Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Ameenah R. Farhan, Balraj Singh	NDS 110,1917 (2009)	30-Jun-2009

Q(β^-)=4209 *10*; S(n)=6972 *10*; S(p)=8893 *10*; Q(α)=−7192 *11* 2012Wa38
Note: Current evaluation has used the following Q record 4209 10 *6972* 10 *8892* 10 −7193 *11* 2009AuZZ,2003Au03.
S(2n)=16671 *10*, s(2p)=21099 *10* (2009AuZZ,2003Au03).
Additional information 1.

^{78}As Levels

Cross Reference (XREF) Flags

- A ^{78}Ge β^- decay (88 min)
- B ^{76}Ge(α,pnγ)
- C ^{78}Se(t,^{3}He)
- D ^{80}Se(d,α)

E(level)†	J$^\pi$	T$_{1/2}$#	XREF	Comments
0.0	2$^-$	90.7 min *2*	ABCD	%β^-=100 J$^\pi$: L(d,α)=3. log $f^{1u}t$=9.64 to 0$^+$. T$_{1/2}$: from timing of decay of ^{78}As (1970Mc01). Others: 87 min *3* (1970Pa05), 91 min *2* (1959Kj49), 91.2 min *6* (1953Su04), 88 min *6* (1953Cu33), 90 min *2* (1951Sh40) and 1950St02, 1937Sn02. Weighted average of all the listed values is the same as from 1970Mc01.
184.5 *3*	(3$^-$)		B	J$^\pi$: γ to 2$^-$; excitation function and $\gamma\gamma(\theta)$ in (α,pnγ).
211.7 *3*	(4$^-$)	3.9 ns *8*	BCD	XREF: C(213)D(207). J$^\pi$: γ to 2$^-$; excitation function and $\gamma\gamma(\theta)$ in (α,pnγ).
277.3 *3*	1$^+$		A cd	XREF: c(290)d(276). E(level): in both (t,^{3}He) and (d,α), it may Be unresolved doublet which implies the population of 293 level as well. J$^\pi$: log *ft*=4.26 from 0$^+$; L(d,α)=0+2.
293.9 *5*	1$^+$		A cd	XREF: c(290)d(276). J$^\pi$: log *ft*=5.61 from 0$^+$; L(d,α)=0+2.
364.7 *3*	(5$^-$)@	3.0 ns *6*	Bcd	XREF: c(374)d(367).
371.9 *4*	(4$^+$)@	0.90 ns *28*	Bcd	XREF: c(374)d(367).
439.4 *3*	(5$^-$)@		B	
459 *4*			CD	XREF: C(463).
504 *3*	0$^-$,1$^-$,2$^-$		CD	XREF: C(508). J$^\pi$: L(d,α)=1.
536‡ *4*	1$^+$		cD	XREF: c(562). J$^\pi$: L(d,α)=0+2.
567.6[a] *3*	(5$^+$)&	<0.69 ns	Bc	XREF: c(562).
617 *5*	0$^-$,1$^-$,2$^-$		cD	XREF: c(624). J$^\pi$: L(d,α)=1.
622.1[a] *4*	(6$^+$)&		Bc	XREF: c(624).
664 *6*			CD	
735.7 *5*			B	
750.0[a] *5*	(7$^+$)&		B	
752 *6*	0$^-$,1$^-$,2$^-$		CD	J$^\pi$: L(d,α)=1.
758.4 *4*	(6$^-$)@		B	
848 *6*	(0$^-$,1$^-$,2$^-$)		CD	XREF: C(850). J$^\pi$: L(d,α)=(1).
891 *7*			CD	XREF: C(888).

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Adopted Levels, Gammas (continued)

^{78}As Levels (continued)

E(level)[†]	J$^\pi$	XREF	Comments
939 *9*		CD	
967 *14*	1^+	CD	XREF: C(970). J$^\pi$: L(d,α)=0+2.
1007.6[a] *6*	(8^+)[&]	BCD	XREF: C(1020).
1072 *4*	1^+	CD	J$^\pi$: L(d,α)=0.
1105.0 *5*		BCD	XREF: C(1103)D(1103).
1131 *7*		CD	
1178 *13*		CD	
1273[‡] *10*		CD	
1355[‡] *30*		C	
1428 *20*		C	
1480 *20*		C	
1503.4[a] *7*	(9^+)[&]	B	
1558 *20*		C	
1626[‡] *20*		C	
1710 *25*		C	
1757[‡] *30*		C	
1875[‡] *30*		C	
1973 *20*		C	
2024.0[a] *7*	(10^+)[&]	B	
2068[‡] *20*		C	
2285[‡] *20*		C	
2383 *30*		C	

[†] From least-squares fit to Eγ's, assuming Δ(Eγ)=0.3 keV when not stated.
[‡] Multiplet in (t,^{3}He).
[#] From pγ(t) in (α,pnγ) (1996Do10), unless stated otherwise.
[@] From excitation function and DCO values in (α,pnγ) (1996Do10).
[&] From excitation function, DCO values, and possible band assignment in (α,pnγ) (1996Do10).
[a] Band(A): $\pi g_{9/2}\otimes\nu g_{9/2}$ multiplet. The assignment from 1996Do10 in (α,pnγ).

γ(^{78}As)

E$_i$(level)	J$_i^\pi$	E$_\gamma$[†]	I$_\gamma$	E$_f$	J$_f^\pi$	Mult.	α[#]	Comments
184.5	(3^-)	184.5		0.0	2^-			
211.7	(4^-)	(27.2)		184.5	(3^-)	[M1]	3.66	B(M1)(W.u.)=0.038
		211.7		0.0	2^-	[E2]	0.0484	B(E2)(W.u.)=4.8
277.3	1^+	277.3[‡] *3*	100	0.0	2^-			
293.9	1^+	293.9[‡] *5*	100	0.0	2^-			
364.7	(5^-)	153.1		211.7	(4^-)	[M1]	0.0288	B(M1)(W.u.)=0.0019
		180.2		184.5	(3^-)	[E2]	0.0876	B(E2)(W.u.)=2.3
371.9	(4^+)	187.5		184.5	(3^-)			
439.4	(5^-)	227.7		211.7	(4^-)			
567.6	(5^+)	128.1		439.4	(5^-)			
		195.8		371.9	(4^+)			
		202.9		364.7	(5^-)			
		355.8		211.7	(4^-)			
622.1	(6^+)	54.3		567.6	(5^+)			
		257.5		364.7	(5^-)			

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Adopted Levels, Gammas (continued)

$\gamma(^{78}As)$ (continued)

E_i(level)	J_i^π	E_γ[†]	E_f	J_f^π	E_i(level)	J_i^π	E_γ[†]	E_f	J_f^π
735.7		363.8	371.9	(4^+)	1105.0		346.6	758.4	(6^-)
750.0	(7^+)	127.9	622.1	(6^+)	1503.4	(9^+)	495.8	1007.6	(8^+)
758.4	(6^-)	319.0	439.4	(5^-)	2024.0	(10^+)	520.6	1503.4	(9^+)
		393.6	364.7	(5^-)			1016[@]	1007.6	(8^+)
1007.6	(8^+)	257.6	750.0	(7^+)					

[†] From (α,pnγ) unless stated otherwise.
[‡] From ^{78}Ge β^- decay.
[#] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
[@] Placement of transition in the level scheme is uncertain.

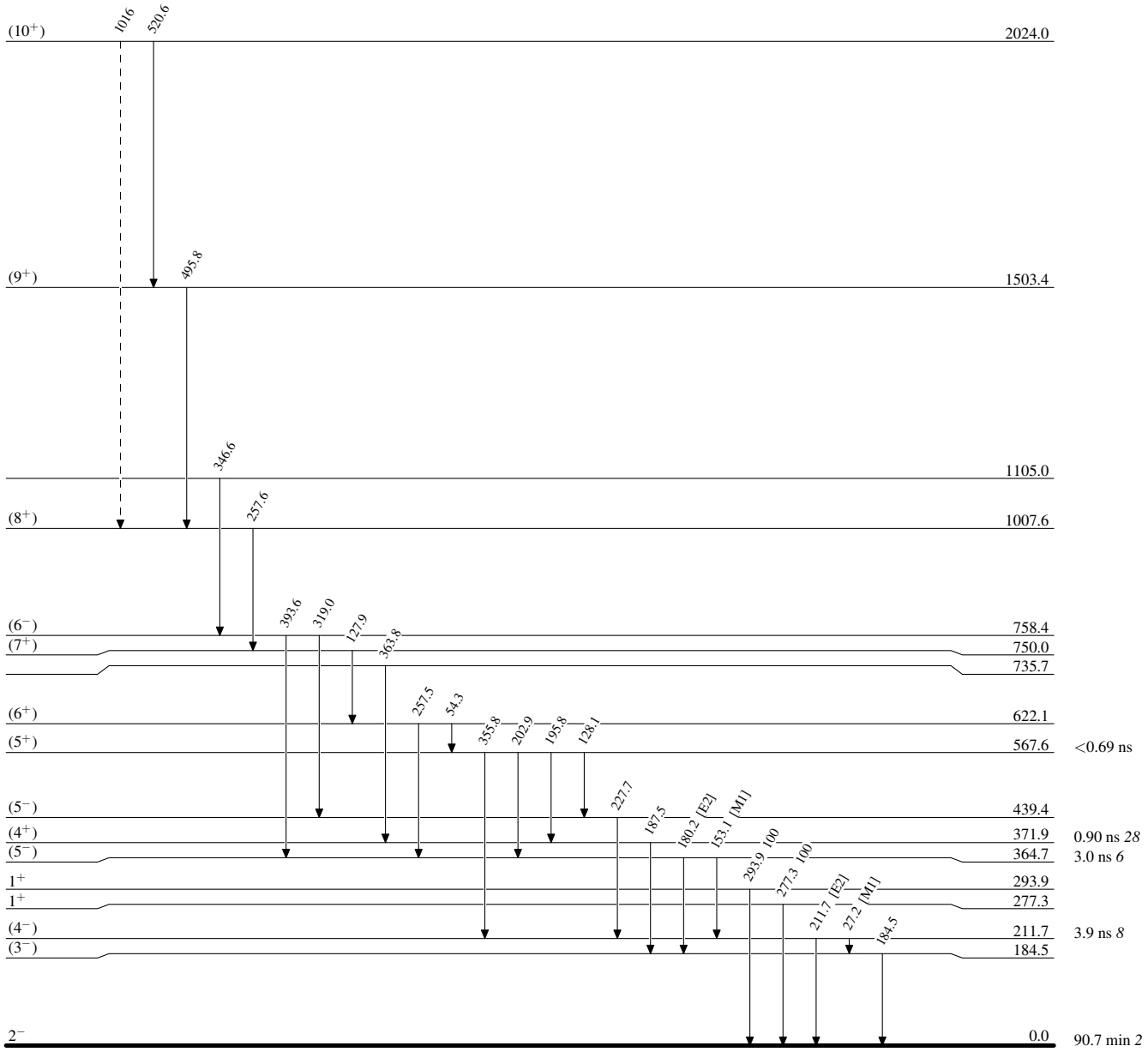
Adopted Levels, Gammas

Legend

Level Scheme

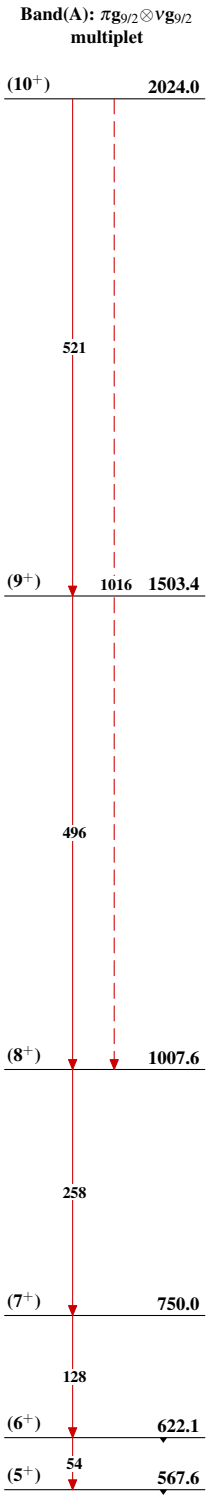
Intensities: Relative photon branching from each level

- - - - - - ► γ Decay (Uncertain)



$^{78}_{33}As_{45}$

Adopted Levels, Gammas



$^{78}_{33}As_{45}$