94 **CH_2^+** **Methyliumyl** **C_{2v}**

PFI-ZEKE Methylene cation

State	$\tilde{X}\ ^2A_1$
Energy [eV]	10.386
r_0(C−H) [Å]	1.1049(41)
θ_0(H−C−H) [deg]	139.77(27)

CH_2 and CD_2 radicals in their ground states were produced by the photolysis of CH_2CO and CD_2CO using a pulsed XeF excimer laser with a wavelength of 351 nm. Ketene was seeded in a stream of argon, expanded through a skimmed supersonic nozzle and photolyzed in a collision-free region of the chamber. Ionization was studied using a pulsed tunable vacuum-ultraviolet laser operating at right angles to the photolysis beam. The time between the photodissociation pulse and the VUV ionization pulse was 400 ns.
The ionization spectrum showed some rotational fine structure, mainly involving levels with low values of N and K_a. By fitting these data, values for the molecular parameters were deduced.

Willitsch, S., Merkt, F.: J. Chem. Phys. **118** (2003) 2235.