Energy levels and branching ratios [90Aj01]. **$^{11}_{6}$C**

E^*	$2J^\pi$	$2T$	ℓ_p	$2j_\mathrm{p}$	S'^{+}_p	S'^{+}_p	$S_{\tau\mathrm{d}}$	L	σ (τ,n)	ℓ_n	$S_{\tau\alpha}$	S^{-}_n	$T_{1/2}$ or	Ref.
[keV]					(d,n)	(τ,d)			μb/sr		rel.u.	(p,d)	Γ_cm	
0	3⁻	1	1		1.12	0.88	1.09	0	2.96	1	1.00	2.72	20.39 m	90Aj01
2000.0(5)	1⁻		⟨1⟩		⟨0.18⟩	⟨0.036⟩		2	0.50	1	0.10	0.59	7.1 fs	90Aj01
			⟨3⟩			≤0.09	<0.40							90Aj01
4318.8(12)	5⁻		1		0.27	0.20	0.17**	2	0.32	3	0.057		<8.3 fs	90Aj01
4804.2(12)	3⁻		1		<0.02		<0.08**	2	0.39	1	0.11	0.37	<7.6 fs	90Aj01
6339.2(14)	1⁺		2			0.07	0.08	1	0.66	0	0.003		<76.2 fs	90Aj01
6478.2(13)	7⁻		1		0.86	0.56	0.73**	2	1.45	3	0.11		<6 fs	90Aj01
6904.8(14)	5⁺		2				0.06	3	1.34	2	0.018		<48 fs	90Aj01
			0				<0.04							90Aj01
7499.7(15)	3⁺		2				0.08	1	0.55	2	0.006		<63 fs	90Aj01
8104.5(17)	3⁻		1				0.07	0	2.17	1	0.017		0.04 fs	90Aj01
8420(2)	5⁻		1		0.65	0.46	0.73**	2	0.21	3	0.034		0.030 fs	90Aj01
8655(8)	7⁺		0	5	0.84*	0.45			0.80				≤5 keV	74Fu11
			2	5	0.8	0.32*								90Aj01
			0	7	0.63*	0.33	0.41							90Aj01
			2	7	0.6	0.24*	<0.34							90Aj01
8699(10)	5⁺		0	5	0.40*	0.14	<0.8						15 keV	90Aj01
			2	5	≤0.2	0.13								90Aj01
			0	7	0.30*	0.11								90Aj01
			2	7	≤0.15	0.10								90Aj01
9200(50)	5⁺												500 keV	
9650(50)	⟨3⁻⟩												210 keV	
9780(50)	⟨5⁻⟩												240 keV	
9970(50)	⟨7⁻⟩												120 keV	
10083(5)	7⁺												≈230 keV	
10679(5)	9⁺								0.42				200 keV	
10957(20)									0.82					
11030(30)		1											300 keV	
11440(10)													360 keV	
12160(40)		3											270 keV	
12400	X⁻													
12510(30)	1⁻	3											490 keV	
12650(20)	⟨7⁺⟩												360 keV	
13010														
13330(60)													270 keV	
13400													1100 keV	
13900(20)		⟨3⟩											200 keV	
14070(20)													135 keV	
14760(40)													≈450 keV	
15350(50)	X⁻													
15590(50)													≈450 keV	
16700	X⁻												800 keV	
18200														
23000														
28000														

(continued) $^{11}_{6}$C

E^* [keV]	$2J^\pi$	$2T$	ℓ_p	$2j_p$	S'^{+}_{p} (d,n)	S'^{+}_{p} (τ,d)	$S_{\tau d}$	L	σ (τ,n) μb/sr	ℓ_n	$S_{\tau\alpha}$ rel.u.	S^{-}_{n} (p,d)	$T_{1/2}$ orRef. Γ_{cm}
					70Bo34	70Bo34			74Fu11			69Ba05	
							90Aj01				90Aj01		

Additional data on this isotope can be found in [98Le17, 84Ha13, 78Va05, 75Ge16, 73Fo02].
* The more reliable value of S'^{+}_{p} according to [70Bo34, 90Aj01].
** Somewhat different values are given for other $2j_p$.
The concordance of different results for S'^{+}_{p} can be seen from data [90Aj01] in three columns.
Data for neutron pickup reactions (τ, α) and (p,d) are from [90Aj01] and [69Ba05] respectively; other data from [80Ho18, 75Ro27, 68Hi01] can be found in Supplement.

Energy levels and branching ratios [90Aj01]. Part 2 $^{11}_{6}$C

E^*	$2J^\pi$	C^2S	C^2S	C^2S	L	Ref.		Branching ratios in percentage				
							E^*_f:	0	2000.0	4318.8	4804.2	6478.2
[keV]		(p,d)	(p,d)	(p,d)	(τ,t)		$2J^\pi_f$:	3^-	1^-	5^-	3^-	7^-
0	3^-	2.36	2.5	2.98	2(2)	90Aj01						
2000.0(5)	1^-	0.26	0.61	0.78	2(5)	90Aj01		100				
						90Aj01						
4318.8(12)	5^-		0.08			90Aj01		100				
4804.2(12)	3^-		0.33			90Aj01		85.2(14)	14.8(14)			
6339.2(14)	1^+					90Aj01		66.5(21)	33.5(21)			
6478.2(13)	7^-					90Aj01		88.5(14)		11.5(14)		
6904.8(14)	5^+					90Aj01		91(2)		4.5(10)	4.5(10)	
						90Aj01						
7499.7(15)	3^+					90Aj01		36(2)	64(2)			
8104.5(17)	3^-					90Aj01		74(12)	26(5)			
8420(2)	5^-					90Aj01		100				
8655(8)	7^+					74Fu11						
						90Aj01						
						90Aj01						
						90Aj01						
8699(10)	5^+					90Aj01		42(10)		42(10)	2.4(15)	13.6(46)
						90Aj01						
						90Aj01						
						90Aj01						
9200(50)	5^+							74(18)		6(5)		20(10)
9650(50)	$\langle 3^- \rangle$							60(5)		32(10)	8(4)	
9780(50)	$\langle 5^- \rangle$							76(16)		8(2)	4(2)	12(4)
9970(50)	$\langle 7^- \rangle$									90(10)		10(7)
10083(5)	7^+									84(10)		16(8)
10679(5)	9^+							100				
10957(20)												
11030(30)												

(continued) $^{11}_{6}\mathrm{C}$

E^*	$2J^\pi$	C^2S	C^2S	C^2S	L	Ref.	Branching ratios in percentage				
						E^*_f:	0	2000.0	4318.8	4804.2	6478.2
[keV]		(p,d)	(p,d)	(p,d)	(τ,t)	$2J^\pi_\mathrm{f}$:	3^-	1^-	5^-	3^-	7^-
11440(10)											
12160(40)											
12400	X^-										
12510(30)	1^-										
12650(20)	$\langle 7^+ \rangle$										
13010											
13330(60)											
13400											
13900(20)											
14070(20)											
14760(40)											
15350(50)	X^-										
15590(50)											
16700	X^-										
18200											
23000											
28000											
			75Ro27		67Cr04						
		80Ho18		68Hi01							

Energy levels and branching ratios [90Aj01]. $^{12}_{6}\mathrm{C}$

E^*	J^π	C^2S	C^2S	C^2S	S_N	S_N	S_α	S_N	σ (τ,d)	S'^+_p	σ	ε	Ref.
[keV]		(p,d)	(p,d)	(d,t)	(d,n)	(^{7}Li,^{6}He)	(^{6}Li,d)	(τ,d)	μb/sr		(p,t)	(p,t)	
0	0^+	0.31		1.12	3.6	8.2	0.43	4.25	3700	5.7	860	20	71Re03
4438.9(3)	2^+				1.6	1.8	2.34	0.61	3800	1.1	1800	20	71Re03
7654.2(2)	0^+					0.083	0.05	0.06	70	0.48	30		71Re03
9641(5)	3^-					0.37	0.19	0.22	2840		60	3	71Re03
10180(70)	0^+												98Yo02
10844(16)	1^-					0.057		0.87	900				71Re03
11160(50)	$\langle 2^+ \rangle$							0.11	960				71Re03
11828(16)	2^-					0.079		0.13	690				71Re03
12710(6)	1^+	0.42		0.80	1.8	1.0		0.78	3620	0.79	110	20	71Re03
13352(17)	$\langle 2^- \rangle$												
14083(15)	4^+						4.0				200		
15110(3)	1^+	0.35	0.56	0.66	1.9	0.78		0.72	2800	0.83	80	6	71Re03
15440(40)	$\langle 2^+ \rangle$												
16106(1)	2^+	0.75	1.03	1.00	3.2	0.79		0.88	4780	0.6	520	6	71Re03
16570	2^-												
17230	1^-												
17760(20)	0^+		0.04								180	5	74Pa01

(continued) $^{12}_{6}\mathrm{C}$

E^*	J^π	C^2S	C^2S	C^2S	S_N	S_N	S_α	S_N	σ (τ,d)	S'^{+}_p	σ	ε	Ref.
[keV]		(p,d)	(p,d)	(d,t)	(d,n)	(^{7}Li,^{6}He)	(^{6}Li,d)	(τ,d)	μb/sr		(p,t)	(p,t)	
18160(70)	$\langle 1^+\rangle$												
18350(50)	3^-								7100				71Re03
18350(50)	2^-								10700				71Re03
18600(100)	$\langle 3^-\rangle$												
18710													
18800(40)	2^+		≤0.01								160	6	74Pa01
19200	$\langle 1^-\rangle$								5400				71Re03
19400(30)	$\langle 2^-\rangle$												
19550(50)	$\langle 4^-\rangle$								10800				71Re03
19690	1^+												
20000(100)	$\langle 2^+\rangle$												
20270(50)	$\langle 1^+\rangle$												
20500(100)	$\langle 3^+\rangle$												
20620(60)	$\langle 3^-\rangle$								900				71Re03
20980													
21600(100)	$3^-,2^+$												
22000(100)	1^-												
22400(40)	1^-								1900				71Re03
22650(70)	1^-												
23040	$\langle 2^-\rangle$												
23520(30)	1^-												
23920(80)	$\langle 1^-\rangle$												
24430													
24920													
25300(150)	$\langle 1^-\rangle$												
25400	1^-												
25950													
26800													
27000(300)	$\langle 1^-\rangle$												
27595.0(24)	0^+												76As01
27900													
28200	1^-												
28830(40)													
29400(300)													
29630(50)													76As01
30290(30)													
31160(30)													
32290(40)													
33470(210)													

(continued) $^{12}_{6}$C

E^*	J^π	C^2S	C^2S	C^2S	S_N	S_N	S_α	S_N	σ (τ,d)	$S_p'^+$	σ	ε	Ref.
[keV]		(p,d)	(p,d)	(d,t)	(d,n)	(^{7}Li,^{6}He)	(^{6}Li,d)	(τ,d)	μb/sr		(p,t)	(p,t)	
		80Ho18		77Li02			84Um04		71Re03		90Ya02		Ref.
			74Pa01		83Ne11	83Ne11		83Ne11		67Co32		90Ya02	Ref.

Additional data on this isotope can be found in [05Ko01, 04Ch06, 03Mi33, 03Fy02, 02Ho05, 01Bu20, 98Yo02, 93Ko17, 91Ca01, 84Ry01, 76As01, 68Ga13, 67Cr04].
Abundance: 98.89(1) %.
$\beta_L R$ in fm and the part of the isoscalar E0 energy-weighted sum rule (EWSR) from [98Yo02] are given in Supplement.
Three first values C^2S [80Ho18, 74Pa01, 77Li02] correspond to the neutron pickup.
Data from the (d,τ) and (^{7}Li,^{6}He) reaction obtained in [83Ne11] were compared there with the results from the (τ,d) reaction [71Re03] and theoretical estimates $S_p'^+$ [67Co32].
Integral two-neutron pickup cross section σ (p,t) in μb and factor ε are from [90Ya02].
Data for this isotope are considered in vol. LB I/18A.

Energy levels and branching ratios [90Aj01]. Part 2 $^{12}_{6}$C

E^*	J^π	T	$\beta_L R$	EWSR	C^2S	$T_{1/2}$ or	Ref.	Branching ratios in percentage					
								E_f^*:	0	4439	7654	9641	12710
[keV]			(α,α')	%	(d,t)	Γ_{cm}		J_f^π:	0^+	2^+	0^+	3^-	1^+
0	0^+				0.48	Stable	71Re03						
4438.9(3)	2^+				1.2	11(1) mev	71Re03		x				
7654.2(2)	0^+		0.31	5.0	0.18	8.5(10) eV	71Re03			x			
9641(5)	3^-		0.56			34(5) keV	71Re03		x				
10180(70)	0^+		0.16	1.8		2.14(15) MeV	98Yo02						
10844(16)	1^-		0.05			315(25) keV	71Re03						
11160(50)	$\langle 2^+ \rangle$					430(80) keV	71Re03						
11828(16)	2^-					260(25) keV	71Re03						
12710(6)	1^+					18.1(28) eV	71Re03		x	x			
13352(17)	$\langle 2^- \rangle$					375(40) keV							
14083(15)	4^+					258(15) keV							
15110(3)	1^+	1				43.6(13) eV	71Re03		x	x	x		x
15440(40)	$\langle 2^+ \rangle$					1.5(2) MeV							
16106(1)	2^+	1				5.3(2) keV	71Re03		x	x		x	x
16570	2^-					300 keV			x				
17230	1^-					1.15 MeV							
17760(20)	0^+	1				80(15) keV	74Pa01						
18160(70)	$\langle 1^+ \rangle$					240(50) keV							
18350(50)	3^-					220(50) keV	71Re03						
18350(50)	2^-					350(50) keV	71Re03						
18600(100)	$\langle 3^- \rangle$					300 keV							
18710						100 keV							
18800(40)	2^+	1				100(10) keV	74Pa01						
19200	$\langle 1^- \rangle$					≈1.1 MeV	71Re03						

(continued) $^{12}_{6}$C

E^* [keV]	J^π	T	$\beta_L R$ (α,α')	EWSR %	C^2S (d,t)	$T_{1/2}$ or Γ_{cm}	Ref.	Branching ratios in percentage E_f^*: 0, J_f^π: 0^+	4439, 2^+	7654, 0^+	9641, 3^-	12710, 1^+
19400(30)	$\langle 2^- \rangle$					480(40) keV						
19550(50)	$\langle 4^- \rangle$					490(60) keV	71Re03					
19690	1^+					230(35) keV						
20000(100)	$\langle 2^+ \rangle$					≈250 keV						
20270(50)	$\langle 1^+ \rangle$					140(50) keV						
20500(100)	$\langle 3^+ \rangle$					300(50) keV						
20620(60)	$\langle 3^- \rangle$					200(40) keV	71Re03					
20980						270 keV						
21600(100)	$3^-,2^+$					1.20(15) MeV						
22000(100)	1^-					800(100) keV						
22400(40)	1^-					275(40) keV	71Re03					
22650(70)	1^-					3.2 MeV						
23040	$\langle 2^- \rangle$					60 keV						
23520(30)	1^-					230(80) keV						
23920(80)	$\langle 1^- \rangle$					0.4(1) MeV						
24430						0.1 MeV						
24920						0.92 MeV						
25300(150)	$\langle 1^- \rangle$					0.51(10) MeV						
25400	1^-					≈2 MeV						
25950						≈0.4 MeV						
26800						270 keV						
27000(300)	$\langle 1^- \rangle$					1.4(2) MeV						
27595.0(24)	0^+	2				≤30 keV	76As01					
27900						≈350 keV						
28200	1^-					1.6 MeV						
28830(40)						1.54(9) MeV						
29400(300)						1.4(2) MeV						
29630(50)		2				≤200 keV	76As01					
30290(30)						1.96(15) MeV						
31160(30)						2.10(15) MeV						
32290(40)						1.32(23) MeV						
33470(210)						1.93(5) MeV						
				98Yo02			Ref.					
			98Yo02		78Da17		Ref.					

Energy levels and branching ratios [91Aj01]. $^{13}_{6}$C

E^* [keV]	$2J^\pi$	$2T$	ℓ_n	S_{dp}	S_N (d,p)	$\Gamma_\circ$ [meV]	σ (p,τ) μb	C^2S (d,d$'$)	$T_{1/2}$ or Γ_{cm}	Ref.
0.0	1^-	1	1	0.77	1.1	520	308(18)		Stable	86Oh01
3089.44(2)	1^+		0	0.65	1.1	360(50)	weak	0.83	1.07 fs	86Oh01

(continued) $^{13}_{6}\mathbf{C}$

E^* [keV]	$2J^\pi$	$2T$	ℓ_n	S_{dp}	S_N (d,p)	$\Gamma_\circ$ [meV]	σ (p,τ) μb	C^2S (d,d′)	$T_{1/2}$ or Γ_{cm}	Ref.
3684.51(2)	3^-		1	0.14	0.1		573(20)		1.10 fs	86Oh01
3853.81(2)	5^+		2	0.58	1.1	$6\cdot10^{-5}$		0.71	8.60 ps	86Oh01
6864(3)	5^+		2	0.017	0.04	0.069(36)	42(5)		6 keV	86Oh01
7492(10)	$\langle 7^+\rangle$								<5 keV	
7547(3)	5^-			0.009		115(6)	270(18)		1.2 keV	86Oh01
7686(6)	3^+			0.11					70 keV	86Oh01
8200(10)	3^+		2		1.0				1.1 MeV	88Co05
8860(20)*	1^-		1		0.5	3400(500)	61(9)		150 keV	68Fl03
9499.8(1)	9^+		⟨1⟩				71(12)		≤5 keV	68Fl03
9897(5)	3^-		1		0.1	320(50)			26 keV	88Co05
10460									200 keV	88Co05
10753(4)*	7^-			0.026					55 keV	86Oh01
10818(5)	$\langle 5^-\rangle$								24 keV	73Go03
10996(6)*	1^+								37 keV	88Co05
11088(5)	1^-					1000(200)	52(7)		<4 keV	68Fl03
11748(10)	3^-						137(14)		107 keV	73Go03
11848(4)*	7^+								68 keV	73Go03
11950(40)	5^+								500 keV	88Co05
12106(5)	3^+								540 keV	88Co05
12130(50)*	5^-								80 keV	88Co05
12140(70)	1^+								430 keV	88Co05
12187(10)	3^-								150 keV	
12438(12)	7^-						100(10)		140 keV	68Fl03
13000(10)									≈1000	98Le17
13280	$\langle 3^-\rangle$								315 keV	98Le17
13410	$\langle 9^-\rangle$								35 keV	88Co05
13570	7^-								620 keV	88Co05
13760	$\langle 5,3\rangle^+$								≈300 keV	88Co05
14130	3^-								≈150 keV	88Co05
14390(15)	$\langle 1,5\rangle^-$								115 keV	98Le17
14582(10)	$\langle 7^+,9^+\rangle$								230 keV	88Co05
14983(10)	$\langle 7^-\rangle$								380 keV	88Co05
15108(1)	3^-					22700(2600)	88(7)		5.49 keV	68Fl03
15270	9^+									88Co05
15526(11)	$\langle 3^-\rangle$								150 keV	88Co05
16080(7)	$\langle 7^+\rangle$								150 keV	88Co05
16150(50)	$\langle 5^-\rangle$								230 keV	88Co05
16183(28)									40 keV	
16950(50)									330 keV	88Co05
17360(10)									190 keV	88Co05
17533(3)		3							17 keV	
17699(5)	⟨3,5⟩								170 keV	88Co05
17920(50)										88Co05
18082(3)		⟨3⟩							12 keV	
18300(50)									300 keV	88Co05

(continued) $^{13}_{6}$C

E^* [keV]	$2J^\pi$	$2T$	ℓ_n	S_{dp}	S_N (d,p)	$\Gamma_\circ$ [meV]	σ (p,τ) μb	C^2S (d,d′)	$T_{1/2}$ or Γ_{cm}	Ref.
18497(10)									91 keV	
18699(5)	⟨3$^+$,5$^+$⟩								100 keV	88Co05
19510	⟨5$^-$⟩								≥500 keV	
19900									≈600 keV	88Co05
20021(13)									230 keV	88Co05
20057(4)									11 keV	
20110	⟨1$^-$⟩								1090 keV	
20110	⟨5$^+$⟩								440 keV	
20200(70)	⟨7$^+$⟩								560 keV	
20300	⟨7$^-$⟩								1560 keV	
20340	⟨9$^+$⟩								320 keV	
20429(8)									115 keV	88Co05
20520(70)									510 keV	88Co05
20600(8)									5600 keV	
20930(10)									240 keV	88Co05
21280(15)									159 keV	88Co05
21466(8)	⟨7$^+$,9$^+$⟩								270 keV	88Co05
21703(4)		⟨3⟩							18 keV	
21810(20)	⟨≥5⟩								114 keV	88Co05
22200(10)	⟨≤5⟩								1100 keV	88Co05
23000	⟨≤5⟩								≈1000 keV	88Co05
24000									≈4000 keV	88Co05
26000										88Co05
26800										88Co05
27500									≈1000 keV	88Co05
30000										88Co05
				86Oh01	82Mu14			78Da17	88Co05	Ref.
				91Aj01	73Da17	91Aj01	68Fl03			Ref.

Additional data on this isotope can be found in [02Th01, 02St01, 02Mi32, 01Li45, 00Bu25, 91Br26, 90Pi05, 81Se08, 74Ho06, 73Go15, 73Ho10].

Abundance: 1.11(1) %.

* proposed states with intrinsic oblate or triangular configuration [03Mi33]

The strongest states in (α,p) reaction are at 9.5, 11.85, 13.01, 14.08 and 14,82 MeV [91Br26].

Structure of excited states from a study of electron scattering was discussed in [89Mi01].

The second value S_{dp}=S_N [73Da17] was used in [82Mu14, 87Ly01] for comparison of cross sections σ_γ of primary γ-rays (with energies E_γ, see Supplement) with the channel-capture theory [60La05, 60La0A].

For low-lying excited states values C^2S from the (d,d′) reaction obtained in [78Da17] are given in the last column.

Data for this isotope are considered in vol. LB I/18A.

Energy levels and branching ratios [91Aj01]. Part 2 $^{13}_{6}$C

E^* [keV]	$2J^\pi$	$\Gamma_\circ$ rel.	E_γ [keV]	σ_γ mb	β_L (d,d′)	Ref.	Branching ratios in percentage E^*_f: 0.0, $2J^\pi_f$: 1^-	E^*_f: 3089.44, $2J^\pi_f$: 1^+	E^*_f: 3684.51, $2J^\pi_f$: 3^-
0.0	1^-	0.05(1)	4.945	2.38(5)		86Oh01			
3089.44(2)	1^+					86Oh01	100		
3684.51(2)	3^-		1.262	1.14(2)	0.5(9)	86Oh01	99.26(3)	0.74(3)	
3853.81(2)	5^+	1.3(2)				86Oh01	62.5(6)	1.20(4)	36.3(6)
6864(3)	5^+	0.055				86Oh01	100		
7492(10)	$\langle 7^+ \rangle$								
7547(3)	5^-	3.2				86Oh01	100		
7686(6)	3^+					86Oh01			
8200(10)	3^+					88Co05			
8860(20)*	1^-	0.23				68Fl03	100		
9499.8(1)	9^+					68Fl03			
9897(5)	3^-	0.016				88Co05	100		
10460						88Co05			
10753(4)*	7^-					86Oh01			
10818(5)	$\langle 5^- \rangle$					73Go03			
10996(6)*	1^+					88Co05			
11088(5)	1^-	0.036				68Fl03	100		
11748(10)	3^-					73Go03			
11848(4)*	7^+					73Go03			
11950(40)	5^+					88Co05			
12106(5)	3^+					88Co05			
12130(50)*	5^-					88Co05			
12140(70)	1^+					88Co05			
12187(10)	3^-								
12438(12)	7^-					68Fl03			
13000(10)						98Le17			
13280	$\langle 3^- \rangle$					98Le17			
13410	$\langle 9^- \rangle$					88Co05			
13570	7^-					88Co05			
13760	$\langle 5,3 \rangle^+$					88Co05			
14130	3^-					88Co05			
14390(15)	$\langle 1,5 \rangle^-$					98Le17			
14582(10)	$\langle 7^+,9^+ \rangle$					88Co05			
14983(10)	$\langle 7^- \rangle$					88Co05			
15108(1)	3^-	0.31				68Fl03			
15270	9^+					88Co05			
15526(11)	$\langle 3^- \rangle$					88Co05			
16080(7)	$\langle 7^+ \rangle$					88Co05			
16150(50)	$\langle 5^- \rangle$					88Co05			
16183(28)									
16950(50)						88Co05			
17360(10)						88Co05			
17533(3)									
17699(5)	$\langle 3,5 \rangle$					88Co05			
17920(50)						88Co05			

(continued) $^{13}_{6}$C

E^*	$2J^\pi$	$\Gamma_\circ$	E_γ	σ_γ	β_L	Ref.	Branching ratios in percentage			
							E^*_f:	0.0	3089.44	3684.51
[keV]		*rel.*	[keV]	mb	(d,d′)		$2J^\pi_\mathrm{f}$:	1^-	1^+	3^-
18082(3)										
18300(50)						88Co05				
18497(10)										
18699(5)	⟨3^+,5^+⟩					88Co05				
19510	⟨5^-⟩									
19900						88Co05				
20021(13)						88Co05				
20057(4)										
20110	⟨1^-⟩									
20110	⟨5^+⟩									
20200(70)	⟨7^+⟩									
20300	⟨7^-⟩									
20340	⟨9^+⟩									
20429(8)						88Co05				
20520(70)						88Co05				
20600(8)										
20930(10)						88Co05				
21280(15)						88Co05				
21466(8)	⟨7^+,9^+⟩					88Co05				
21703(4)										
21810(20)	⟨≥5⟩					88Co05				
22200(10)	⟨≤5⟩					88Co05				
23000	⟨≤5⟩					88Co05				
24000						88Co05				
26000						88Co05				
26800						88Co05				
27500						88Co05				
30000						88Co05				
			82Mu14	82Mu14		Ref.				
		91Aj01	87Ly01	87Ly01	78Da17	Ref.				

Energy levels and branching ratios [91Aj01]. $^{14}_{6}$C

E^*	J^π	T	L	β	L	σ (t,p)	σ (t,p)	S_N	S_N	E_γ	σ_γ	C^2S	$n\ell j$	$T_{1/2}$ or	Ref.
[keV]				(α,α')	(t,p)	μb/sr	μb/sr	(d,p)	(d,p)	[keV]	mb	(d,τ)	(d,τ)	Γ_cm	
0.0	0^+	1			0	4.43	1.26(5)	0.59	2.1	8174	1.15(5)	1.10	1p1/2	5700(30) yr	78Mo07
6093.8(2)	1^-		1	0.050	1	2.26	0.36(1)	0.75	0.78					<7 fs	91Aj01
6589.4(2)	0^+				0	1.77	0.23(1)	0.14				<0.01		3.0(4) ps	71Ka35
6728.2(13)	3^-		3	0.158	3	7.96	1.75(5)	0.65				<0.11	1d5/2	66(8) ps	91Aj01
6902.6(2)	0^-					0.08	0.014(5)	1.02						25(3) fs	84Pe0A
7012(4)	2^+		2	0.086	2	9.60	2.13(5)	0.07				1.13	1p3/2	9.0(14) fs	91Aj01

(continued) $^{14}_{6}$C

E^*	J^π	T	L	β	L	σ (t,p)	σ (t,p)	S_N	S_N	E_γ	σ_γ	C^2S	$n\ell j$	$T_{1/2}$ or	Ref.
[keV]				(α,α')	(t,p)	μb/sr	μb/sr	(d,p)	(d,p)	[keV]	mb	(d,τ)	(d,τ)	Γ_{cm}	
7341(3)	2^-					0.29	0.071(5)	0.72	0.64			<0.04	1d5/2	111(42) fs	84Pe0A
8317.9(8)	2^+		2	0.049	2	8.10	1.22(3)	0.07				0.86	1p3/2	3.4(7) keV	91Aj01
9746(7)	0^+				0	0.39		0.07						18 keV	78Mo07
9801(6)	3^-		3	0.068	⟨1⟩	0.29	weak							45(12) keV	91Aj01
10425(5)	2^+		4	0.038	2	5.00	0.98(4)					0.39	1p3/2	14 keV	91Aj01
10449(7)	≥1					≈0.5						incl			84Cl08
10498(4)	⟨3^-⟩				⟨3⟩	0.86	0.13(2)							26(8) keV	84Cl08
10736(5)*	4^+		4	0.018	4	7.91	3.53(5)	0.06						20(7) keV	84Pe0A
11306(15)	1^+		2	0.014								1.23	1p3/2	46(12) keV	84Pe0A
11395(8)	1^-				1	0.18	0.055(10)							22(7) keV	84Cl08
11500	1^-,2^-							≈1							84Pe0A
11666(10)	4^-				⟨1⟩	0.49	0.137(20)							20(7) keV	84Cl08
11730(9)	⟨5^-⟩				⟨5⟩	0.12									84Cl08
11900(3)	⟨1^-⟩													950(300) keV	78Aj02
12583(10)	2^-,3^-		3	0.04	⟨2,3⟩	0.45								95(15) keV	84Pe0A
12863(8)					2,3	1.45	0.35(3)							30(10) keV	84Cl08
12963(9)	⟨3^-⟩		⟨3⟩	0.033	⟨1⟩	0.66	0.47(3)							30(10) keV	84Pe0A
13500(1)			1	0.068										<200 keV	84Pe0A
13700	2^-													≈1800 keV	
14050(100)														<200 keV	
14667(20)	⟨4^+⟩													57(15) keV	84Cl08
14868(20)	6^+,5^-		3	0.079											84Pe0A
15200(23)	4^-														84Cl08
15370(30)															
15440(40)	⟨3^-⟩		3	0.096											84Pe0A
16020(50)	⟨4^+⟩														
16430(16)															84Cl08
16570(40)															
16715(30)	⟨1^+⟩													≈200 keV	
17300(30)	4^-														
17500	⟨1^+⟩													≈200 keV	84Cl08
17950(40)															
18100(40)															
18500															
20400															
21400															
22100(1)	⟨2^-⟩	⟨2⟩													
23288(15)														≈50 keV	
24400(1)	4^-	⟨2⟩												<300 keV	
24500															

(continued) $^{14}_{6}$C

E^* [keV]	J^π	T	L	β (α,α')	L (t,p)	σ (t,p) μb/sr	σ (t,p) μb/sr	S_{N} (d,p)	S_{N} (d,p)	E_γ [keV]	σ_γ mb	C^2S (d,τ)	$n\ell j$ (d,τ)	$T_{1/2}$ or Γ_{cm}	Ref.
				84Pe0A		78Mo07	78Aj02	84Pe0A		87Ly01		71Ka35	71Ka35		Ref.
									78Da17		87Ly01				Ref.

Additional data on this isotope can be found in [04Mi05, 03Mi33, 03So14, 02St01, 90Pi05, 82Fo01, 78Mo08, 75Se03].
* This state is clearly seen in the $(\alpha,^2\mathrm{He})$ reaction confirming its $(d_{5/2})^2$ character [78Ja10].
Parameters β in [91Aj01] and S_{N} for the (d,p) reaction in [86Aj01] are based on data in [84Pe0A].
The value S_{dp} from [78Da17] was used in [87Ly01] for comparison of experimental cross sections σ_γ of primary γ-transitions (energies E_γ, see Supplement) with the channel-capture theory [60La05, 60La0A]. Data for this isotope are considered in vol. LB I/18A.

Energy levels and branching ratios [91Aj01]. Part 2 $^{14}_{6}$C

E^* [keV]	J^π		Branching ratios in percentage		
		E^*_{f}:	0.0	6093.8	6728.2
		J^π_{f}:	0^+	1^-	3^-
6093.8(2)	1^-		100		
6589.4(2)	0^+		x	[100]	
6728.2(13)	3^-		96.4(13)	3.6(13)	
6902.6(2)	0^-			100	
7012(4)	2^+		98.6(7)	1.4(7)	
7341(3)	2^-		17(3)	49(3)	34(3)
11306(15)	1^+		100		

Energy levels and branching ratios [91Aj01]. $^{15}_{6}$C

E^* [keV]	$2J^\pi$	σ (^{7}Li,p) μb	Γ (d,p) keV	Γ_{n} (d,p) keV	S_{N} (d,p)	$T_{1/2}$ or Γ_{cm}	Ref.
0.0	1^+	28			0.88	2.449(5) s	75Go31
740.0(15)**	5^+	115			0.69	2.61(7) ns	75Go31
3103(4)	1^-	38	4500	96	0.021*	26(7)	03Mi01
4220(3)	5^-	128	11	0.31	0.028	37(10)	03Mi01
4657(9)	3^-					50(13)	03Mi01
4780(10)	3^+					1740(400) keV	
5833(20)	$\langle 3^+\rangle$	101				64(8) keV	74Ga33
5866(8)	1^-	incl				12(3)	03Mi01
6358(6)	$\langle 5,7^+,9^+\rangle$	120	152	1.3	0.009	<20 keV	74Ga33
6426(8)	$\langle 1^-\rangle$	200				14(4)	03Mi01
6449(7)	$\langle 9^-,11\rangle$	incl				<14 keV	75Go31

(continued) $^{15}_{6}$C

E^* [keV]	$2J^\pi$	σ (^{7}Li,p) μb	Γ (d,p) keV	Γ_n (d,p) keV	S_N (d,p)	$T_{1/2}$ or Γ_{cm}	Ref.
6536(4)**	⟨9$^-$,11⟩	77				<14 keV	75Go31
6626(8)	⟨3⟩	62				20(10) keV	74Ga33
6841(4)	⟨11$^+$,13$^+$⟩	245				<14 keV	75Go31
6881(4)	⟨9⟩	162				<20 keV	74Ga33
7095(4)	⟨3⟩	90				<15 keV	74Ga33
7352(6)**	[9$^-$]	202				20(10) keV	04Ca20
7414(20)							
7750(30)							
8010(30)							
8110(10)							
8470(15)	⟨9–13⟩	230				40(15) keV	04Ca20
8559(15)	⟨7–13⟩	220				40(15) keV	74Ga33
9000(30)							
9730(30)							
9789(20)	⟨9–15⟩	250				20(15) keV	74Ga33
10248(20)	⟨5–9⟩	160				20(15) keV	74Ga33
11015(25)							
11123(25)	⟨11–19⟩	300				30(20) keV	74Ga33
11680(30)							
11825(20)	≥13	450				70(30) keV	74Ga33
		74Ga33			75Go31	74Ga33	Ref.
					04Ca20		Ref.

Additional data on this isotope can be found in [04Fa06, 03No09, 03Bo24, 01Pr18, 00Fa17].
* Ratio Γ_n/Γ instead of S_N for this and all other states at higher energies [75Go31].
** This state is clearly seen in (α,^{2}He) reaction confirming its n + ^{14}C-core character [78Ja10].

Energy levels and branching ratios [91Aj01]. Part 2 $^{15}_{6}$C

E^* [keV]	$2J^\pi$	Branching ratios in percentage E^*_f: 0.0 / $2J^\pi_f$: 1$^+$
740.0(15)**	5$^+$	100

Energy levels and branching ratios [93Ti07].

$^{16}_{6}$C

E^* [keV]	J^π	$d\sigma/d\Omega$ μb/sr	$T_{1/2}$ or Γ_{cm}	Ref.	Branching ratios in percentage E^*_f: 0.0 J^π_f: 0^+	E^*_f: 1766 J^π_f: 2^+
0.0	0^+		0.747(8) s			
1766(10)	2^+	0.047		03Bo24	100	
3027(12)	$\langle 0^+ \rangle$					
3986(7)	2					100
4088(7)	$3^{\langle + \rangle}$					100
4142(7)	4^+	0.9		03Bo24		100
6109(15)	$\langle 2^+,3^-,4^+ \rangle$	<0.02	≤25 keV	03Bo24		
7740		0.15		03Bo24		
8920	$[5^-]$	0.68		04Bo12		
9100				04Bo12		
9420	$[4^-]$	0.18		04Bo12		
9980	$[3^-]$	0.41		04Bo12		
10390	$[2^-]$	0.16		04Bo12		
11080		0.05		03Bo24		
11850		0.36		03Bo24		
12540		0.14		03Bo24		
13120		0.47		03Bo24		
14260		0.07		03Bo24		
14900		0.13		03Bo24		
16440		0.19		03Bo24		
17400		0.12		03Bo24		
		03Bo24		Ref.		

Additional data on this isotope can be found in [05Wu0A, 04Im01, 03Ya08, 02Gr22, 02Zh33, 01Ma08].
Cross section $d\sigma/d\Omega$ corresponds to reaction $^{13}C(^{12}C,^{9}C)^{16}C$ used in [03Bo24] for ^{16}C production.
New spectroscopic data for ^{16}C [02Zh33, 03Ya08, 04Im01] are discussed in the review [05Ko10].

Energy levels [93Ti07].

$^{17}_{6}$C

E^* [keV]	$2J^\pi$	$T_{1/2}$ or Γ_{cm}	Ref.
0		193(13) ms	
292			96Ra02
295(10)			
1180			96Ra02

Additional data on this isotope can be found in [01Pr18, 01Ma08].