

Table 12.15 from (1985AJ01): States of ^{12}C from $^{12}\text{C}(e, e')^{12}\text{C}^*$

E_x (MeV)	$J^\pi; T$	Γ_{γ_0} (eV)	E_x (MeV)	$J^\pi; T$
4.44	$2^+; 0$	$(10.8 \pm 0.6) \times 10^{-3}$	19.6 ± 0.1	(4^-)
7.66 ^b	$0^+; 0$	$(6.0 \pm 0.4) \times 10^{-5}$	20.0 ± 0.1	(2^+)
9.64	$3^-; 0$	$(3.1 \pm 0.4) \times 10^{-4}$	20.6 ± 0.1	(3^+)
10.84	$1^-; 0$		21.6 ± 0.1	(3^-)
12.71 ^{c,d}	$1^+; 0$	0.35 ± 0.05 (M1)	22.0 ± 0.1	(1^-)
14.08 ^e	$4^+; 0$		22.7 ± 0.1 ^h	(1^-)
15.11 ^{d,f}	$1^+; 1$	38.5 ± 0.8	23.8 ± 0.1	(1^-) ⁱ
15.44 ± 0.04 ^g			24.9 ± 0.2	
16.11	$2^+; 1$	0.35 ± 0.04	25.5	(1^-)
16.57 ^f	2^-	$(48 \pm 8) \times 10^{-3}$	25.5	(3^-)
17.6 ± 0.2			26.4 ± 0.3	
18.1	(1^-)		27.8 ± 0.2	
18.6 ± 0.1	(3^-)		30.2 ± 0.4	
19.3	2^-		32.3 ± 0.3	

^a See also Tables 12.18 in (1975AJ02) and 12.16 in (1980AJ01) for additional information and for the earlier references.

^b The matrix element is $5.48 \pm 0.22 \text{ fm}^2$ for the E0 decay by π emission to $^{12}\text{C}_{\text{g.s.}}$: see (1980AJ01). The other value has not been published.

^c $\Gamma_{\text{tot.}} = 14.6 \pm 2.6 \text{ eV}$.

^d Form factors have been obtained at 180° . See also Table 12.10 (1979FL08). For cross sections at $E_e = 37.0, 50.5$ and 60.5 MeV , see (1977CR02). See also (1983DE53).

^e $\Gamma \approx 0.3 \text{ MeV}$.

^f See (1983DE53) for form factors for $q = 0.4 - 3.0 \text{ fm}^{-1}$. The Γ_{γ_0} shown are also from (1983DE53); that for $^{12}\text{C}^*(15.11)$ improves the agreement with the CVC predictions.

^g (1983DE53): $\Gamma = 1.5 \pm 0.2 \text{ MeV}$. See also (1979FL08).

^h The giant dipole resonance has an average $E_x = 23.0 \pm 0.7 \text{ MeV}$ and $\Gamma = 5.7 \pm 0.7 \text{ MeV}$. It may involve fine structure at $E_x = 22.2, 22.8, 23.4$ and 23.8 MeV .

ⁱ See (1972AN03). Widths for these states have also been calculated.