

Adopted Levels, Gammas 1991Aj01

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. Ajzenberg-selove	NP A523,1 (1991)	1-Jul-1990

$Q(\beta^-) = -1.395 \times 10^4$ 7; $S(n) = 13223.2$ 5; $S(p) = 7296.8$ 5; $Q(\alpha) = -10219.6$ 11 [2012Wa38](#)

Note: Current evaluation has used the following Q record $-13.92\text{E}+3$ 13 13222.4 5 7297.0 5 -10220.0 11 [1997Au04](#).

[Additional information 1.](#)

 ^{15}O LevelsCross Reference (XREF) Flags

A	$^{12}\text{C}(^3\text{He},\text{X})$ res	H	$^{14}\text{N}(\text{p},\text{n})$ res	O	$^{15}\text{N}(^3\text{He},\text{t})$
B	$^{12}\text{C}(\alpha,\text{n})$	I	$^{14}\text{N}(\text{p},\text{p})$ res	P	$^{16}\text{O}(\gamma,\text{n})$
C	$^{12}\text{C}(^6\text{Li},\text{t})$	J	$^{14}\text{N}(\text{p},^3\text{He})$ res	Q	$^{16}\text{O}(\text{p},\text{pn})$
D	$^{12}\text{C}(^{12}\text{C},^9\text{Be})$	K	$^{14}\text{N}(\text{p},\alpha)$ res	R	$^{16}\text{O}(\text{p},\text{d})$
E	$^{13}\text{C}(^3\text{He},\text{n})$	L	$^{14}\text{N}(\text{d},\text{n})$	S	$^{16}\text{O}(\text{d},\text{t})$
F	$^{14}\text{C}(\text{p},\pi^-)$	M	$^{14}\text{N}(^3\text{He},\text{d})$	T	$^{16}\text{O}(^3\text{He},\alpha)$
G	$^{14}\text{N}(\text{p},\gamma)$ res	N	$^{15}\text{N}(\text{p},\text{n})$	U	$^{17}\text{O}(\text{p},\text{t})$

E(level)	J^π	$T_{1/2}$	XREF		Comments
0.0	$1/2^-$	122.24 s 16	ABCDEFGF	LMNOPQRSTU	$\%e + \% \beta^+ = 100$ $\mu = 0.7189$ 8 (1989Ra17); $T = 1/2$ $T_{1/2}$: From 1977Az01 .
5183 1	$1/2^+$	5.7 fs 7	C E G	LM OP RST	
5240.9 3	$5/2^+$	2.25 ps 21	BCDE G	LMNOP RSTU	$\mu = +0.65$ 7 (1989Ra17)
6176.3 17	$3/2^-$	<1.74 fs	C E G	LMNOPQRSTU	
6793.1 17	$3/2^+$	<20 fs	C E G	LM O T	
6859.4 9	$5/2^+$	11.1 fs 17	BC E G	LM OP TU	
7275.9 6	$7/2^+$	0.49 ps 11	BCDEF	LMNO R TU	
7556.5 4	$1/2^+$	0.99 keV 10	E G	LMNO R T	$\%IT = 0.0042$; $\%p = 99.9958$ $\Gamma_\gamma = 0.042$ eV
8284.0 5	$3/2^+$	3.6 keV 7	C E G	LM T	$\%IT = 0.027$; $\%p = 99.973$ $\Gamma_\gamma = 0.46$ eV 6
8743 6	$1/2^+$	32 keV	E G	T	$\%IT = 0.0015$; $\%p = 99.9985$
8922 2	$5/2^+$	3.3 keV 3	BC E G	R T	$\%IT = ?$; $\%p = 100$
8922 2	$1/2^+$	7.5 keV	B E G	R T	$\%IT = ?$; $\%p = 100$
8982.1 17	$(1/2)^-$	3.9 keV 4	C E G	T	$\%IT = ?$; $\%p = 100$
9484 8	$(3/2)^+$	≈ 200 keV	G	T	$\%IT \approx 0.0046$; $\%p = 100$ $\Gamma_\gamma = 9.1$ eV 20
9488 3	$5/2^-$	10.1 keV 5	C E G	T	$\%IT = 0.024$; $\%p = 99.976$ $\Gamma_\gamma = 2.4$ eV
9609 2	$3/2^-$	8.8 keV 5	BC E G	T	$\%IT = 0.057$; $\%p = 99.943$ $\Gamma_\gamma = 5.0$ eV
9662 3	$(7/2, 9/2)^-$	2 keV 1	BC E I	T	$\%p = 100$
10290	$(5/2^-)$	3 keV 1	C E I	T	$\%p = 100$ Author suggests that the 10290 and 10300 may be the same state.
10300	$5/2^+$	11 keV 2	C E I	T	$\%p = 100$ Author suggests that the 10290 and 10300 may be the same state.
10461 5	$(9/2^+)$	<2 keV	BCDE G	T	$\%IT = ?$; $\%p = ?$
10480	$(3/2^-)$	25 keV 5	B E G I	S	$\%IT = 0.0014$ 4; $\%p = 100$ $\Gamma_\gamma = 0.35$ eV 7
10506?	$(3/2)^+$	140 keV 40	G I		$\%IT = ?$; $\%p = 100$
10917 12	$7/2^+$	90 keV	I	T	$\%p = 100$

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Adopted Levels, Gammas 1991Aj01 (continued) ^{15}O Levels (continued)

E(level)	J ^π	T _{1/2}	XREF			Comments
10938 3	1/2 ⁺	99 keV 5	G	I	T	%IT=0.032 6; %p=100 Γ _γ =32 eV 5
11025 3	1/2 ⁻	25 keV 2	G	I	T	%IT=0.0056 16; %p=100 Γ _γ =1.4 eV 4
11151 7		<10 keV	C	I	T	%p=100
11218 3	3/2 ⁺	40 keV 4	G	I	T	%IT=0.0185 24; %p=99.9815 24 Γ _γ =7.4 eV 6
11565 15		<10 keV	C	I	T	%p=100
11569 15	5/2 ⁻	20 keV 15	C	G	L	%IT=0.010 7; %p=99.990 7 Γ _γ =1.9 eV 3
11616 15	(3/2,1/2) ⁻	80 keV 50	G	I		%IT=?; %p=100
11719 8		<10 keV	BC	I	T	%p=100
11748 3	5/2 ⁺	99 keV 5	G	I		%IT=0.010 2; %p=99.990 2 Γ _γ =10 eV 2
11846 3	5/2 ⁻	65 keV 3	G	I		%IT=0.0022 9; %p=99.9978 9 Γ _γ =1.4 eV 6
11980 10	5/2 ⁻	20 keV 5	C	I	T	%p=100
12129 15	5/2 ⁺	200 keV 50		I		%p=100
12222 20		100 keV 50		I		%p=100
12255 13	5/2 ⁺	135 keV 15			U	%p=100 T=3/2
12295 [†] 10			C			
12471 3	5/2 ⁻ , (3/2 ⁻)	77 keV 4		I		%p=100
12600 [†] 10			C			
12800		≈250 keV		G		%IT=?; %p=100
12835 3		16 keV 1	BCD	I		%p=100
13008 3		215 keV 3		I		%p=100
13025 3		40 keV 30	A	I		%p=?; % ³ He=? The ³ He decay mode is tentative.
13450	(1/2,3/2) ⁺	≈1000 keV		G I K		%IT=?; %p=?; %α=? The α decay mode is tentative.
13490?	(3/2 ⁺)			I		%p=?
13600	5/2 ⁺			K		%p=?; %α=?
13700	3/2 ⁻			I		%p=100
13790	3/2 ⁻		A	I K		%n=?; %p=?; % ³ He=?; %α=?
13870		≈150 keV		G		%IT=?; %p=100
14030 40	(1/2 ⁻ , 3/2 ⁻)	160 keV 20	A			%n=?; %p=?; % ³ He=?
14170	5/2 ⁻			K		%p=?; %α=?
14270 10	1/2 ⁺	340 keV 30	ABC	HIJK		%n=?; %p=?; % ³ He=?; %α=?
14340	5/2 ⁺	240 keV	A	K		%p=?; % ³ He=?; %α=? The Γ and the ³ He decay modes are tentative.
14465 10	3/2 ⁺ , 5/2 ⁺	100 keV 10	A	HI K		%n=?; %p=?; % ³ He=?; %α=?
14700 40		170 keV 35	A	H		%n=?; %p=?; % ³ He=?
14950 40		400 keV 25	A	HIJK		%n=?; %p=?; % ³ He=?; %α=?
15050 [†] 10	(13/2 ⁺)		BCD			
15100	(1/2,3/2) ⁺	≈1000 keV		G		%IT=?; %p=100
15450 30		70 keV 20	A			%p=?; % ³ He=?; %α=?
15540 10			A C			%p=?; % ³ He=?; %α=? The decay modes shown are tentative.
15600 10			A C			%p=?; % ³ He=?; %α=? The decay modes shown are tentative.
15650 [†] 10			BC			
15800 10			A C			%n=?; % ³ He=?

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Adopted Levels, Gammas 1991Aj01 (continued) ^{15}O Levels (continued)

E(level)	J^π	$T_{1/2}$	XREF		Comments
15900 15	$1/2^-, 3/2^-$	350 keV	A		$\%^3\text{He}=?$; $\%\alpha=?$
16050 20		≈ 185 keV	A	HI K	$\%n=?$; $\%p=?$; $\%^3\text{He}=?$; $\%\alpha=?$
16100 20			A		$\%n=?$; $\%^3\text{He}=?$; $\%\alpha=?$
16210 20	$1/2^+$	≈ 140 keV	A	IJK	The neutron decay mode is tentative.
16430 75		560 keV 100	A	H J	$\%n=?$; $\%p=?$; $\%^3\text{He}=?$; $\%\alpha=?$
16750 50		700 keV 70	A		The neutron decay mode is tentative.
17050 60			A	G I K	$\%n=?$; $\%^3\text{He}=?$
17460 [†] 20	$1/2^-, 3/2^-$	640 keV 120			$\%IT=?$; $\%p=?$; $\%^3\text{He}=?$
17510 20			A		T=1/2
17990 50			A		$\%IT=?$; $\%n=?$; $\%^3\text{He}=?$; $\%\alpha=?$
18230 50			A		$\%^3\text{He}=100$
18670 60			A	G	$\%n=?$; $\%p=?$; $\%^3\text{He}=?$
19030 50	$(1/2, 3/2)^+$	520 keV 110	A		$\%IT=?$; $\%^3\text{He}=?$
19570 80		1120 keV 300	A		T=1/2
19910 50		780 keV 270	A		$\%IT=?$; $\%n=?$; $\%^3\text{He}=?$
20420 70	$(3/2, 1/2)^+$	970 keV 240	A		$\%IT=?$; $\%^3\text{He}=?$
21560 70			A	G	$\%n=?$; $\%^3\text{He}=?$
23.8 $\times 10^3$ 1			A		$\%IT=?$; $\%p=?$; $\%^3\text{He}=?$
26000?	$(13/2^-)$	≤ 500 keV	A		T=1/2
28000?			A		$\%n=?$; $\%^3\text{He}=?$
29000?			A		$\%IT=?$; $\%p=?$; $\%^3\text{He}=?$
			A		$\%IT=?$; $\%p=?$; $\%^3\text{He}=?$

[†] Decay mode not specified. $\gamma(^{15}\text{O})$

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.	$\delta^\dagger$	Comments
5183	$1/2^+$	5182 1	100	0.0	$1/2^-$	[E1]		B(E1)(W.u.)=0.0014 2
5240.9	$5/2^+$	5239.9 3	100	0.0	$1/2^-$	[M2+E3]	-0.10 4	B(M2)(W.u.)=0.55 6; B(E3)(W.u.)=4 2
6176.3	$3/2^-$	6174.9 17	100	0.0	$1/2^-$	[M1+E2]	+0.125 7	B(M1)(W.u.)>0.053; B(E2)(W.u.)>0.28
6793.1	$3/2^+$	6791.4 17	100	0.0	$1/2^-$	[E1(+M2)]	+0.02 2	B(E1)(W.u.)>1.9 $\times 10^{-4}$
6859.4	$5/2^+$	1618.4 10	100	5240.9	$5/2^+$	[M1(+E2)]	+0.04 3	B(M1)(W.u.)=0.46 7
7275.9	$7/2^+$	2034.9 7	100.0 12	5240.9	$5/2^+$	[M1]		B(M1)(W.u.)=0.0051 10
7556.5	$1/2^+$	7274.0 6	4.0 12	0.0	$1/2^-$	[E3]		B(E3)(W.u.)=6.4 25
		697.1 10	<11	6859.4	$5/2^+$			I_γ : $I_\gamma < 0.25 I_\gamma(763\gamma)$.
		763.4 17	40.3 11	6793.1	$3/2^+$	[M1]		B(M1)(W.u.)=1.0
		1380.1 17	100.0 7	6176.3	$3/2^-$	[E1]		B(E1)(W.u.)=0.022
		2373 1	27.5 11	5183	$1/2^+$	[M1]		B(M1)(W.u.)=0.0024
8284.0	$3/2^+$	7554.5 4	6.1 9	0.0	$1/2^-$	[E1]		B(E1)(W.u.)=8.5 $\times 10^{-6}$
		1424.5 10	2.3 6	6859.4	$5/2^+$	[M1]		B(M1)(W.u.)=0.09 3
		2107.5 17	4.1 12	6176.3	$3/2^-$	[E1]		B(M1)(W.u.): value is based on adopted branchings and Γ_γ from table 15.17.
								B(E1)(W.u.)=0.0026 8

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Adopted Levels, Gammas 1991Aj01 (continued)

$\gamma(^{15}\text{O})$ (continued)						
$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult. Comments
8284.0	3/2 ⁺	3042.8 6	79.3 10	5240.9	5/2 ⁺	[M1] B(E1)(W.u.): value is based on adopted branchings and Γ_γ from table 15.17. B(M1)(W.u.)=0.33 5 B(M1)(W.u.): value is based on adopted branchings and Γ_γ from table 15.17.
		3100.7 11	2.3 2	5183	1/2 ⁺	
		8281.5 5	100.0 5	0.0	1/2 ⁻	[E1] B(E1)(W.u.)=0.00103 13 B(E1)(W.u.): value is based on adopted branchings and Γ_γ from table 15.17.
8743	1/2 ⁺	2566 6	56 5	6176.3	3/2 ⁻	[E1] B(E1)(W.u.)=0.023
		3560 6	100 5	5183	1/2 ⁺	[M1] B(M1)(W.u.)=0.34
8922	5/2 ⁺	2063 2	72 8	6859.4	5/2 ⁺	
		2746 3	62 8	6176.3	3/2 ⁻	
		3738 2	100 8	5183	1/2 ⁺	
		8919 2	23 11	0.0	1/2 ⁻	
8922	1/2 ⁺	2063 2	20 20	6859.4	5/2 ⁺	
		2738 2	40 20			
		2746 3	40 20	6176.3	3/2 ⁻	
		8919 2	100 50	0.0	1/2 ⁻	
8982.1	(1/2) ⁻	3799 1	6.4 11	5183	1/2 ⁺	
		8979.2 17	100.0 11	0.0	1/2 ⁻	
9484	(3/2) ⁺	9481 8	100	0.0	1/2 ⁻	
9488	5/2 ⁻	2212 3	5.9	7275.9	7/2 ⁺	[E1] B(E1)(W.u.)=0.025
		2628 3	4.0	6859.4	5/2 ⁺	[E1] B(E1)(W.u.)=0.011
		3311 3	0.8	6176.3	3/2 ⁻	[M1] B(M1)(W.u.)=0.022 B(M1)(W.u.): value in table 2 is too large since $\Gamma_\gamma(3311)$ should be 0.017 eV rather than 0.22 eV, based on branching in table 15.17.
		4246 3	7.6	5240.9	5/2 ⁺	[E1] B(E1)(W.u.)=0.0048
		9481 3	100	0.0	1/2 ⁻	[E2] B(E2)(W.u.)=15
9609	3/2 ⁻	3433 2	2.5	6176.3	3/2 ⁻	[M1] B(M1)(W.u.)=0.1
		4367 2	24	5240.9	5/2 ⁺	[E1] B(E1)(W.u.)=0.029
		9606 2	100	0.0	1/2 ⁻	[M1] B(M1)(W.u.)=0.21
10461	(9/2 ⁺)	3185 5	61 10	7275.9	7/2 ⁺	
		3602 5	<6.5	6859.4	5/2 ⁺	
		5219 5	100 10	5240.9	5/2 ⁺	
10480	(3/2 ⁻)	3686	<7	6793.1	3/2 ⁺	E γ : note incorrect final level in table 15.17. 9.79 MeV should be 6.79 MeV.
		4303	<7	6176.3	3/2 ⁻	
		5238	67 10	5240.9	5/2 ⁺	
		10476	100 10	0.0	1/2 ⁻	
10938	1/2 ⁺	4144 3	<18	6793.1	3/2 ⁺	
		4761 3	50 18	6176.3	3/2 ⁻	[E1] B(E1)(W.u.)=0.16 5
		5754 3	77 7	5183	1/2 ⁺	[M1] B(M1)(W.u.)=2.7 5
		10934 3	100 18	0.0	1/2 ⁻	[E1] B(E1)(W.u.)=0.026 8
11025	1/2 ⁻	11021 3	100	0.0	1/2 ⁻	[M1] B(M1)(W.u.)=0.05 2
11218	3/2 ⁺	4424 3	<6	6793.1	3/2 ⁺	
		5975 3	16 7	5240.9	5/2 ⁺	[M1] B(M1)(W.u.)=0.20 4
		6034 3	19 7	5183	1/2 ⁺	[M1] B(M1)(W.u.)=0.22 5
		11213 3	100 7	0.0	1/2 ⁻	[E1] B(E1)(W.u.)=0.0095 10
11569	5/2 ⁻	4775 15	<5	6793.1	3/2 ⁺	
		5392 15	32 15	6176.3	3/2 ⁻	[M1] B(M1)(W.u.)=0.12 6
		6326 15	100 15	5240.9	5/2 ⁺	[E1] B(E1)(W.u.)=0.012 1
		11564 15	29 15	0.0	1/2 ⁻	[E2] B(E2)(W.u.)=0.8 5
11748	5/2 ⁺	5571 3	100 13	6176.3	3/2 ⁻	[E1] B(E1)(W.u.)=0.071 14

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Adopted Levels, Gammas 1991Aj01 (continued)

γ(¹⁵O) (continued)

E _i (level)	J ^π _i	E _γ	I _γ	E _f	J ^π _f	Mult.	Comments
11748	5/2 ⁺	6505 3	89 13	5240.9	5/2 ⁺	[M1]	B(M1)(W.u.)=0.9 2
11846	5/2 ⁻	6603 3	100	5240.9	5/2 ⁺	[E1]	B(E1)(W.u.)=0.011 5

[†] The signature has been changed, where necessary, from that given in 1991Aj01 in order to conform to the convention used in the nuclear data sheets.

Adopted Levels, Gammas 1991Aj01Level Scheme

Intensities: Relative photon branching from each level



