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^-)=−23280 *SY*; S(n)=21280 *SY*; S(p)=3292 *19*; Q(α)=−9157 *20* 2021Wa16
ΔQ(β^-)=500 (syst), ΔS(n)=500 (syst) (2021Wa16).
S(2n)=39040 *500* (syst), S(2p)=3433 *19*, Q(εp)=8930 *19* (2021Wa16).

^{24}Si Levels

Cross Reference (XREF) Flags

A	^{2}H(^{23}Al,nγ)	D	Coulomb excitation
B	^{9}Be(^{26}Si,^{24}Siγ)	E	^{28}Si(α,^{8}He)
C	^{12}C(^{24}Si,^{23}Alpγ)		

E(level)†	J$^\pi$‡	$T_{1/2}$	XREF	Comments
0	0$^+$	141.3 ms *15*	ABCDE	%ε+%β^+=100; %εp=32.4 *13* <r^2>$^{1/2}$(^{24}Si)=3.71 fm (charge radius) (2011Fo18). $T_{1/2}$: From weighted average of 143.4 ms *22* (2015Su15), 140.5 *15* (2009Ic05), 140 ms *8* (1997Cz02, 1999Bl08), 139 ms *18* (1998Ba53, 2001Ba07), 103 ms *42* (1980Le18), and 100 ms *+90−45* (1981Ay01). Uncertainty is the lowest input value. %ε+p: Weighted average of 33.3 *16* (2011Ic06 − assuming 42.6 *16* (2009Ic05, 2009Ic06) superseded by 2011Ic06, same research group), 31.3 *13* (2016Su22, 2015Su15), 37.6 *42* from (1997Cz02, 1998Cz01, 1999Bl08 − assuming reported two branches ≥1.4 and ≥1.3 are equal to the lower limit. The uncertainty is assumed based on the %εp (^{22}Si)=32.0 *36* in 1997Cz02). Other:
1872 *3*	2$^+$	1.3 ps *4*	ABCDE	$T_{1/2}$: From B(E2)↑=0.0096 *30* (2002Ka80 − Coulomb Excitation) and adopted γ-ray properties.
3445 *5*	(2$^+$)		AB E	
3469 *6*	(0$^+$)		A	J$^\pi$: (2,4)$^+$ in 2006Yo05 (^{26}Si,^{24}Siγ), from shell model calculations and comparison with states of mirror ^{24}Ne nuclide. However, 2020Lo05 (^{26}Si,^{24}Siγ) note that the level was not populated in the 2-neutron knock-out reaction, suggesting to be the (0^+_2) state based on the theoretical considerations of the Thomas-Ehrman shift.

† Deduced from measured Eγ in ^{9}Be(^{26}Si,^{24}Siγ) 2006Yo05.
‡ Proposed by 2019Wo01 (^{23}Al,nγ) (based on shell model calculations, spectroscopic factor and comparison with the states of mirror nuclius ^{24}Ne), except where otherwise noted.

γ(^{24}Si)

E$_i$(level)	J$_i^\pi$	E$_\gamma$†	I$_\gamma$	E$_f$	J$_f^\pi$	Mult.	Comments
1872	2$^+$	1872 *3*	100	0	0$^+$	[E2]	B(E2)(W.u.)=4.6 *14* E$_\gamma$: Weighted average of 1860 *10* (2006Yo05), 1870 *6* (2020Lo05) both from (^{26}Si,^{24}Siγ) and 1874 *3* from (^{23}Al,nγ). Mult.: Populated in Coulomb excitation (2002Ka80).
3445	(2$^+$)	1573 *4*		1872	2$^+$		E$_\gamma$: Weighted average of 1550 *12* (2006Yo05), 1569 *7* (2020Lo05) both from (^{26}Si,^{24}Siγ) and 1575 *3* from (^{23}Al,nγ).
3469	(0$^+$)	1597 *5*		1872	2$^+$		E$_\gamma$: From (^{23}Al,nγ).

† From ^{9}Be(^{26}Si,^{24}Siγ) 2006Yo05.

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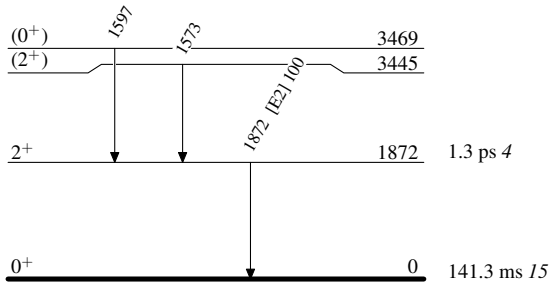
Level Scheme

Intensities: Type not specified



$^{24}_{14}Si_{10}$