

Table 13.4 from (1970AJ04): Energy levels of ^{13}C ^a

E_x (MeV \pm keV)	$J^\pi; T$	τ_m or Γ (keV)	Decay	Reactions
0	$\frac{1}{2}^-$		—	2, 3, 4, 9, 10, 12, 13, 14, 15, 16, 21, 22, 23, 24, 25, 32, 33, 34, 35, 36, 37, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 60, 61, 62, 63, 64, 65, 66
3.086 ± 3	$\frac{1}{2}^+$	$\tau_m = 1.5 \pm 0.16$ fsec	γ	9, 12, 13, 14, 22, 24, 32, 33, 38, 43, 45, 46, 50, 51, 55, 56, 60, 61, 63
3.68415 ± 0.11	$\frac{3}{2}^-$	1.5 ± 0.15 fsec	γ	3, 9, 12, 13, 14, 22, 24, 26, 32, 33, 35, 37, 38, 40, 42, 45, 46, 50, 51, 52, 53, 55, 56, 60, 61, 63
3.854 ± 1	$\frac{5}{2}^+$	10.8 ± 1 psec	γ	3, 9, 12, 13, 14, 22, 24, 32, 33, 45, 46, 50, 51, 55, 56, 60, 61, 63
6.864 ± 3	$\frac{5}{2}^+$	$\Gamma = 6$ keV	n	9, 14, 22, 24, 27, 32, 42, 45, 55, 56, 60, 61
7.492 ± 10		< 5		9, 14, 22, 24, 32, 46, 51, 55, 56, 61
7.549 ± 9	$\frac{5}{2}^-$	< 5		9, 14, 22, 24, 32, 37, 42, 45, 46, 51, 55, 56, 60, 61
7.677 ± 12	$\frac{3}{2}^+$	72 ± 10	n	9, 14, 22, 24, 27, 32, 38, 46, 56, 61
8.25 ± 80	$\frac{3}{2}^+$	1000 ± 100	n	27, 32
8.858 ± 14	$\frac{1}{2}^-$	161 ± 18	n	22, 24, 27, 37, 38, 42, 45, 55, 56, 60, 61
9.499 ± 4	$(\frac{3}{2}^-)$	≤ 5	n	14, 22, 24, 27, 28, 32, 45, 55, 56, 60, 61
9.899 ± 5	$\frac{3}{2}^-$	28	n	14, 22, 24, 27, 28, 32, 42, 56, 61
10.46		200	n	14, 28
10.753 ± 5	$\frac{7}{2}^-$	≈ 50	n	22, 27, 28, 32, 56
10.809 ± 20		< 30	n	22, 27, 28, 39, 56
11.000 ± 20	$(\frac{1}{2}^+)$	37	n, α	5, 22, 27, 28, 39, 56

Table 13.4 from (1970AJ04): Energy levels of ^{13}C ^a (continued)

E_x (MeV \pm keV)	$J^\pi; T$	τ_m or $\Gamma_{\text{c.m.}}$ (keV)	Decay	Reactions
11.078 \pm 20	$(\frac{1}{2}^-)$	< 4	n, α	5, 14, 22, 27, 28, 42, 56, 60
11.721 \pm 30	$(\frac{3}{2}^-)$	125 \pm 20	γ , n	27, 28, 39, 42, 56
11.97	$(\frac{7}{2}^-)$	\approx 150	n, α	5, 8, 14, 28, 55, 56
12.104 \pm 8	$(> \frac{7}{2})$	125 \pm 30	n, α	5, 14, 22, 27, 28, 56
12.42 \pm 50	$(\frac{1}{2}, \frac{7}{2})^-$	\approx 200	n, α	5, 27, 28, 31, 60
12.81 \pm 100				22
13.3		5000 \pm 1000	γ , n	39
13.41		60	n, α	5, 8, 14
13.55		\approx 500	n, α	5, 27, 28
13.76		\approx 350	n, α	5, 42
14.13		\approx 200	n, α	5, 8
14.39 \pm 100		260	n, α	5
14.63		210	n, α	5, 8
14.95 \pm 50		380	n, α	5
15.1087 \pm 2.5	$\frac{3}{2}^-; \frac{3}{2}$	5.9 \pm 0.9	γ , n, α	4, 5, 22, 42, 45, 52, 60
15.29	$\geq \frac{3}{2}$	450	n, α	5, 27
15.53 \pm 50		220	n, α	5
16.02		210	n, α	5, 14
16.16 \pm 50		230	n, α	5, 14, 27
16.96 \pm 50		330	n, α	5
17.37 \pm 100		190	n, α	5
17.72 \pm 50		170	n, α	5
(17.99)		40	n, α	5
18.30 \pm 50		300	n, α	5
18.504 \pm 25	$T = \frac{3}{2}$			22
18.648 \pm 15	$T = \frac{3}{2}$	\approx 35		22
18.679 \pm 20	$T = \frac{3}{2}$			22
18.76 \pm 30		70	n, α	5
19.123 \pm 10	$T = \frac{3}{2}$	\approx 35	α	22, 42
19.5	$(\frac{1}{2}, \frac{3}{2})^-$	\approx 460	n, d	17, 27, 28
19.90		\approx 600	n, p, d	17, 18

Table 13.4 from (1970AJ04): Energy levels of ^{13}C ^a (continued)

E_x (MeV \pm keV)	$J^\pi; T$	τ_m or $\Gamma_{c.m.}$ (keV)	Decay	Reactions
20.25		≈ 200	n, d, α	17 , 20
20.54 ± 10		116 ± 10	n, p, d, α	5 , 17 , 18
21.30 ± 15		159 ± 15	n, p, d	17 , 18
21.84 ± 20		114 ± 20	n, d	17
22.28		broad	n, p, d	17 , 30
23.0 ± 200		≈ 1000	n, d	17 , 27
23.5		≈ 3000	γ , p	40
26.9			n, d	17
27.5			n, d	17

^a See also Tables [13.8](#), [13.17](#) and [13.18](#).