

Adopted Levels, Gammas 1991Aj01

Type	Author	History	Citation	Literature Cutoff Date
Update	F. Ajzenberg-selove, J. H. Kelley and C. D. Nesaraja		NP A523,1 (1991)	1-Jul-1990

$Q(\beta^-)=156.476$ 4; $S(n)=8176$; $S(p)=20831.2$ 11; $Q(\alpha)=-12012.5$ 1 [2012Wa38](#)

Note: Current evaluation has used the following Q record 156.475 4 8176.4425 20831.3 11-12011.6 4 [1997Au04](#).

[Additional information 1.](#)

 ^{14}C LevelsCross Reference (XREF) Flags

A	^{14}B β^- decay	K	$^{13}\text{C}(p,\pi^+)$	U	$^{14}\text{C}(^{14}\text{C},^{14}\text{C}')$
B	$^{13}\text{C}(n,\gamma)$ E=thermal	L	$^{13}\text{C}(d,p)$	V	$^{14}\text{N}(\gamma,\pi^+)$
C	$^{13}\text{C}(n,\gamma)$ res	M	$^{13}\text{C}(t,d)$	W	$^{14}\text{N}(\pi^-, \gamma)$
D	$^9\text{Be}(^6\text{Li},p)$	N	$^{13}\text{C}(^7\text{Li},^6\text{Li})$	X	$^{14}\text{N}(n,p)$
E	$^9\text{Be}(^7\text{Li},d)$	O	$^{14}\text{C}(\gamma,n)$ res	Y	$^{14}\text{N}(d,2p)$
F	$^{11}\text{B}(\alpha,p)$	P	$^{14}\text{C}(e,e')$	Z	$^{14}\text{N}(t,^3\text{He})$
G	$^{11}\text{B}(^6\text{Li},^3\text{He}), ^{11}\text{B}(^7\text{Li},\alpha)$	Q	$^{14}\text{C}(\pi,\pi')$	Others:	
H	$^{12}\text{C}(t,p)$	R	$^{14}\text{C}(p,p')$	AA	$^{15}\text{N}(\gamma,p)$
I	$^{12}\text{C}(\alpha,2p)$	S	$^{14}\text{C}(d,d')$	AB	$^{15}\text{N}(d,^3\text{He})$
J	$^{13}\text{C}(n,n')$ res	T	$^{14}\text{C}(\alpha,\alpha')$	AC	$^{16}\text{O}(^6\text{Li},^8\text{B})$

E(level)	J $^\pi$	T _{1/2}	XREF	Comments
0.0	0 ⁺	5700 y 30	AB DEFGHIJKLMNOPQRSTUVWXYZ	XREF: Others: AA , AB , AC $\% \beta^- = 100$ T=1 T _{1/2} : From the weighted average of the values 5780 y 65 [Watt et al. Intern. J. Appl. Radiat. Isot. 11 (1961) 68], 5680 y 40 (1962Ol04), 5745 y 50 (1964Hu09), 5660 y 30 (1968Be47), and 5736 y 56 (1968ReZZ and 1972Em01). The reduced- χ^2 for this average is 1.06. These values were obtained from specific activity measurements. Values that have not been included in the average, all earlier, are 4700 y 400 (1946Re10), 5100 y 200 (1948No02), 7200 y 500 (1948Ya02), 6360 y 200 (1949Ha52), 5589 y 75 (1949Jo07), 5580 y 90 [Engelkemeir & Libby, Rev. Sci. Instr. 21 (1950) 550], 6360 y 190 and 5513 y 165 [Miller et al., Phys. Rev. 77 (1950) 714], 5370 y 200 [Manov & Curtiss, J. Research Nat. Bur. Std. 46 (1951) 328], 6100 y 85 (1952Je11), 5900 y 250 [Caswell et al., J. Research Nat. Bur. Std. 53 (1954) 27]. These values were omitted because of their large uncertainties and the later improvements in the measurement methods. From a similar evaluation, 1990Ho28 gives a result of 5715 y 30 from an unweighted average of eight values. Evaluated by V. Chechev in 1998 in conjunction with the Decay Data Evaluation Project (1999BeZS , 1999BeZQ).
6093.8 2	1 ⁻	<7 fs	AB DEFGH KLMN PQ T	Z XREF: Others: AB
6589.4 2	0 ⁺	3.0 ps 4	AB DEF H LM	
6728.2 13	3 ⁻	66 ps 8	A DEFGHI KLMN PQRSTU	Z XREF: Others: AB $\mu=0.816$ 21 (1989Ra17)
6902.6 2	0 ⁻	25 fs 3	B DE GH LMN P	
7012 4	2 ⁺	9.0 fs 14	DEFGH KLMN PQRS	XREF: Others: AB , AC
7341 3	2 ⁻	111 fs 42	A DE GH KLMN P T	Z XREF: Others: AB

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas 1991Aj01 (continued)

¹⁴ C Levels (continued)									
E(level)	J ^π	T _{1/2}	XREF						Comments
8317.9 8	2 ⁺	3.4 keV 7	B	DEFGHIJKLM	PQ	T	W	YZ	XREF: Others: AC %IT=?; %n=?
9746 [†] 7	0 ⁺								XREF: Others: AB
9801 6	3 ⁻	45 keV 12	D	FGH JKLM	P	T			XREF: Others: AB %IT=?; %n=?
10425 5	2 ⁺		D	F H JKLM	P	T			XREF: Others: AB %n=100
10449 7	≥1		D	FGH JK					XREF: Others: AB %n=100
10498 4	(3 ⁻)	26 keV 8	D	GH JKLM					XREF: Others: AB %n=100
10736 [†] 5	4 ⁺	20 keV 7	D	FGHI KLM		T	W		
11306 15	1 ⁺	46 keV 12	D	F J	OP				XREF: Others: AB %IT=0.015 5; %n=99.985 5
11395 8	1 ⁻	22 keV 7	D	FGH LM		T			%n=100
11500?	1 ⁻ ,2 ⁻			J					%n=100 T _{1/2} : Γ=broad.
11666 10	4 ⁻	20 keV 7	D	FGHI KLM	PQRST				XREF: Others: AB
11730 [†] 9	(5 ⁻)		D	FGHI K					
119×10 ² 3	(1 ⁻)	950 keV 300		J LM					%n=100
12583 10	(2 ⁻ ,3 ⁻)	95 keV 15	D	GH J LM	Q	T			XREF: Others: AB %n=100
12863 8		30 keV 10	D	GH J LM	P				%n=100
12963 9	(3 ⁻)	30 keV 10	D	GH J LM		T			%n=100
135×10 ² ? [†] 1		<200 keV		K					
13700	2 ⁻	≈1800 keV		J					%n=100
140.5×10 ² ? [†] 10		<200 keV		K					
14667 20	(4 ⁺)	57 keV 15	D	FG J					%n=100
14868 [†] 20	(6 ⁺ ,5 ⁻)		D	FGHI K					XREF: Others: AB
15200 [†] 23	4 ⁻		D	FG K	PQ				
15370? [†] 30			D						
15440 40	(3 ⁻)		D	J					%n=100
16020? 50	(4 ⁺)		D	J					%n=100
16430 [†] 16			D	FGH					
16570? [†] 40			D						
16715 30	(1 ⁺)	≈200 keV	B	D F					%IT=?; %n=?
17300 30	4 ⁻		D	FG	PQRS				
17500?	(1 ⁺)	≈200 keV	B						%IT=?; %n=?
17950 [†] 40			D						
18100 [†] 40			D						
18500 [†]				K					T _{1/2} : Γ=broad.
20400 [†]							X		T _{1/2} : Γ=wide.
21400? [†]			F						
221×10 ² 1	(2 ⁻)				P				T=2 T: tentative.
23288 [†] 15		≈50 keV	F	K					
244×10 ² 1	4 ⁻	<300 keV			PQ				T=2 T: tentative.
24500 [†]				K	Q				T _{1/2} : Γ=wide.

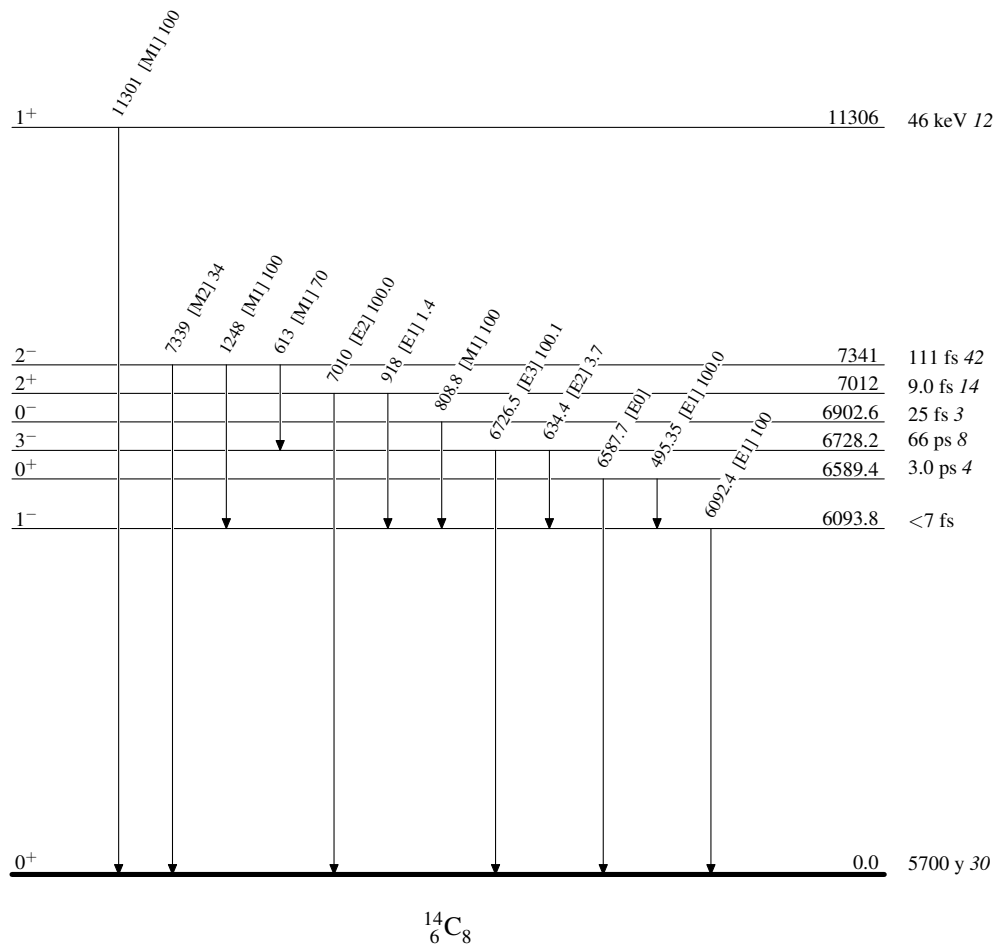
[†] Decay mode not specified.

Adopted Levels, Gammas 1991Aj01 (continued)

$\gamma(^{14}\text{C})$								
$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	$I_{(\gamma+ce)}$	Comments
6093.8	1 ⁻	6092.4 2	100	0.0	0 ⁺	[E1]		B(E1)(W.u.)>7.3×10 ⁻⁴
6589.4	0 ⁺	495.35 10	100.0 1	6093.8	1 ⁻	[E1]		B(E1)(W.u.)=0.0032 4
		6587.7 2		0.0	0 ⁺	[E0]	1.1 1	$I_{(\gamma+ce)}$: this decay mode is due entirely to internal pairs.
6728.2	3 ⁻	634.4 13	3.7 13	6093.8	1 ⁻	[E2]		B(E2)(W.u.)=1.5 6
		6726.5 13	100.1 13	0.0	0 ⁺	[E3]		B(E3)(W.u.)=2.4 3
6902.6	0 ⁻	808.8 3	100	6093.8	1 ⁻	[M1]		B(M1)(W.u.)=1.6 2
7012	2 ⁺	918 4	1.4 7	6093.8	1 ⁻	[E1]		B(E1)(W.u.)=0.0023 12
		7010 4	100.0 7	0.0	0 ⁺	[E2]		B(E2)(W.u.)=1.8 3
7341	2 ⁻	613 3	70 7	6728.2	3 ⁻	[M1]		B(M1)(W.u.)=0.29 10
		1248 3	100 7	6093.8	1 ⁻	[M1]		δ : $\delta(\text{E2/M1})=-0.07$ 30. B(M1)(W.u.)=0.049 20
		7339 3	34 7	0.0	0 ⁺	[M2]		δ : $\delta(\text{E2/M1})=0.04$ 9. B(M2)(W.u.)=0.38 15
11306	1 ⁺	11301 15	100	0.0	0 ⁺	[M1]		B(M1)(W.u.)=0.22 5

Adopted Levels, Gammas 1991Aj01Level Scheme

Intensities: Relative photon branching from each level

 $^{14}_6\text{C}_8$