

<b>695</b>	<b>C<sub>6</sub>H<sub>2</sub><sup>+</sup></b>	<b>Triacetylene cation</b>	<b>D<sub>∞h</sub></b>
UV		1,3,5-Hexatriyne (1+) ion	H-C≡C-C≡C-C≡C-H <sup>+</sup>
	State	$\tilde{X}^2\Pi_u$	$\tilde{A}^2\Pi_g$
	Energy [eV]	0.00	2.065
	$r_0(\text{H}\dots\text{H})$ [Å]	8.49(2)	8.55(2)

The ions were generated in a liquid-nitrogen cooled hollow cathode discharge through 0.5...1.0% HCCH in helium. A White-type multi-reflection mirror system produced effective path lengths of about 100 m. Sensitive detection of the ions was achieved by a combination of discharge modulation of the ions and frequency modulation laser absorption spectroscopy. High resolution spectra were obtained for C<sub>6</sub>H<sub>2</sub><sup>+</sup>, C<sub>6</sub>D<sub>2</sub><sup>+</sup> and C<sub>6</sub>HD<sup>+</sup>. The overall lengths of the molecule in the two states quoted in the table were derived from the C<sub>6</sub>H<sub>2</sub><sup>+</sup>/C<sub>6</sub>D<sub>2</sub><sup>+</sup> data. Identical results within the experimental errors were obtained using the C<sub>6</sub>H<sub>2</sub><sup>+</sup>/C<sub>6</sub>HD<sup>+</sup> data.

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