

Table 12.18 from (1990AJ01): ^{12}C levels from $^{12}\text{C}(p, p') ^{12}\text{C}^*$ ^a

E_x (MeV \pm keV)	Γ (MeV)	$J^\pi; T$	E_x (MeV \pm keV)	Γ (MeV)	$J^\pi; T$
4.4390 \pm 1.1 ^b	a	2 ⁺ ; 0	19.40 \pm 30 ^c	0.48 \pm 0.04	2 ⁻ ; $T = 1$
7.65400 \pm 0.13	f	0 ⁺ ; 0	20.27 \pm 50 ^d	0.14 \pm 0.05	
9.64	f	3 ⁻ ; 0	20.57 \pm 50	0.35 \pm 0.1	3 ⁻ ; 1
10.84		1 ⁻ ; 0	21.65 \pm 100	1.20 \pm 0.15	3 ⁻ ; 0
11.83	g		(21.95 \pm 150)	0.8 \pm 0.1	1 ⁻ ; 1
12.71 ^b	f	1 ⁺ ; 0	(22.36 \pm 50) ^d	0.3 \pm 0.05	
13.35	g		(22.6 \pm 100)	0.9 \pm 0.1	1 ⁻ ; 1
14.08		4 ⁺ ; 0	23.50 \pm 50	0.23 \pm 0.1	1 ⁻ ; 1
15.11 ^b	f	1 ⁺ ; 1	23.92 \pm 80	0.4 \pm 0.1	1 ⁻ ; 1
15.4 \pm 100	1.41 \pm 0.15	2 ⁺ ; 0	(25.3 \pm 150)	0.51 \pm 0.1	1 ⁻ ; 1
16.11	g		(25.8 \pm 300)	0.75 \pm 0.15	(1 ⁻ ; 1)
16.57	g		(27.0 \pm 300)	1.4 \pm 0.2	1 ⁻ ; 1
18.30 \pm 30 ^c	0.38 \pm 0.03	(2 ⁻ ; $T = 0$)	(29.4 \pm 300) ^e		(2 ⁺ ; 1)

^a See [Tables 12.18 in \(1980AJ01, 1985AJ01\)](#) for the earlier references.

^b On the basis of angular distributions to $^{12}\text{C}^*(4.4, 12.7, 15.1)$ for $E_p = 22.2$ to 45 MeV, it is suggested that the E2 strength is fragmented with the major concentration, corresponding to the isoscalar E2 resonance, near 28 MeV, and subsidiary strength near 32 and 42 MeV, the latter possibly a part of the isovector quadrupole resonance.

^c Γ are in c.m. system.

^d Only observed at $E_p = 45$ MeV.

^e Only observed at $E_p = 155$ MeV.

^f See [Table 12.7](#).

^g Footnote not defined in publication (appeared in [\(1985AJ01\)](#).)