

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia		NDS 127, 69(2015)	1-Apr-2015

$Q(\beta^-)=10818$ 12; $S(n)=5230$ 13; $S(p)=12558$ 17; $Q(\alpha)=-12745$ 22 [2012Wa38](#)

 ^{22}F LevelsCross Reference (XREF) Flags

A	^{22}O β^- decay	D	$^{22}\text{Ne}(t, ^3\text{He})$
B	^{23}O β^-n decay	E	$^{22}\text{Ne}(^7\text{Li}, ^7\text{Be})$
C	$^9\text{Be}(^{14}\text{C}, p\gamma)$		

E(level) [†]	J ^π #	T _{1/2}	XREF	Comments
0.0	(4 ⁺)	4.23 s 4	ABCDE	$\% \beta^- = 100$; $\% \beta^- n < 11$ (1991Re02) $\mu = 2.6944$ 4; $Q = 0.003$ 2 J^π : Also $\log ft = 4.8$ in ^{22}F β^- decay to (4 ⁺) state in ^{22}Ne at 5523 keV level. Other possibility (3 ⁺), $\log ft = 5.3$ to 3 ⁺ state at 5641 keV level in ^{22}Ne . T _{1/2} : from 1974Da02 , others: 4.24 s 8 (1973Gu05), 4.0 s 4 (1965Va06). μ, Q : β^- -NMR (2010Mi13 , 2014StZZ).
71.65 20	(3 ⁺)@		A C	
310 30	(2 ⁺)		D	
709.1 3	(2 ⁺)@	57 fs 28	ABCDE	
1413.2 9	(5 ⁺)	27 fs 14	CDE	
1627.1 4	1 ⁺	66 fs 10	A C E	J^π : $\log ft = 4.6$ from 0 ⁺ , inconsistent with JPI=(3 ⁺) suggested in (t, ^3He) (1988CI04).
1632.4 8	(3 ⁺)	34 fs 21	CD	XREF: D(1637). J^π : From (t, ^3He). 1560.5 γ to (3 ⁺), 1632.6 γ to (4 ⁺).
2006.6 11	(2 ⁺)@	55 fs 14	CDE	XREF: E(2030).
2571.7 5	1 ⁺	53 fs 28	A C	J^π : $\log ft = 3.8$ from 0 ⁺ and the angular distribution of 1862.6 γ consistent with $J^\pi = 1^+$ assignment (2007Le28 -($^{14}\text{C}, p\gamma$)). Inconsistent with JPI=4 ⁺ , 5 ⁺ suggested in (t, ^3He) (1988CI04).
2580 30	4 ⁺ , 5 ⁺		DE	XREF: D(2590). J^π : Suggested in 1988CI04 -($^3\text{He}, t$). No comparable state consistent with the suggested J^π were identified in 2007Le28 ($^{14}\text{C}, p\gamma$).
2832.2 9	(4 ⁺)	37 fs 28	C	E(level), J^π : 2007Le28 assumes this state corresponds to a level at 2986 keV of charge exchange reactions. However, 2759.4 γ angular distribution rules out E2 decay. 2759.4 γ to (3 ⁺).
2881 26	(2 ⁺)		D	
2920 30	(1 ⁺ , 0 ⁺)		DE	XREF: D(2986). E(level): From ($^7\text{Li}, ^7\text{Be}$).
3170 30	(0 ⁺ , 1 ⁺)		D	
3376.4 11	(1 ⁺ , 2 ⁺)@	44 fs 21	CDE	XREF: E(3390). J^π : Inconsistent with $J^\pi = 4^+$ suggested in 1988CI04 ($^3\text{He}, t$).
3581.6 10	(5 ⁺)@	76 fs 21	CD	
3980 50	(2 ⁺ , 3 ⁺)		D	
4200 40	(4 ⁺ , 5 ⁺)		D	
4366 [‡] 30	(3 ⁺ , 4 ⁺)		DE	
4630 [‡] 30	(2 ⁺ , 3 ⁺)		DE	
4780 40	(2 ⁺ , 3 ⁺)		D	
4883 [‡] 30	(2 ⁺ , 3 ⁺)		DE	
5238 [‡] 30	(0 ⁺ , 1 ⁺)		DE	

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Adopted Levels, Gammas (continued) ${}^{22}\text{F}$ Levels (continued)

<u>E(level)[†]</u>	<u>XREF</u>
5590 40	D
5750 40	D
6595 40	D

[†] From least-squares fit to γ -ray energies, assuming $\Delta E=1$ keV – for unquoted uncertainties. Levels from charge exchange reaction data sets are noted.

[‡] Average of data from ($t, {}^3\text{He}$) and (${}^7\text{Li}, {}^7\text{Be}$). Uncertainty is the lowest experimental value.

From ${}^{22}\text{Ne}(t, {}^3\text{He})$ based on angular distribution measurements and DWBA, except where noted.

@ Assigned in 2007Le28 (${}^{14}\text{C}, p\gamma$), based on $\gamma(\theta)$ measurement and γ placement in the level scheme.

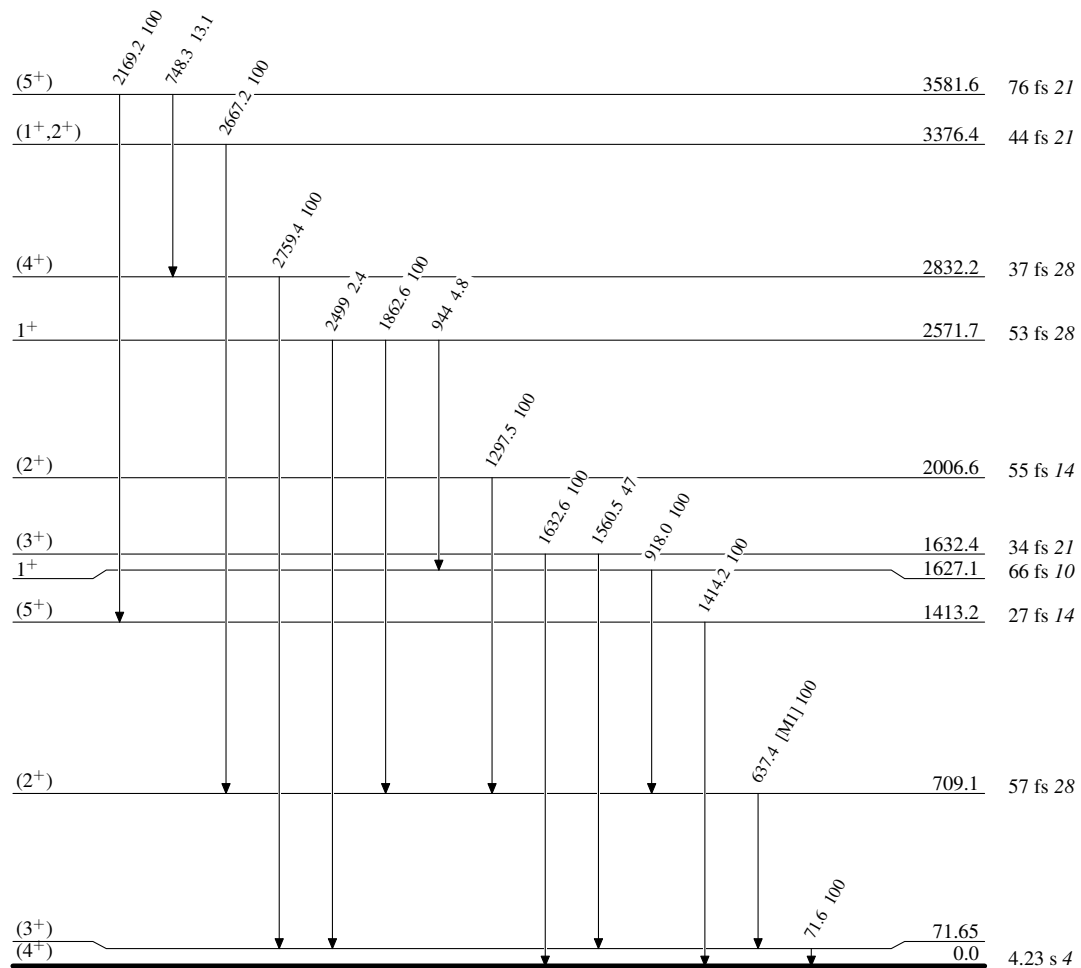
<u>$\gamma(^{22}\text{F})$</u>							
<u>$E_i(\text{level})$</u>	<u>J_i^π</u>	<u>$E_\gamma^\dagger$</u>	<u>$I_\gamma^\dagger$</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult.</u>	<u>Comments</u>
71.65	(3 ⁺)	71.6 [‡] 2	100 [‡]	0.0	(4 ⁺)		
709.1	(2 ⁺)	637.4 [‡] 2	100 [‡] 7	71.65	(3 ⁺)	[M1]	B(M1)(W.u.)=1.5 8 δ : nearly zero from $\gamma(\theta)$ ($(^{14}\text{C},p\gamma) - 2007\text{Le28}$) for 2 ⁺ assignment for 710 level.
1413.2	(5 ⁺)	1414.2	100	0.0	(4 ⁺)		
1627.1	1 ⁺	918.0 [‡] 2	100 [‡]	709.1	(2 ⁺)		
1632.4	(3 ⁺)	1560.5	47 7	71.65	(3 ⁺)		
		1632.6	100 10	0.0	(4 ⁺)		
2006.6	(2 ⁺)	1297.5	100	709.1	(2 ⁺)		
2571.7	1 ⁺	944 [‡]	4.8 [‡] 16	1627.1	1 ⁺		
		1862.6 [‡] 3	100 [‡] 11	709.1	(2 ⁺)		
		2499 [‡]	2.4 [‡] 16	71.65	(3 ⁺)		
2832.2	(4 ⁺)	2759.4	100	71.65	(3 ⁺)		
3376.4	(1 ⁺ ,2 ⁺)	2667.2	100	709.1	(2 ⁺)		
3581.6	(5 ⁺)	748.3	13.1 4	2832.2	(4 ⁺)		
		2169.2	100 12	1413.2	(5 ⁺)		

[†] From (${}^{14}\text{C}, p\gamma$), except otherwise noted.

[‡] From ${}^{22}\text{O} \beta^-$ decay.

Adopted Levels, Gammas**Level Scheme**

Intensities: Relative photon branching from each level

 $^{22}_{9}\text{F}_{13}$