

719 **C₆H₆Kr⁺**

Mass-selective REMPI

Benzene cation – krypton (1/1)

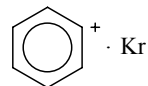
 Benzene (1+) ion – krypton (1/1)
(weakly bound complex)

C_{6v}

 (effective symmetry class)
(large-amplitude motion)

 State \tilde{X}^2E_2

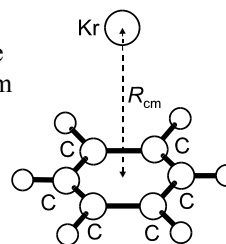
Energy [eV] 9.215

 $r_0(R_{cm})$ [Å] 3.651(3)


The van der Waals complex was generated by expanding a mixture of 0.4% benzene in ⁸⁴Kr into a supersonic chamber. Excitation from

the ground state to a selected rovibronic level of the \tilde{A} state was achieved by a fixed single frequency UV laser. Further excitation to high Rydberg levels close to the ionization limit ($n > 40$) was achieved using a second counterpropagating tunable UV dye laser. Both lasers generated 15 ns pulses. 10 ns after laser excitation a

pulsed electric field was switched on to field-ionize the Rydberg states. The resulting ions were analyzed in a time-of-flight mass spectrometer. Rotational analyses of the Rydberg spectra yielded rotational constants which indicate that the ⁸⁴Kr atom lies on the 6-fold axis of symmetry. From the *B*-rotational constants of the complex and of the benzene positive ion, the distance of the Kr atom from the plane of the benzene positive ion is deduced.



Siglow, K., Neuhauser, R., Neusser, H.J.: J. Chem. Phys. **110** (1999) 5589.