$^{88}Sr(^{7}Li,3n\gamma)$ 1977Br12

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 113, 2187 (2012)	15-Sep-2012

See also 1976Br24 (for singles γ spectrum).
E(Li)=34 MeV; measured Eγ, Iγ, $\gamma\gamma$-coincidences, $\gamma(\theta)$, $\gamma(\theta$,H,t), pulsed-beam γ timing (FWHM≈8 ns) and γ excitation functions.

^{92}Nb Levels

E(level)[†]	J^{π}[‡]	$T_{1/2}$[#]
0.0	7^+	
135.2 *11*	$(2)^+$	
225.4 *11*	$(2)^-$	
285.1 *11*	$(3)^+$	
357.0 *10*	$(5)^+$	
389.2 *11*	$(3)^-$	
479.5 *11*	$(4)^+$	
501.0 *3*	$(6)^+$	
1308?		
1419?		
1471?		
1945.3 *4*	(7^-)	≤6 ns
2087.5 *4*	9^-	≤6 ns
2203.3[&] *4*	11^-	167[@] ns *4*
2235.7 *4*	$10^{(-)}$	≤6 ns
2287.1 *5*	9^+	≤6 ns
2998.2 *5*	11^+	≤6 ns
3325.9 *5*	13^+	≤6 ns
3796.9[a] *11*	(12,13)	

[†] From least-squares fit to Eγ.
[‡] For E(level)>501 keV, J is deduced by authors on basis of $\gamma(\theta)$, γ branching, γ(t), Iγ in cascades; otherwise J is from Adopted Levels.
[#] ≤6 ns for levels deexcited by prompt gammas, based on overall time resolution of 8 ns in pulsed beam measurements of 1977Br12.
[@] From delayed measurement of 116γ.
[&] A g-factor of 0.88 *3* was determined from 116$\gamma(\theta$,H,t).
[a] Probably not an yrast level (1977Br12).

$\gamma(^{92}$Nb)

Quoted A_2 and A_4 values are from $\gamma(\theta)$ data of 1977Br12.

E$_\gamma$	I$_\gamma$[†]	E$_i$(level)	J^π_i	E$_f$	J^π_f	Mult.[‡]	Comments
90.2[#] *2*		225.4	$(2)^-$	135.2	$(2)^+$		
115.8 *2*	18	2203.3	11^-	2087.5	9^-	Q	A_2=+0.28 *2*, A_4=−0.04 *3*.
122.5[#] *2*		479.5	$(4)^+$	357.0	$(5)^+$		
142.2 *2*	3[a]	2087.5	9^-	1945.3	(7^-)		Iγ=3.0% 10.
148.2 *2*	44[a]	2235.7	$10^{(-)}$	2087.5	9^-	D	A_2=−0.21 *2*, A_4=0.02 *2*.
149.9 *2*	22[a]	285.1	$(3)^+$	135.2	$(2)^+$		
163.8 *2*	20	389.2	$(3)^-$	225.4	$(2)^-$	D	A_2=−0.17 *3*; A_4=0.04 *3*.
194.4[#] *2*		479.5	$(4)^+$	285.1	$(3)^+$		
254 *1*	[@]	389.2	$(3)^-$	135.2	$(2)^+$		
327.7 *2*	43	3325.9	13^+	2998.2	11^+	Q	A_2=+0.35 *1*, A_4=−0.10 *1*.
357[#] *1*		357.0	$(5)^+$	0.0	7^+	(Q)	Mult.: A_2=+0.21 *3*, A_4=−0.04 *4* for doublet with ^{91}Nb G.
471[#] *1*		3796.9	(12,13)	3325.9	13^+		
501.0 *3*	41	501.0	$(6)^+$	0.0	7^+	D	A_2=−0.02 *3*, A_4=−0.04 *3*.
711.1 *2*	20[&]	2998.2	11^+	2287.1	9^+	Q	A_2=+0.33 *4*, A_4=−0.11 *5*. Iγ=35% 2.
762.5 *2*	36[&]	2998.2	11^+	2235.7	$10^{(-)}$	D	A_2=−0.20 *1*, A_4=0.00 *2*. Iγ=65% 2.

Continued on next page (footnotes at end of table)

^{88}Sr(^{7}Li,3nγ) 1977Br12 (continued)

γ(^{92}Nb) (continued)

E_γ	I_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	δ[‡]	Comments
795[b]		2998.2	11$^+$	2203.3	11$^-$			Iγ≤4%.
919[b]		1308?		389.2	(3)$^-$			
1030[b]		1419?		389.2	(3)$^-$			
1082[b]		1471?		389.2	(3)$^-$			
1444.5 *10*	5	1945.3	(7$^-$)	501.0	(6)$^+$			
1586.4 *10*	[@]	2087.5	9$^-$	501.0	(6)$^+$			Iγ=1.2% 4.
1945[#b] *1*	≤10	1945.3	(7$^-$)	0.0	7$^+$			
2087.4 *4*	100	2087.5	9$^-$	0.0	7$^+$	M2+E3	+11 *2*	A_2=+0.083 *15*, A_4=−0.128 *16*; A_6=+0.111 *19*. Mult.: Q+O from from $\gamma(\theta)$; RUL eliminates E2+M3 for prompt G. Iγ=95.8% 11.
2287.2[#] *10*	≈40	2287.1	9$^+$	0.0	7$^+$	Q		A_2=+0.30 *2*, A_4=−0.06 *2*.

[†] Intensity relative to I(2087γ)=100. Additional branching ratio information derived from delayed Iγ(90°) corrected for the expected $\gamma(\theta)$ (shown in authors′ fig. 1) are quoted under comments.

[‡] From $\gamma(\theta)$. Authors identify 328γ, 711γ and 2287γ as stretched L=2 cascade, 763γ, 148γ as stretched L=1 cascade, and 116γ as a stretched Q transition.

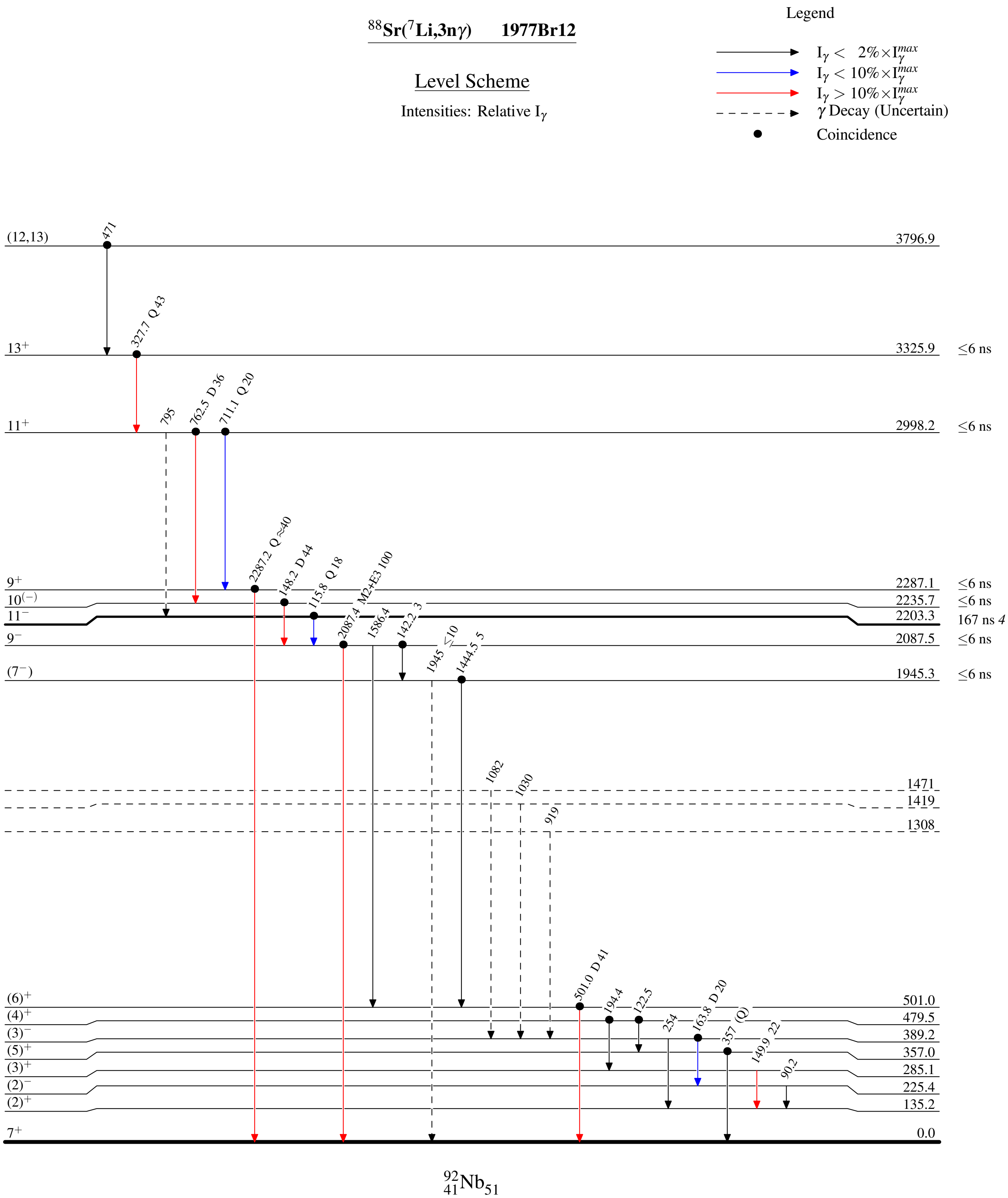
[#] Doublet with γ from neighboring nuclide.

[@] Weak line.

[&] I(711γ):I(763γ) disagrees with result from (^{3}He,2nγ). See Adopted Gammas.

[a] Iγ(90°) (in intrinsic Ge detector) relative to I(148.2γ)+I(149.9γ) observed with Ge(Li) detector.

[b] Placement of transition in the level scheme is uncertain.



$^{88}Sr(^{7}Li,3n\gamma)$ 1977Br12
Level Scheme
Intensities: Relative I_γ
Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)
Coincidence
(12,13) 3796.9
13^+ 3325.9 ≤6 ns
11^+ 2998.2 ≤6 ns
9^+ 2287.1 ≤6 ns
$10^{(-)}$ 2235.7 ≤6 ns
11^- 2203.3 167 ns 4
9^- 2087.5 ≤6 ns
(7^-) 1945.3 ≤6 ns
1471
1419
1308
$(6)^+$ 501.0
$(4)^+$ 479.5
$(3)^-$ 389.2
$(5)^+$ 357.0
$(3)^+$ 285.1
$(2)^-$ 225.4
$(2)^+$ 135.2
7^+ 0.0
471
327.7 Q 43
795
762.5 D 36
711.1 Q 20
2287.2 Q ≈40
148.2 D 44
115.8 Q 18
2087.4 M2+E3 100
1586.4
142.2 3
1945 ≤10
1444.5 5
1082
1030
919
501.0 D 41
194.4
122.5
254
163.8 D 20
357 (Q)
149.9 22
90.2
$^{92}_{41}Nb_{51}$