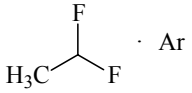
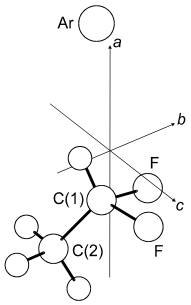
248 **$C_2H_4ArF_2$** **1,1-Difluoroethane – argon (1/1)** **C_1**
MW (weakly bound complex) (large-amplitude motion)

r_0	Å [a])
Ar...C(1)	3.794(5)

θ_0	deg [a])
C(2)–C(1)...Ar	121.1(5)



Most of the measured lines are split due to torsion of the methyl group and the tunneling motion of Ar connecting two equivalent potential energy minima. The Ar atom, close to the CHF_2 group, eclipses one of the methyl hydrogen atoms in the asymmetric geometry of the complex, reducing in this way the barrier to the torsion of the methyl group with respect to isolated 1,1-difluoroethane. For high J levels the distance of Ar from the molecule increases, however, due to the centrifugal distortion, and the barrier increases towards the value for 1,1-difluoroethane. The intermolecular stretching force constant and wavenumber are 1.65 N m^{-1} and 33.5 cm^{-1}, respectively.



[a]) Uncertainties were not estimated in the original paper.

Velino, B., Melandri, S., Favero, P.G., Dell'Erba, A., Caminati, W.: Chem. Phys. Lett. **316** (2000) 75.