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LIF

CHW

Tungsten methylidyne
Methylidynetungsten $\text{C}_{\infty v}$
 $\text{W}\equiv\text{C}-\text{H}$

State	$\tilde{X}^2\Delta_{3/2}$	$\tilde{A}^2\Delta_{3/2}$
Energy [eV]	0.00	1.499
$r_0(\text{W}\equiv\text{C})$ [Å]	1.7366(1)	1.7682(2)
$r_0(\text{C}-\text{H})$ [Å]	1.0765(5)	1.0671(12)

WCH and WCD molecules were produced by the reaction of laser-ablated tungsten atoms with methane and methane- d_4 . Laser-excited fluorescence in the region 12000–15400 cm^{-1} revealed bands involving three excited states, $\tilde{A}^2\Delta_{3/2}$, $\tilde{B}^2\Pi_{1/2}$ and $\tilde{C}^2\Phi_{5/2}$. In addition, evidence has been found for a $^4\Sigma_{1/2}$ state lying *ca.* 0.1 eV above the ground state. Substitution structures for the ground and first excited states were deduced from the rotational constants.

Barnes, M., Gillett, D.A., Merer, A.J., Metha, G.F.: J. Chem. Phys. **105** (1996) 6168.