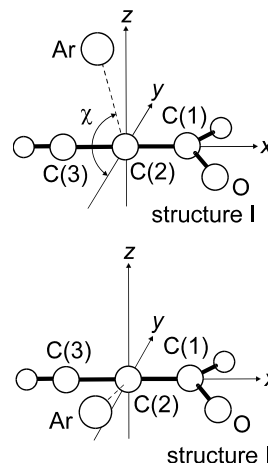


343
LIF $\text{C}_3\text{H}_2\text{ArO}$ **2-Propynal – argon (1/1)**
(weakly bound complex) C_s
(effective symmetry class)
(large-amplitude motion)

State	$\tilde{\text{X}}^1\text{A}'$	$\tilde{\text{A}}^1\text{A}''$
Energy [eV]	0.00	2.562
$r[\text{C}(2)\dots\text{Ar}] [\text{\AA}]$	3.6	3.6 ^{a)}
$\chi [\text{deg}]$	68	68 ^{a)}
$r[\text{C}(2)\dots\text{Ar}] [\text{\AA}]$		3.8 ^{b)}
$\chi [\text{deg}]$		23 ^{b)}



A stream of helium containing *ca.* 1% argon was passed over a bath of propynal maintained at -35°C and expanded through a nozzle into a vacuum chamber. Fluorescence was excited by an excimer pumped dye laser and focussed on to a photomultiplier. The spectra obtained when the dye laser is scanned show two types of band, *a*-type and *c*-type. Hole-burning experiments establish that the strong bands of each type have a common ground state. Rotational analysis indicates that the strongest *a*-type band is due to the existence of a structure similar to that in the ground state whereas the strongest *c*-type band is due to the existence of a different structure in the excited state. Values of $r[\text{C}(2)\dots\text{Ar}]$ and χ are given in the table.



^{a)} *a*-type band, structure I (see figure).

^{b)} *c*-type band, structure II (see figure).

DeRose, P., Cheng, P-Y., Xue, B., Ju, S-S., Dai, H-L.: Chem. Phys. **239** (1998) 235.