Adopted Levels, Gammas

History Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 112,1163 (2011)	15-Dec-2010

Q(β^-)=8484 *9*; S(n)=3438 *4*; S(p)=15192 *8*; Q(α)=−7569 *5* 2012Wa38

Note: Current evaluation has used the following Q record 8485 83438 4 *14*.86E3 5-7569 5 2003Au03,2009AuZZ.

Q(β^-), S(n), S(p), Q(α): from 2009AuZZ (cf. 8600 *100*, 3300 *100*, 14730 *110*, −7250 *310* (systematics), respectively, from 2003Au03).

Q(β^-n)=2567 *7* (2009AuZZ) (cf. 2680 *100* (2003Au03)).

For isotope shift and hfs data from collinear fast beam laser spectroscopy, see 1995Ke04.

^{93}Kr Levels

Cross Reference (XREF) Flags

- A ^{93}Br β^- decay
- B ^{94}Br β^-n decay
- C ^{252}Cf SF decay

E(level)†	Jπ	$T_{1/2}$	XREF	Comments
0‡	1/2+#	1.286 s *10*	ABC	%β^-=100; %β^-n=1.95 *11* μ=−0.413 *2* $\Delta<r^2>$(relative to ^{86}Kr) is 0.811 from collinear fast beam laser spectroscopy (1995Ke04); uncertainties are 0.004 (statistical), 0.023 (with systematic error in voltage calibration), 0.151 (total error, including uncertainty in evaluation from isotope shifts). $<r^2>^{1/2}$(charge)=4.280 *11* (2004An14). %β^-n: Value recommended by 1993Ru01; weighted average of data from 1975As04 (1.9% *2*), 1975As03 (1.92% *14*), 1969Ta04 (2.6% *5*). Other: 3.9% *6* (1968AmZZ). μ: from collinear fast beam laser spectroscopy (1995Ke04); ^{83}Kr standard, diamagnetic correction included. $T_{1/2}$: weighted average of 1.33 s *5* (1976Ru01), 1.27 s *2* (1975As04), 1.289 s *12* (1969Ca03). Others: 1.17 s *4* (1965Pa14), 1.19 s *5* (1968AmZZ).
117.45‡ *15*	(3/2+)		A C	Jπ: (M1) 117γ to 1/2+ g.s.
354.85‡ *25*	(7/2+)@	10 ns *2*	A C	$T_{1/2}$: from ^{252}Cf SF decay. Other: 22 ns *12* from $\gamma\gamma$(t) in ^{93}Br β^- decay. Jπ: $\Delta\pi$=no 237γ to (3/2+) 117; absence of γ to 1/2+ g.s.; analogy to N=57 isotone ^{97}Zr and N=59 nuclides ^{99}Zr and ^{97}Sr.
359.46 *15*	(3/2+,5/2+)@		A	Jπ: 359γ to 1/2+ g.s.; (M1) 242γ to (3/2+) 117; probably not 1/2+, by analogy to ^{97}Zr, ^{99}Zr and ^{97}Sr.
710.10 *18*	(3/2,5/2+)@		A	Jπ: 710γ to 1/2+ g.s.; J=1/2 unlikely by analogy to ^{97}Zr, ^{99}Zr and ^{97}Sr.
805.40 *20*			A	
983.3‡ *11*	(11/2+)		C	
1029.0 *4*			A	
1325.9 *8*			A	
1337.1 *7*			A	
1517.0‡ *15*	(15/2+)		C	
2401.8‡ *18*	(19/2+)		C	
3199.9‡ *21*	(23/2+)		C	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{93}Kr Levels (continued)

† From least-squares fit to Eγ, assigning 1 keV uncertainty to Eγ data for which authors did not state the uncertainty.
‡ Band(A): π=+ sequence.
# J=1/2 from collinear fast beam laser spectroscopy (1995Ke04); π=+ from comparison of μ with Schmidt values. μ is only about 22% of the single-particle value, but 1995Ke04 attribute this to quenching resulting from configuration mixing. Configuration=(ν $s_{1/2}$) is expected for near-spherical nuclei immediately above the N=56 sub-shell closure (1995Ke04).
@ log *ft*<5.9 is a little low for a first-forbidden transition; this may result from an incomplete decay scheme (≈21% of the photon intensity observed in ^{93}Br β^- decay is unplaced).

γ(^{93}Kr)

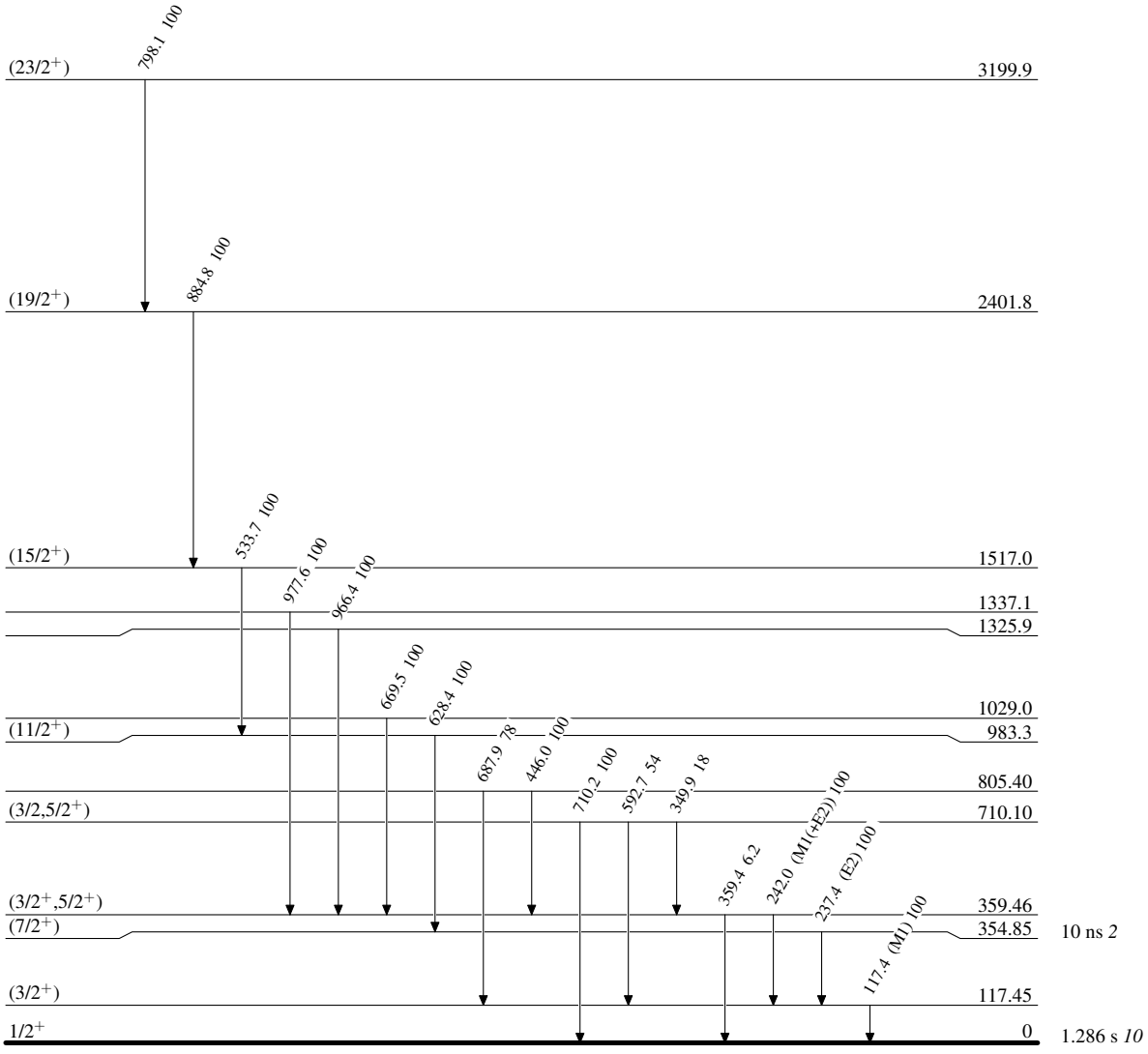
E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	Mult.†	α#	Comments
117.45	(3/2$^+$)	117.4 *2*	100	0	1/2$^+$	(M1)	0.0832	Mult.: D from α(K)exp in ^{93}Br β^- decay; Δπ=no based on shell-model (2000PfZZ); analogy to N=57 isotone ^{97}Zr and N=59 nuclides ^{99}Zr and ^{97}Sr.
354.85	(7/2$^+$)	237.4 *2*	100	117.45	(3/2$^+$)	(E2)	0.0388	B(E2)(W.u.)=2.9 *6* Mult.: M1 or E2 from β^- decay; ΔJ=2 from level scheme.
359.46	(3/2$^+$,5/2$^+$)	242.0 *2*	100 *13*	117.45	(3/2$^+$)	(M1(+E2))	0.024 *12*	
		359.4 *2*	6.2 *12*	0	1/2$^+$			
710.10	(3/2,5/2$^+$)	349.9 *5*	18 *11*	359.46	(3/2$^+$,5/2$^+$)			
		592.7 *4*	54 *13*	117.45	(3/2$^+$)			
		710.2 *2*	100 *9*	0	1/2$^+$			
805.40		446.0 *2*	100 *13*	359.46	(3/2$^+$,5/2$^+$)			
		687.9 *2*	78 *6*	117.45	(3/2$^+$)			
983.3	(11/2$^+$)	628.4‡	100	354.85	(7/2$^+$)			
1029.0		669.5 *3*	100	359.46	(3/2$^+$,5/2$^+$)			
1325.9		966.4 *7*	100	359.46	(3/2$^+$,5/2$^+$)			
1337.1		977.6 *6*	100	359.46	(3/2$^+$,5/2$^+$)			
1517.0	(15/2$^+$)	533.7‡	100	983.3	(11/2$^+$)			
2401.8	(19/2$^+$)	884.8‡	100	1517.0	(15/2$^+$)			
3199.9	(23/2$^+$)	798.1‡	100	2401.8	(19/2$^+$)			

† From ^{93}Br β^- decay.
‡ From 2010Hw03; uncertainty unstated by authors.
# 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.

Adopted Levels, Gammas

Level Scheme

Intensities: Relative photon branching from each level



$^{93}_{36}Kr_{57}$

Adopted Levels, Gammas

$^{93}_{36}Kr_{57}$