Table 12.6 from (1985AJ01): Energy levels of ^{12}C [a]

E_x in ^{12}C (MeV ± keV)	$J^\pi; T$	$\Gamma_{c.m.}$ (keV)	Decay	Reactions
g.s.	$0^+; 0$	–	stable	3, 8, 9, 10, 11, 17, 18, 19, 20, 21, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94
4.43891 ± 0.31	$2^+; 0$	$(10.8 \pm 0.6) \times 10^{-6}$	γ	3, 8, 9, 10, 11, 17, 18, 19, 20, 21, 25, 26, 27, 28, 29, 34, 35, 37, 38, 39, 40, 41, 43, 45, 46, 47, 48, 49, 50, 51, 52, 53, 58, 63, 64, 65, 66, 67, 68, 69, 75, 76, 78, 79, 81, 82, 84, 85, 86, 87, 88, 90
7.6542 ± 0.15	$0^+; 0$	$(8.5 \pm 1.0) \times 10^{-3}$	γ, π, α	3, 8, 9, 10, 11, 17, 18, 19, 21, 26, 27, 29, 35, 37, 39, 40, 45, 46, 47, 50, 63, 65, 67, 69, 76, 81, 86, 87, 88
9.641 ± 5	$3^-; 0$	34 ± 5	γ, α	8, 9, 10, 17, 18, 19, 21, 25, 26, 27, 28, 35, 37, 38, 39, 40, 41, 45, 46, 47, 50, 52, 65, 69, 74, 86, 87, 88
10.3 ± 300	$(0^+); 0$	3000 ± 700	α	8, 29, 63
10.844 ± 16	$1^-; 0$	315 ± 25	α	8, 9, 17, 25, 26, 27, 35, 39, 40, 43, 45, 46, 47, 74
(11.16 ± 50)	$(2^+); 0$	430 ± 80		26
11.828 ± 16	$2^-; 0$	260 ± 25	γ, α	9, 17, 19, 25, 26, 27, 34, 39, 40, 43, 45, 46, 47, 74
12.710 ± 6 [b]	$1^+; 0$	$(18.1 \pm 2.8) \times 10^{-3}$	γ, α	17, 18, 19, 25, 26, 27, 34, 35, 37, 39, 40, 42, 43, 45, 46, 47, 63, 65, 66, 67, 69, 76
13.352 ± 17	(2^-); [h] 0	375 ± 40	γ, α	17, 26, 34, 39, 40, 47

Table 12.6 from (1985AJ01): Energy levels of ^{12}C [a] (continued)

E_x in ^{12}C (MeV ± keV)	$J^\pi; T$	$\Gamma_{c.m.}$ (keV)	Decay	Reactions
14.083 ± 15	$4^+; 0$	258 ± 15	α	8, 17, 35, 39, 40, 42, 46, 47, 50, 53, 65, 76, 81, 86, 88
15.110 ± 3 [b]	$1^+; 1$	$(43.6 \pm 1.3) \times 10^{-3}$	γ, α	12, 13, 18, 19, 25, 26, 27, 35, 37, 39, 40, 41, 43, 45, 46, 63, 64, 65, 66, 67, 68
15.44 ± 40	$(2^+; 0)$	1500 ± 200		35, 37, 40, 45, 46
16.1067 ± 0.5	$2^+; 1$	$5.2^{+0.5}_{-0.3}$	γ, p, α	11, 13, 21, 25, 26, 27, 35, 37, 39, 40, 45, 46, 64, 65, 66, 67, 81
16.57	$2^-; 1$	300	γ, p, α	17, 21, 23, 35, 40, 45
17.23	$1^-; 1$	1150	γ, p, α	21, 23, 25, 34
17.76 ± 20	$0^+; 1$	80 ± 20	p, α	11, 21, 23, 35, 66, 81
18.13	$(1^+; 0)$	600 ± 100	γ, p	21, 35
18.35 ± 50	$3^-; 1$	220 ± 50	γ, p, α	17, 21, 23, 25, 26, 27, 37, 40, 43, 45, 50
18.35 ± 50	$2^-; 0+1$	350 ± 50	p	17, 23, 25, 26, 27, 37, 40, 43, 45, 50
(18.6 ± 100)	(3^-)	300		35
18.71	$(T = 1)$	100	p, α	21
18.80 ± 40	$2^+; 1$	100 ± 10	γ, n, p	21, 22, 23, 66
19.2	$(1^-; 1)$	≈ 1100	γ, n, p, α	21, 22, 23, 26, 40, 45, 65
19.40 ± 30 [f]	$(2^-; 1)$	480 ± 40	γ, p, α	21, 35, 40, 42
19.55 ± 50 [f,g]	$(4^-; 1)$	490 ± 60	γ, p, α	25, 26, 35, 37
19.69	1^+	230 ± 35	n, p	22
20.0 ± 100	(2^+)	≈ 100	γ, n, p	22, 23, 35
20.27 ± 50	$(1^+; 1)$	140 ± 50	n, p	22, 23, 40
20.5 ± 100	$(3^+; 1)$	180	γ, p, α	17, 21, 25, 35, 65
20.62 ± 60	$(3^-; 1)$	200 ± 40	γ, n, p, α	21, 22, 23, 25, 26, 40, 43, 65
20.98		270	n, p	22
21.60 ± 100 [e]	$3^-, 2^+$	1200 ± 150	γ, n, p, α	21, 22, 23, 35, 40, 42, 45, 46, 66
22.0 ± 100	$1^-; 1$	800 ± 100 [i]	γ, n, p	22, 23, 35, 40, 42, 43

Table 12.6 from (1985AJ01): Energy levels of ^{12}C [a] (continued)

E_x in ^{12}C (MeV ± keV)	$J^\pi; T$	$\Gamma_{c.m.}$ (keV)	Decay	Reactions
22.40 ± 40	$1^-; 1$	275 ± 40	n, p	22, 23, 26, 40, 42, 46, 66
22.65 ± 70	$1^-; 1$	3200	γ, n, p, α	21, 22, 30, 31, 35, 40
23.04	$(2^-; 1)$	60	n, p	22
23.52 ± 30	$1^-; 1$	230 ± 80	γ, n, p, α	11, 21, 22, 35, 40, 45
23.92 ± 80	$(1^-; 1)$	400 ± 100	γ, n, p	22, 35, 40
24.43		100	n, p	22
24.92		920	n, p	22
25.3 ± 150	$(1^-; 1)$	510 ± 100	n, p	22
25.4	$1^-; 1$	≈ 2000 [d]	γ, n, p	21, 30, 31, 40, 45, 46
25.95		≈ 400	n, p, d, α	13, 16, 22
26.8		270	n, p, d, α	16, 22, 42
27.0 ± 300	$(1^-; 1)$	1400 ± 200	γ, p	21, 43, 46
27.5950 ± 2.4	$0^+; 2$	≤ 30		11, 72
27.9		≈ 350	γ, n, p, ^{3}He	4, 21
28.2	$1^-; 1$	1600	γ, ^{3}He	3
28.83 ± 40		1540 ± 90	γ, p, d, ^{3}He, α	3, 16, 21, 45, 46
29.4 ± 300		1400 ± 200	γ, n, p, t, ^{3}He	4, 5, 21, 40
29.63 ± 50	$T = 2$	$\lesssim 200$		72
30.29 ± 30		1960 ± 150	γ, ^{3}He, α	1, 3
31.16 ± 30		2100 ± 150	γ, ^{3}He	3
32.29 ± 40		1320 ± 230	γ, ^{3}He	3
33.47 ± 210 [c]		1930 ± 50	γ, ^{3}He	3

[a] See also Table 12.7 here and Table 12.12 in (1980AJ01).

[b] See also Table 12.10.

[c] See also reaction 2.

[d] See, however, Table 12.11.

[e] Probably unresolved states: see footnote [g] in Table 12.19.

[f] See the discussion in (1983NE11).

[g] (1983BA62) suggests an isospin-mixed doublet with $J^{\pi} = 4^{-}$.

[h] Probably 4^{-} (D.J. Millener, private communication). I am indebted to Dr. Millener for his comments on the states of ^{12}C.

[i] See, however, Table 12.12.