

Table 12.18 from (1975AJ02): States of ^{12}C from $^{12}\text{C}(e, e')^{12}\text{C}$ ^a

E_x (MeV)	$J^\pi; T$	Γ_{γ_0} (eV)	Refs.
4.44	$2^+; 0$	$(10.6 \pm 1.1) \times 10^{-3}$	(1967CR01)
		$(11.0 \pm 1.0) \times 10^{-3}$	(1970ST10)
7.66 ^b	$0^+; 0$	$(6.2 \pm 0.6) \times 10^{-5}$	(1967CR01)
		$(5.9 \pm 0.5) \times 10^{-5}$	(1970ST10)
9.64	$3^-; 0$	$(3.1 \pm 0.4) \times 10^{-4}$	(1967CR01)
10.84	$1^-; 0$		(1969TO01, 1971NA14)
12.71 ^c	$1^+; 0$	0.35 ± 0.05 (M1)	(1974CE01)
14.08 ^d	$4^+; 0$		(1971NA14)
15.11 ^g	$1^+; 1$	35.74 ± 0.86	(1972SP1C)
		37.0 ± 1.1	(1973CH16)
16.11 ^g	$2^+; 1$	0.83 ± 0.06	(1969GU05)
		1.8 ± 0.5 ^k	(1963BO36, 1965BI1B)
16.58	2^- ¹		(1970AN1C, 1971YA03)
17.6 ± 0.2	¹		(1969GU05)
18.1	(1^-)		(1968BE1H, 1970AN1C, 1971BE51, 1971YA03)
18.6 ± 0.1	(3^-) ¹		(1970TO13, 1971YA03)
19.3	2^- ¹		(1968BE1H, 1968DR01, 1969GU05, 1970AN1C, 1971YA03)
19.6 ± 0.1 ^g	(4^-)		(1970TO13, 1971BE51, 1971YA03)
20.0 ± 0.1 ^g	(2^+)		(1968BE1H, 1969GU05, 1970TO13, 1971YA03)
20.6 ± 0.1 ^g	(3^+)		(1968BE1H, 1969GU05, 1970TO13, 1971YA03)
21.6 ± 0.1 ^{h,i}	(3^-)		(1969GU05, 1970TO13, 1971YA03)
22.0 ± 0.1 ^{h,i}	(1^-) ¹		(1970TO13, 1971YA03)
22.7 ± 0.1 ^{e,f,h,i}	(1^-)		(1969GU05, 1970TO13, 1971BE51, 1971YA03)
23.8 ± 0.1 ^h	(1^-) ¹		(1969GU05, 1970TO13, 1971YA03)
24.9 ± 0.2 ^j			(1969GU05)
25.5 ^{h,i,j}	(1^-)		(1971BE51, 1971YA03)
25.5 ^{h,i}	(3^-)		(1971YA03)
26.4 ± 0.3 ^{h,i}			(1969GU05)
27.8 ± 0.2 ⁱ			(1969GU05)
30.2 ± 0.4 ⁱ			(1969GU05)
32.3 ± 0.3			(1969GU05)

- ^a See also [Table 12.20](#) and [reaction 36 in \(1968AJ02\)](#) and [Table 12.9](#).
- ^b The matrix element is $5.48 \pm 0.22 \text{ fm}^2$ for the E0 decay by π to $^{12}\text{C}_{\text{g.s.}}$ ([1968ST20](#)).
- ^c $\Gamma_{\text{tot}} = 14.6 \pm 2.6 \text{ eV}$ ([1974CE01](#)).
- ^d $\Gamma \approx 0.3 \text{ MeV}$ ([1971NA14](#)).
- ^e The giant dipole resonance has an average $E_x = 23.0 \pm 0.7 \text{ MeV}$ and $\Gamma = 5.7 \pm 0.7 \text{ MeV}$ ([1969GU05](#)).
- ^f May involve fine structure at $E_x = 22.2, 22.8, 23.4$ and 23.8 MeV .
- ^g See also ([1968DO08](#)).
- ^h See also ([1970LI02](#)).
- ⁱ See also ([1968RI06](#)).
- ^j See also ([1970AN1C](#)).
- ^k ([1969GU05](#)) have recalculated this value and suggest that it should be 1.0 eV .
- ^l See ([1972AN03](#)). Widths for these states have also been calculated.