Adopted Levels, Gammas 1991Aj01

History

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

Q(β^-)=156.476 *4*; S(n)=8176; S(p)=20831.2 *11*; Q(α)=−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 Levels

Cross Reference (XREF) Flags

A	^{14}B β^- decay	K	^{13}C(p,π^+)	U	^{14}C(^{14}C,^{14}C′)
B	^{13}C(n,γ) E=thermal	L	^{13}C(d,p)	V	^{14}N(γ,π^+)
C	^{13}C(n,γ) res	M	^{13}C(t,d)	W	^{14}N(π^-,γ)
D	^{9}Be(^{6}Li,p)	N	^{13}C(^{7}Li,^{6}Li)	X	^{14}N(n,p)
E	^{9}Be(^{7}Li,d)	O	^{14}C(γ,n) res	Y	^{14}N(d,2p)
F	^{11}B(α,p)	P	^{14}C(e,e′)	Z	^{14}N(t,^{3}He)
G	^{11}B(^{6}Li,^{3}He),^{11}B(^{7}Li,α)	Q	^{14}C(π,π′)	Others:	
H	^{12}C(t,p)	R	^{14}C(p,p′)	AA	^{15}N(γ,p)
I	^{12}C(α,2p)	S	^{14}C(d,d′)	AB	^{15}N(d,^{3}He)
J	^{13}C(n,n′) res	T	^{14}C(α,α′)	AC	^{16}O(^{6}Li,^{8}B)

E(level)	J$^\pi$	T$_{1/2}$	XREF	Comments
0.0	0$^+$	5700 y *30*	AB DEFGHIJKLMNOPQRSTUVWXYZ	XREF: Others: AA, AB, AC %β^-=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 μ=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

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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	
119×10² *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
135×10²?† *1*		<200 keV	K	
13700	2^-	≈1800 keV	J	%n=100
140.5×10²?† *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	
221×10² *1*	(2^-)		P	T=2 T: tentative.
23288† *15*		≈50 keV	F K	
244×10² *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)

$\gamma(^{14}C)$

E_i(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* δ: δ(E2/M1)=−0.07 *30*.
		1248 *3*	100 *7*	6093.8	1^-	[M1]		B(M1)(W.u.)=0.049 *20* δ: δ(E2/M1)=0.04 *9*.
		7339 *3*	34 *7*	0.0	0^+	[M2]		B(M2)(W.u.)=0.38 *15*
11306	1^+	11301 *15*	100	0.0	0^+	[M1]		B(M1)(W.u.)=0.22 *5*

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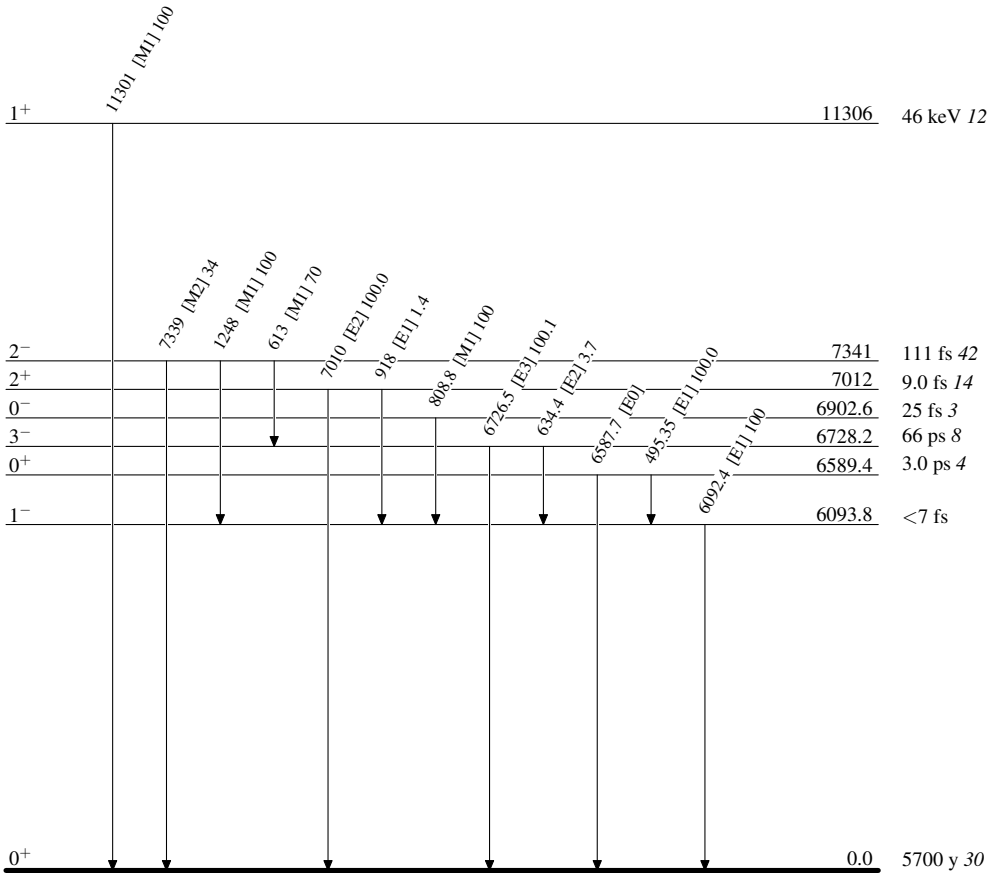
Level Scheme

Intensities: Relative photon branching from each level



$^{14}_{6}C_{8}$