Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia, Anagha Chakraborty	NDS 186, 2 (2022)	31-Mar-2022

Q(β^-)=1.350×10^4 *10*; S(n)=3.81×10^3 *10*; S(p)=1.437×10^4 *16*; Q(α)=−1.665×10^4 *13* 2021Wa16
S(2n)=1.139×10^4 *10*, S(2p)=3.880×10^4 *23*, Q(β^-n)=4.63×10^3 *10* (2021Wa16).
1970Ar09: ^{24}O produced and identified in ^{232}Th(^{22}Ne,X) reaction at 174 MeV, measured yield. A total of 25 events were assigned to ^{24}F.
Measurement of yields in fragmentation reactions: 2007No13, 2012Kw02, 2012Zh06.

^{24}F Levels

Cross Reference (XREF) Flags

A	^{24}O β^- decay	D	C(^{26}Ne,Xγ)
B	^{9}Be(^{25}F,^{24}Fγ)	E	C(^{27}Na,^{24}Fγ)
C	C(^{24}F,^{23}F)		

E(level)[†]	J$^\pi$[@]	T$_{1/2}$	XREF	Comments
0[‡]	(3$^+$)	382 ms *16*	ABCDE	%β^-=100; %β^-n<5.9 (1995ReZZ) J$^\pi$: Absence of ^{24}F β^- feeding from 0$^+$, authors in 2015Ca09 propose 3$^+$ based on ^{24}F β^- decay feeding to the 2$^+$ and 4$^+$ states of ^{24}Ne at 1981.5 and 3963.1 keV levels, respectively, quoting Ref. [18 − thesis] (not published yet); in 2004Sa14 (^{24}F,^{23}F) 3$^+$ based on one-neutron removal σ, core fragment longitudinal and transverse momentum distributions; also shell model calculations. T$_{1/2}$: Weighted average of 384 ms *16* (2007Su05 − 1980γ(t) − γ-ray gated) and 340 ms *80* (1986Du07). Other: 435 ms *65* (2008ReZZ, 1995ReZZ) − omitted in the weighted averaging as a secondary source and carries less weight for higher uncertainty. Recommended half-life is same as that in 2015Bi05 horizontal evaluation.
521.6[‡] *3*	(2$^+$)		AB DE	J$^\pi$: Absence of β^- feeding from 0$^+$ in ^{24}O β^- decay. γ from 1$^+$ and γ to (3$^+$). Shell model calculations also indicates 2$^+$.
1831.4 *4*	(1$^+$)		A E	J$^\pi$: log *ft*=4.1 in ^{24}O β^- decay.
2384?[#] *64*	(4$^+$,3$^+$)		E	
2739[#] *14*	(3$^+$,4$^+$)		E	
3562 *22*	(2$^+$,4$^+$)		E	
3640 *40*	(1$^+$,2$^+$)		E	

[†] From Eγ.
[‡] Suggested dominant configuration: $\pi d_{5/2}\otimes\nu s_{1/2}$ (>70%).
[#] Suggested dominant configuration: $\pi d_{5/2}\otimes \nu[(d_{5/2})^{-1}(s_{1/2})^2]$.
[@] Assignment from 2015Ca09 (^{27}Na,^{24}Fγ) based on ^{24}O β^- decay, ^{24}F β^- decay, in-beam studies (^{27}Na,^{24}Fγ), γ ray feeding, and shell model calculations. For a few cases, some details are added in comments.

Adopted Levels, Gammas (continued)

γ(^{24}F)

E_i(level)	J_i^π	E_γ[†]	I_γ	E_f	J_f^π	Comments
521.6	(2$^+$)	521.5 *3*	100	0	(3$^+$)	
1831.4	(1$^+$)	1309.5 *5*	38 *9*	521.6	(2$^+$)	I_γ: unweighted average of 46 *5* from ^{24}O β^- decay and 29 *6* from (^{27}Na,^{24}Fγ).
		1831.6 *5*	100 *8*	0	(3$^+$)	I_γ: weighted average of 100 *8* from ^{24}O β^- decay and 100 *12* from (^{27}Na,^{24}Fγ).
2384?	(4$^+$,3$^+$)	2384[‡#] *64*	100	0	(3$^+$)	
2739	(3$^+$,4$^+$)	2739[‡] *14*	100	0	(3$^+$)	
3562	(2$^+$,4$^+$)	3562[‡] *22*	100	0	(3$^+$)	
3640	(1$^+$,2$^+$)	3118[‡] *33*	100	521.6	(2$^+$)	

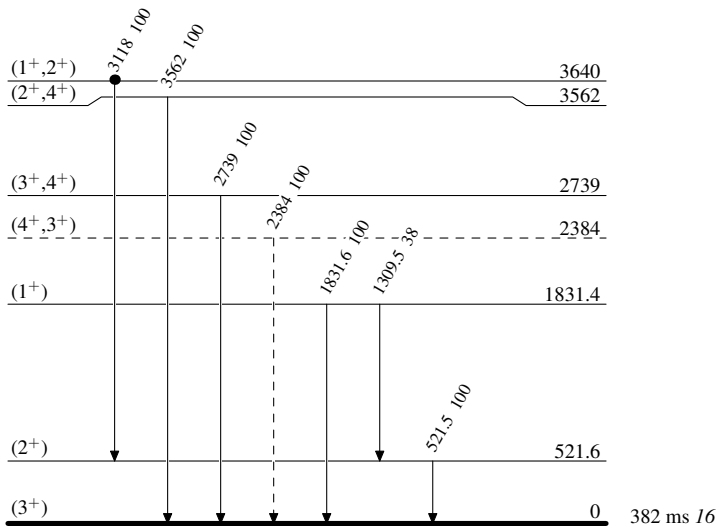
[†] From ^{24}O β^- decay, except otherwise noted.
[‡] From (^{27}Na,^{24}Fγ).
[#] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level

Legend
- γ Decay (Uncertain)
- Coincidence



$^{24}_{9}F_{15}$