Adopted Levels, Gammas

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 145, 25 (2017)	1-Jul-2017

Q(β^-)=8128 *8*; S(n)=4170 *6*; S(p)=15441 *17*; Q(α)=−8778 *19* 2017Wa10
Additional information 1.
Other Reaction:
^{9}Be(^{136}Xe,X)(2012Qu01) ^{136}Xe primary beam, E=120 MeV/nucleon, impinged on a 235 mg/cm^2 Be target. Experiment performed at the NSCL Coupled Cyclotron Facility. Measured energy loss, total kinetic energy (TKE), time of flight, and isotopic half-life. $T_{1/2}$(g.s.)=0.42 s *+12−9*.

^{99}Sr Levels

Cross Reference (XREF) Flags

A ^{99}Rb β^- decay
B ^{100}Rb β^-n decay
C ^{7}Li(^{98}Rb,α2nγ)

E(level)†	J$^\pi$‡	$T_{1/2}$	XREF	Comments
0.0#	3/2$^+$	0.269 s *1*	ABC	%β^-=100; %β^-n=0.100 *19* μ=−0.261 *5* (1991Li05,2005St24) Q= 0.84 *8* (1991Li05,2005St24) %β^-n: Recommended value (1993Ru01). See 1986ReZU. μ,Q: from hfs (LASER) (1991Li05,1990Li28). J$^\pi$: from hfs (LASER) and analysis of μ (1991Li05,1990Li28). $T_{1/2}$: from 1986ReZU. Others: 0.42 s *+12−9* (2012Qu01), 0.274 s *4* (1983Re10), 0.266 s *5* (1983Wo10), 0.30 s *3* (1982Ga24), 0.29 s *4* (1978Ko29), 0.6 s *2* (1975As04).
90.8# *2*	(5/2$^+$)	0.58 ns *9*	ABC	$T_{1/2}$: from $\gamma\gamma$(t) (1984Pf01).
216.0# *2*	(7/2$^+$)		AB	
377.4# *4*	(9/2$^+$)		AB	
422.3@ *4*	(5/2$^-$)		AB	
534.4@ *4*	(7/2$^-$)		AB	
569.9# *3*	(11/2$^+$)		B	
682.3@ *3*	(9/2$^-$)		B	
684.4 *7*			A	
854.6 *4*			AB	
862.1? *5*			B	
993.9 *5*			AB	
1062.7 *4*			B	
1071.9& *8*	(3/2$^+$)		AB	J$^\pi$: γ-ray decay to J$^\pi$=3/2$^+$ and 5/2$^+$. No decay to J$^\pi$=7/2$^+$.
1106.1 *5*			AB	
1151.5& *6*	(5/2$^+$)		AB	
1181.0 *4*			B	
1195.7 *4*			B	
1240.6? *8*			B	
1328.0? *8*			B	
1382.6? *9*			B	
1427.1? *10*			B	
1663.9? *8*			A	
1669.6 *6*			A	
1971.9 *8*			A	
2320.8? *11*			A	

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Adopted Levels, Gammas (continued)

^{99}Sr Levels (continued)

† From decay scheme. Only the most important levels are reported in 1984Pf01. Others are from 1985PfZZ.
‡ From assignment to a rotational band.
# Band(A): ν3/2[411] band.
@ Band(B): ν5/2[322] band. J^π assignments to members of this band are based on the systematics of levels spacings in ^{101}Sr, ^{101}Zr, and ^{103}Zr (2001Lh02).
& Band(C): ν3/2[422] band.

$\gamma(^{99}Sr)$

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π	Mult.	δ @	α #	Comments
90.8	(5/2$^+$)	90.8 *2*	100	0.0	3/2$^+$	[M1+E2]	0.171 *13*	0.247 *7*	α(K)=0.215 *6*; α(L)=0.0266 *9*; α(M)=0.00449 *16* α(N)=0.000550 *18*; α(O)=3.20×10^{-5} *8* B(M1)(W.u.)=0.040 *7*; B(E2)(W.u.)=1.3×10^2 *3*
216.0	(7/2$^+$)	125.2 *2*	100	90.8	(5/2$^+$)	[M1+E2]	0.164 *16*	0.0970 *24*	α(K)=0.0851 *20*; α(L)=0.0100 *3*; α(M)=0.00168 *5* α(N)=0.000209 *6*; α(O)=1.28×10^{-5} *3*
		216.0 *2*	36	0.0	3/2$^+$				
377.4	(9/2$^+$)	161.0 *5*	100	216.0	(7/2$^+$)	[M1+E2]	0.160 *18*	0.0479 *11*	α(K)=0.0422 *10*; α(L)=0.00484 *13*; α(M)=0.000815 *21* α(N)=0.0001014 *25*; α(O)=6.36×10^{-6} *14*
		287.0 *5*	67	90.8	(5/2$^+$)				
422.3	(5/2$^-$)	331.0 *5*	65	90.8	(5/2$^+$)				
		422.8 *5*	100	0.0	3/2$^+$				
534.4	(7/2$^-$)	318.0 *5*	100	216.0	(7/2$^+$)				
		444.0 *5*	57	90.8	(5/2$^+$)				
569.9	(11/2$^+$)	192.0 *4*	100 *43*	377.4	(9/2$^+$)	[M1+E2]	0.13 *4*	0.0292 *9*	α(K)=0.0257 *8*; α(L)=0.00291 *10*; α(M)=0.000489 *17* α(N)=6.11×10^{-5} *20*; α(O)=3.89×10^{-6} *11*
		353.9 *3*	93 *18*	216.0	(7/2$^+$)				
682.3	(9/2$^-$)	111.9 *5*	67 *34*	569.9	(11/2$^+$)				
		147.6& *5*	78 *44*	534.4	(7/2$^-$)				
		304.4 *4*	100 *44*	377.4	(9/2$^+$)				
		466.4& *5*	33 *22*	216.0	(7/2$^+$)				
684.4		307.0 *5*	100	377.4	(9/2$^+$)				
854.6		763.8 *5*	100	90.8	(5/2$^+$)				
		854.7 *5*	100	0.0	3/2$^+$				
862.1?		646.2& *4*	100	216.0	(7/2$^+$)				
993.9		777.8 *5*	43	216.0	(7/2$^+$)				
		903.8 *10*	100	90.8	(5/2$^+$)				
		993.7& *10*	43	0.0	3/2$^+$				
1062.7		846.8 *3*	100 *24*	216.0	(7/2$^+$)				
		971.4& *9*	48 *24*	90.8	(5/2$^+$)				
1071.9	(3/2$^+$)	981.4 *10*	81	90.8	(5/2$^+$)				
		1071.6 *10*	100	0.0	3/2$^+$				

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Adopted Levels, Gammas (continued)

γ(^{99}Sr) (continued)

E_i(level)	J_i^π	E_γ †	I_γ ‡	E_f	J_f^π
1106.1		683.8 *5*	100	422.3	$(5/2^-)$
		1015.7 *10*	50	90.8	$(5/2^+)$
		1105.8& *10*	75	0.0	$3/2^+$
1151.5	$(5/2^+)$	936.0 *10*	100	216.0	$(7/2^+)$
		1060.8 *10*	69	90.8	$(5/2^+)$
		1151.0& *10*	23	0.0	$3/2^+$
1181.0		965.1 *5*	100 *22*	216.0	$(7/2^+)$
		1090.1 *5*	56 *28*	90.8	$(5/2^+)$
1195.7		1104.9 *4*	100	90.8	$(5/2^+)$
1240.6?		1149.8 *8*	100	90.8	$(5/2^+)$
1328.0?		1112.0& *7*	100	216.0	$(7/2^+)$
1382.6?		1291.8& *9*	100	90.8	$(5/2^+)$
1427.1?		1211.1& *9*	100	216.0	$(7/2^+)$
1663.9?		1573.0& *10*	67	90.8	$(5/2^+)$
		1664.0& *10*	100	0.0	$3/2^+$
1669.6		1455.0& *10*	20	216.0	$(7/2^+)$
		1578.5 *10*	100	90.8	$(5/2^+)$
		1668.6 *10*	100	0.0	$3/2^+$
1971.9		1881.0 *10*	50	90.8	$(5/2^+)$
		1972.0 *10*	100	0.0	$3/2^+$
2320.8?		2230.0& *10*	100	90.8	$(5/2^+)$

† From ^{99}Rb β^- decay (1984Pf01); 1985PfZZ estimate their uncertainties as 0.2 keV for the smallest energies and ≈ 1 keV for the largest. Individual uncertainties assigned by the evaluators.

‡ From 1985PfZZ (^{100}Rb β^- n decay, priv. comm.).

Additional information 2.

@ If No value given it was assumed δ=1.00 for E2/M1, δ=1.00 for E3/M2 and δ=0.10 for the other multipolarities.

& Placement of transition in the level scheme is uncertain.

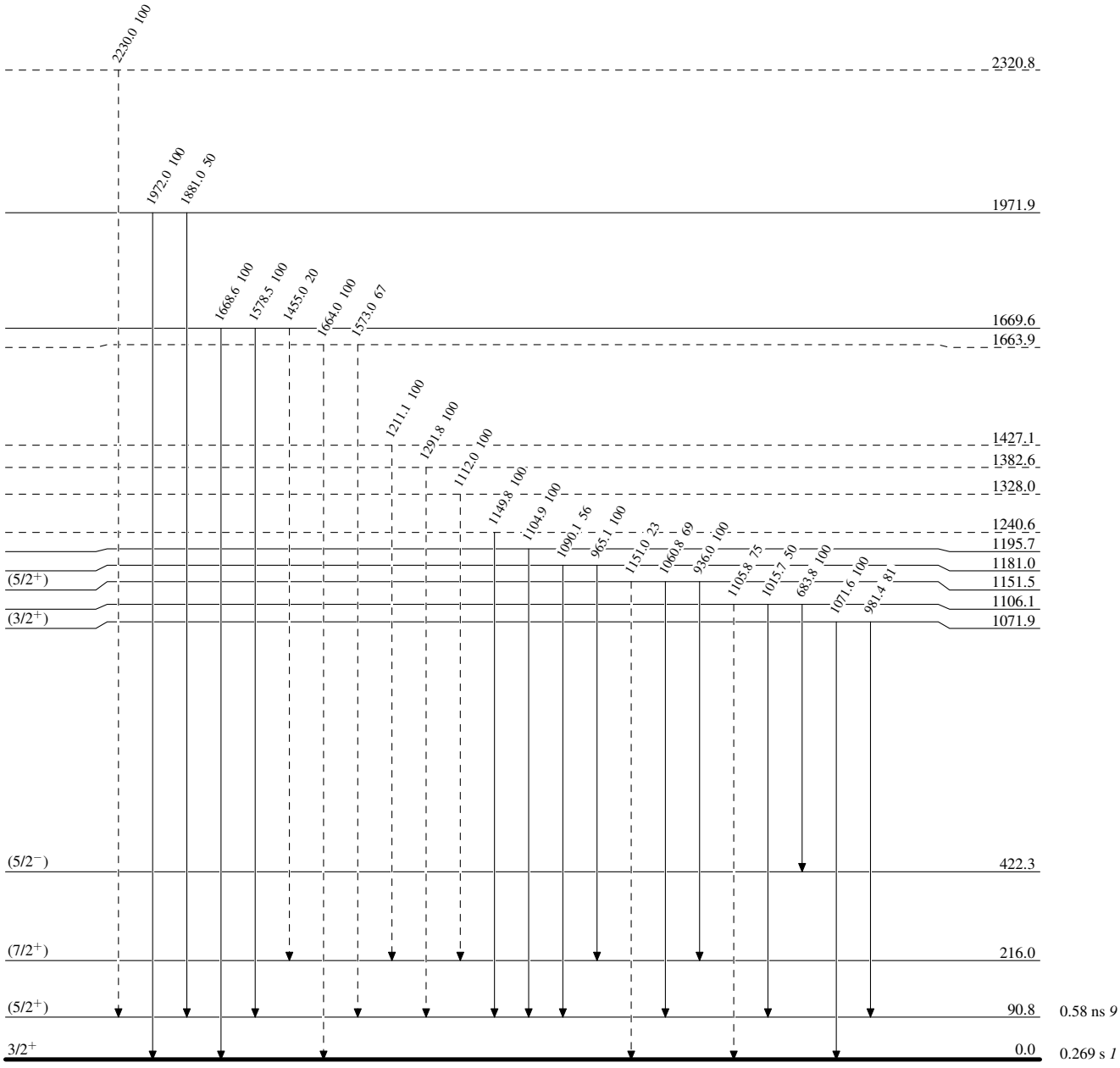
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{99}_{38}Sr_{61}$

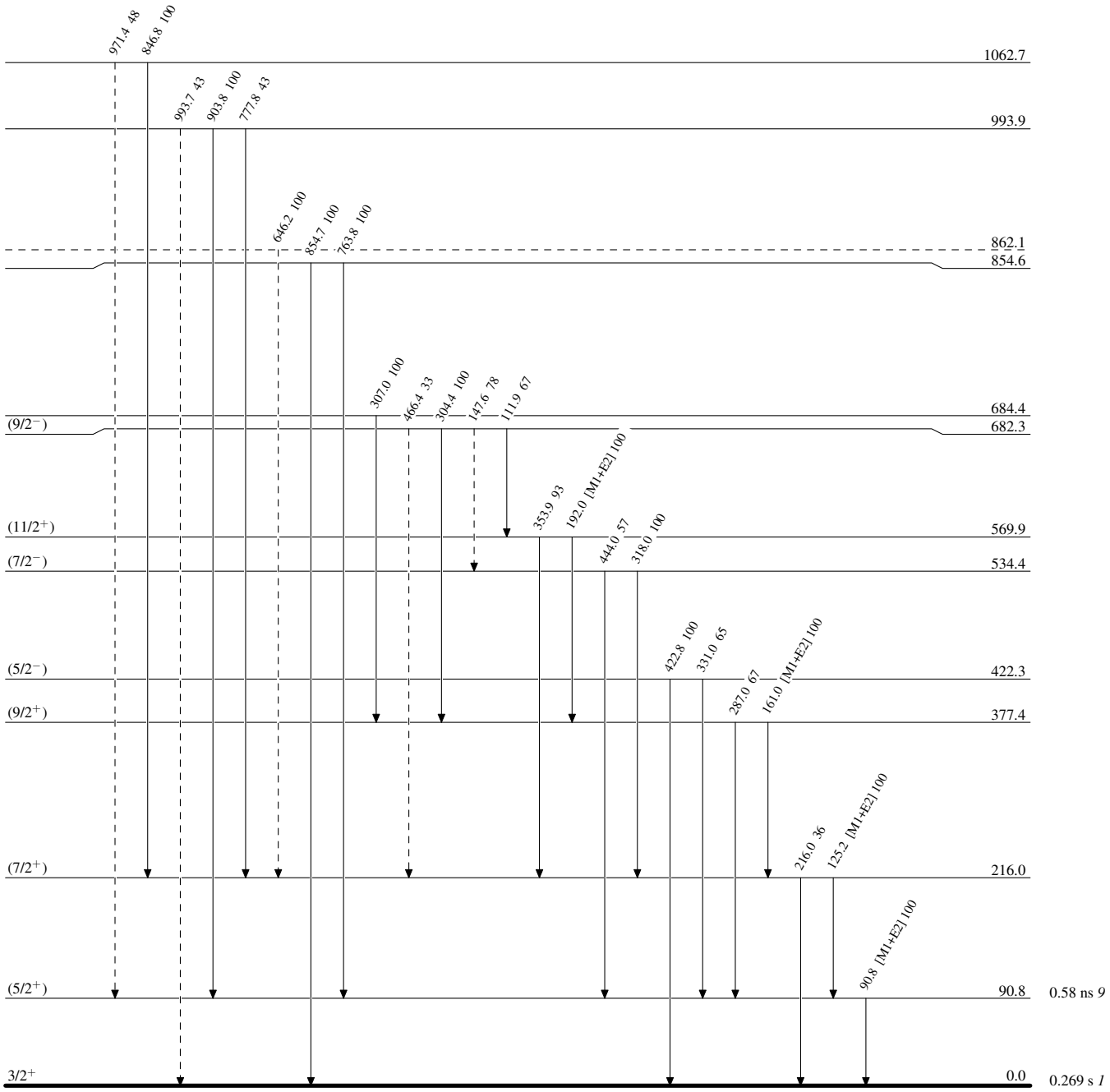
Adopted Levels, Gammas

Legend

Level Scheme (continued)

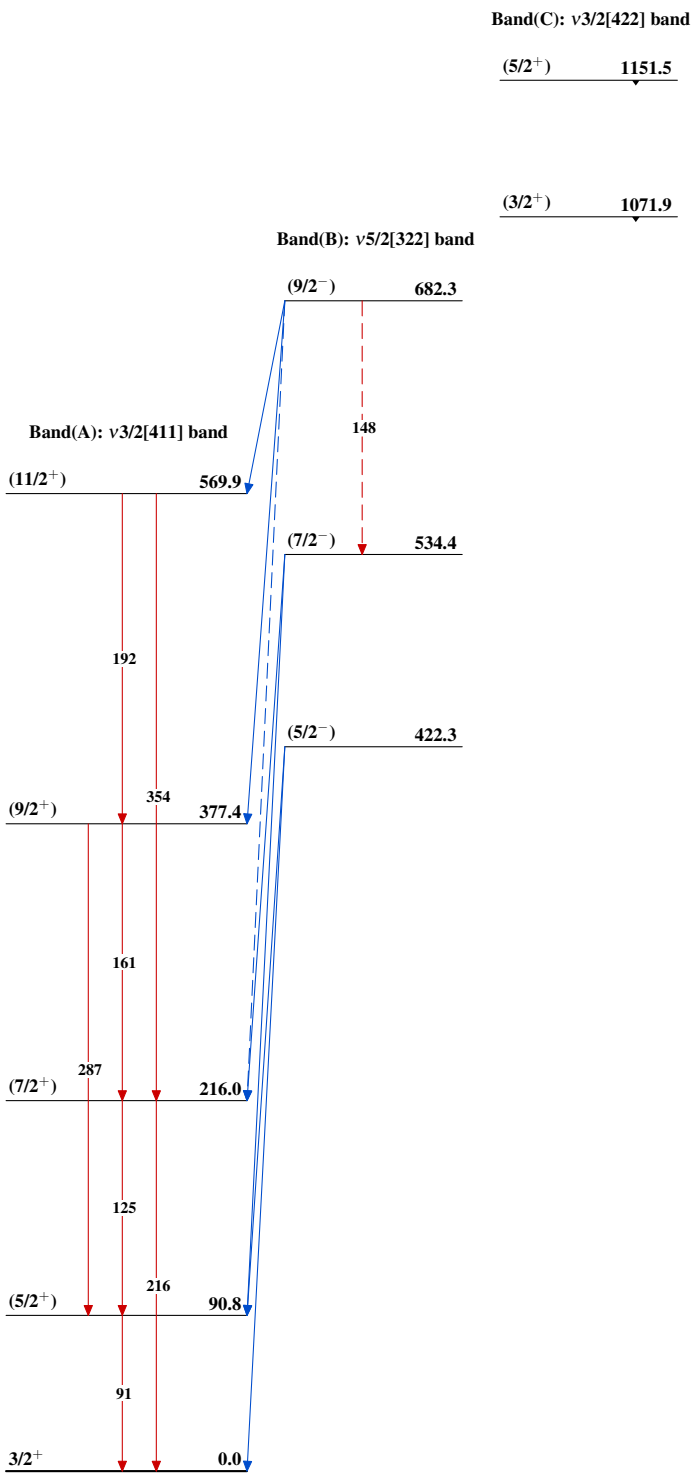
Intensities: Relative photon branching from each level

γ Decay (Uncertain)



$^{99}_{38}Sr_{61}$

Adopted Levels, Gammas



$^{99}_{38}Sr_{61}$