^{80}Se(^{11}B,p2nγ) 2000St29

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan and A. A. Sonzogni	NDS 115, 135 (2014)	1-Nov-2013

E=45 MeV. Measured Eγ, Iγ, $\gamma\gamma$, and $\gamma\gamma(\theta)$(DCO) using the OSIRIS cube array consisting of six Compton-suppressed HPGe detectors. Deduced $T_{1/2}$ with Doppler-shift attenuation method (DSAM).

Other: 2001Li67, ^{16}O(^{82}Se,4p6nγ), E=380,410 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma(\theta)$(DCO) using twelve Compton-suppressed HPGe detectors.

Data from 2000St29 is adopted as the experimental setup is better. Level scheme from 2001Li67 is in overall agreement with 2000St29. The main differences are in the spins of the γ-sequence based on the $7^{(-)}$, 6235-keV level, which are higher by one unit in 2001Li67 and the spins of the γ-sequence based on the 10^+, 7433-keV level, which are lower by one unit in 2001Li67. Other discrepancies are noted in the comments.

^{88}Sr Levels

E(level)[†]	J$^\pi$[‡]	E(level)[†]	J$^\pi$[‡]	$T_{1/2}$[#]
0.0[&]	0^+	7432.95[c] *25*	10^+	
1836.02[&] *10*	2^+	7640.9[b] *3*	$10^{(-)}$	
2733.73[&] *14*	3^-	7773.5[c] *3*	$11^{(+)}$	
3584.13[&] *17*	5^-	7907.8[b] *3*	$11^{(-)}$	
4018.73[&] *19*	6^-	8093.1[c] *3*	$12^{(+)}$	<5.1[@] ps
4367.01[&] *21*	7^-	8274.5[c] *4*	$13^{(+)}$	
4520.6 *3*	6^+	8334.7[a] *4*	$12^{(+)}$	<2.4[@] ps
4686.5 *3*	7	8373.5? *5*		
5102.4 *3*	7^+	8436.2[b] *4*	$12^{(-)}$	0.55 ps *21*
5369.6 *3*	7,8	8934.3[a] *4*	$13^{(+)}$	
5426.7 *3*	8	9409.1[b] *7*	13	
5654.03 *23*	8^+	9526.7[a] *4*	$14^{(+)}$	0.28 ps *10*
6234.6[b] *3*	$7^{(-)}$	9976.3[a] *5*	$15^{(+)}$	0.17 ps *+10−3*
6839.7[b] *3*	$8^{(-)}$	10737.8[a] *6*	$16^{(+)}$	<4.2[@] ps
7118.05 *25*	10^+	11354.5?[a] *6*	$17^{(+)}$	
7329.6[b] *3*	$9^{(-)}$			

[†] From a least-squares fit to Eγ by evaluators.
[‡] As given by 2000St29, based on $\gamma\gamma(\theta)$ and γ decay pattern.
[#] From DSAM measurements (2000St29).
[@] Effective half-life, feeding corrections have not been incorporated.
[&] Band(A): Yrast sequence.
[a] Band(B): γ-sequence based on $12^{(+)}$.
[b] Band(C): γ-sequence based on $7^{(-)}$.
[c] Band(D): γ-sequence based on 10^+.

γ(^{88}Sr)

DCO ratios from 2000St29. For the experimental geometry, R(DCO)=1.0 is expected if both transitions are stretched transitions of pure and equal multipole order, 0.6 is expected for a pure dipole transition gated on a stretched quadrupole transitions and 1.0 or 1.7 is expected for a ΔJ=0 transition gated on a ΔJ=2 or ΔJ=1 transition, respectively. R(DCO) ratios correspond to a gate on the 1836, E2 transition, except where noted.

Continued on next page (footnotes at end of table)

^{80}Se(^{11}B,p2nγ) 2000St29 (continued)

$\gamma(^{88}Sr)$ (continued)

E_γ †	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	Comments
181.4 *3*	8.4 *4*	8274.5	$13^{(+)}$	8093.1	$12^{(+)}$	D	R(DCO)=0.65 *10*. E_γ: placed as depopulating a level at 8520 keV by 2001Li67.
241.6 *3*	6.9 *6*	8334.7	$12^{(+)}$	8093.1	$12^{(+)}$	(D)	R(DCO)=1.15 *22*. Mult.: ΔJ=0, (D) from R(DCO).
266.9 *1*	12.3@ *4*	7907.8	$11^{(-)}$	7640.9	$10^{(-)}$	(D)	R(DCO)=0.71 *6* (for 266.9+267.1).
267.1 *3*	6.1@ *2*	5369.6	7,8	5102.4	7^+		
311.3 *1*	17.4 *7*	7640.9	$10^{(-)}$	7329.6	$9^{(-)}$	D	R(DCO)=0.72 *8*.
319.6a& *3*	5.5a *2*	4686.5	7	4367.01	7^-		
319.6a *1*	16.1a *4*	8093.1	$12^{(+)}$	7773.5	$11^{(+)}$	(D)	R(DCO)=0.60 *4* (for 319.6 doublet).
324.2 *3*	2.8 *2*	5426.7	8	5102.4	7^+	D	R(DCO)=0.47 *18*.
340.5 *3*	9.3 *4*	7773.5	$11^{(+)}$	7432.95	10^+	D	R(DCO)=0.54 *6*.
348.3 *1*	49 *1*	4367.01	7^-	4018.73	6^-	D	R(DCO)=0.68 *3*.
434.6 *1*	58 *1*	4018.73	6^-	3584.13	5^-	D+Q	R(DCO)=0.83 *4*.
449.6 *3*	9.4 *5*	9976.3	$15^{(+)}$	9526.7	$14^{(+)}$	D	R(DCO)=0.64 *11*.
489.9 *1*	16.5 *7*	7329.6	$9^{(-)}$	6839.7	$8^{(-)}$	D	R(DCO)=0.57 *5*.
522.7 *5*	1.9 *2*	7640.9	$10^{(-)}$	7118.05	10^+	(D)	R(DCO)=0.89 *20*.
528.4 *3*	7.3 *4*	8436.2	$12^{(-)}$	7907.8	$11^{(-)}$	D	R(DCO)=0.57 *4*.
560.9 *5*	≈1	8934.3	$13^{(+)}$	8373.5?			
561.3 *3*	6.1 *4*	8334.7	$12^{(+)}$	7773.5	$11^{(+)}$	(D)	I_γ: combined value for a doublet. R(DCO)=0.6 *3* (for 561.3+560.9).
581.8 *5*	1.2 *2*	5102.4	7^+	4520.6	6^+	(D)	R(DCO)=0.5 *5*.
592.4 *1*	16.2 *6*	9526.7	$14^{(+)}$	8934.3	$13^{(+)}$	D	R(DCO)=0.50 *5*.
599.5 *3*	10.2 *5*	8934.3	$13^{(+)}$	8334.7	$12^{(+)}$	D	R(DCO)=0.45 *9*.
605.1 *1*	13.4 *6*	6839.7	$8^{(-)}$	6234.6	$7^{(-)}$	D	R(DCO)=0.71 *14*.
616.7 *3*	4.1 *3*	11354.5?	$17^{(+)}$	10737.8	$16^{(+)}$	D	R(DCO)=0.44 *13*.
655.4 *3*	9.1 *5*	7773.5	$11^{(+)}$	7118.05	10^+	D	R(DCO)=0.43 *6*.
659.8 *3*	4.7 *3*	8934.3	$13^{(+)}$	8274.5	$13^{(+)}$	(D)	R(DCO)=0.76 *19*.
761.5 *3*	7.7 *5*	10737.8	$16^{(+)}$	9976.3	$15^{(+)}$	D	R(DCO)=0.42 *8*.
782.9# *3*	5.8 *4*	4367.01	7^-	3584.13	5^-	(Q)	R(DCO)=1.2 *4*.
841.2 *3*	4.7 *3*	8934.3	$13^{(+)}$	8093.1	$12^{(+)}$	(D)	R(DCO)=0.5 *3*.
850.4 *1*	78 *2*	3584.13	5^-	2733.73	3^-	Q	R(DCO)=1.05 *5*.
897.7 *1*	100 *2*	2733.73	3^-	1836.02	2^+	D	R(DCO)=0.76 *3*.
936.4# *3*	8.3 *6*	4520.6	6^+	3584.13	5^-	D	R(DCO)=0.73 *15*. R(DCO)=0.47 *4* (gated on 850.4, ΔJ=2 Q transition).
972.9 *5*	1.9 *2*	9409.1	13	8436.2	$12^{(-)}$	D	R(DCO)=0.63 *10*.
1083.6# *3*	7.3 *5*	5102.4	7^+	4018.73	6^-	D	R(DCO)=0.32 *10*.
1132.1# *3*	4.2 *4*	6234.6	$7^{(-)}$	5102.4	7^+		
1255.5 *5*	1.7 *2*	8373.5?		7118.05	10^+		
1287.0 *1*	36 *1*	5654.03	8^+	4367.01	7^-	D	R(DCO)=0.68 *5*.
1464.0 *1*	17.8 *9*	7118.05	10^+	5654.03	8^+	Q	R(DCO)=1.16 *16*.
1470.1# *3*	3.1 *7*	6839.7	$8^{(-)}$	5369.6	7,8		
1713.9# *3*	4.8 *8*	6234.6	$7^{(-)}$	4520.6	6^+	D	R(DCO)=0.71 *7* (gated on 850.4, ΔJ=2 Q transition). R(DCO)=1.06 *8* (gated on 936.4, ΔJ=1, D transition).
1778.9 *1*	13.9 *9*	7432.95	10^+	5654.03	8^+	Q	R(DCO)=1.10 *22*.
1836.0 *1*	142 *5*	1836.02	2^+	0.0	0^+	E2	Mult.: from the Adopted Gammas.
1867.4# *3*	4.5 *4*	6234.6	$7^{(-)}$	4367.01	7^-		
1902.9 *3*	2.2 *3*	7329.6	$9^{(-)}$	5426.7	8		
2153.4 *3*	4.0 *6*	6839.7	$8^{(-)}$	4686.5	7	D	R(DCO)=0.48 *9* (gated on 850.4, ΔJ=2 Q transition).
2473.3 *5*	1.5 *3*	6839.7	$8^{(-)}$	4367.01	7^-		
2733.7 *5*	≤1	2733.73	3^-	0.0	0^+		

Continued on next page (footnotes at end of table)

^{80}Se(^{11}B,p2nγ) 2000St29 (continued)

γ(^{88}Sr) (continued)

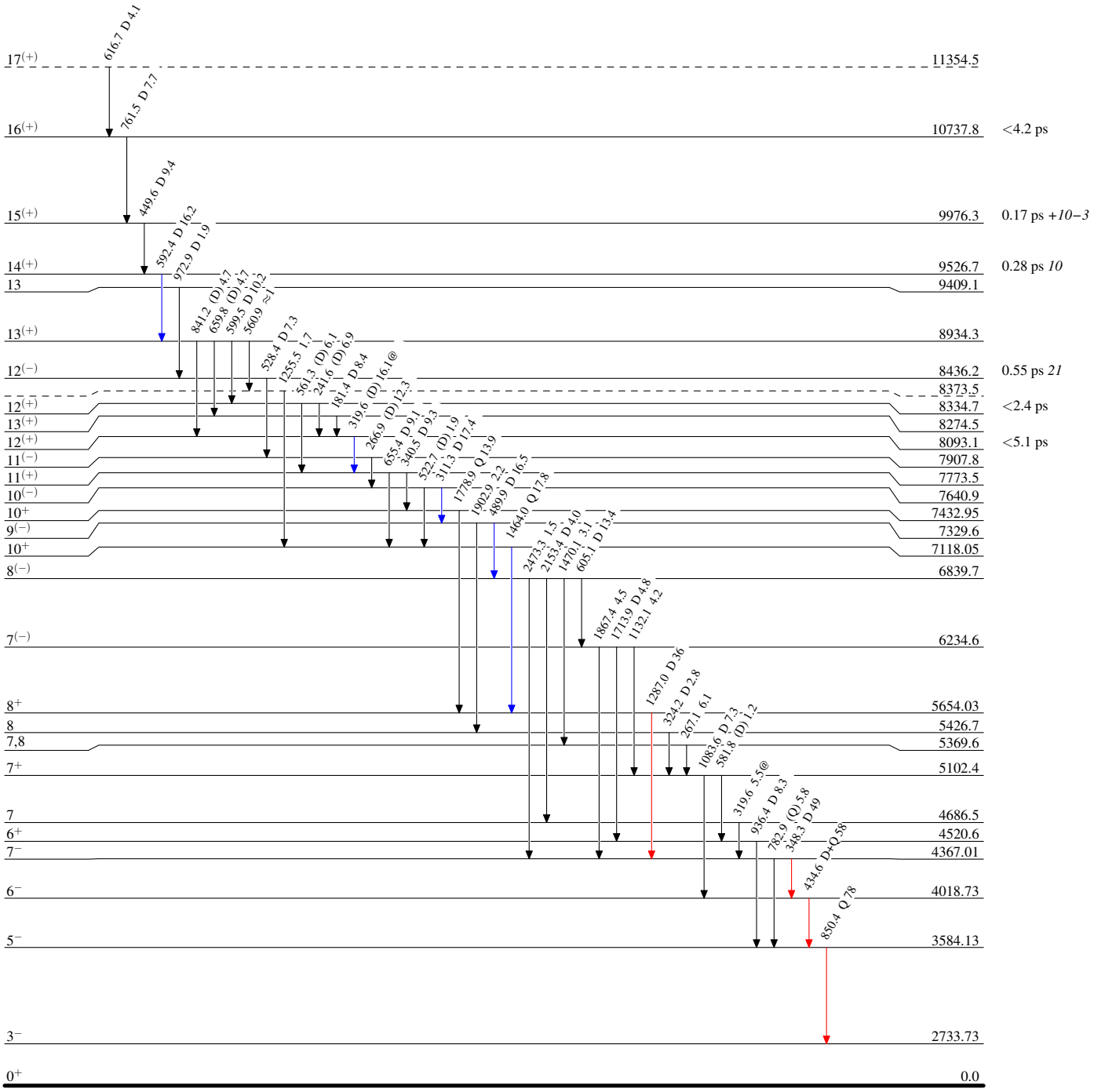
† Δ(Eγ)=0.1 keV for Iγ>10, 0.3 keV for Iγ=2-10, and 0.5 keV for Iγ<2, based on a general statement by 2000St29.
‡ From R(DCO) values, except where noted.
# Contaminated transition.
@ Unresolved doublet, intensity is estimated from $\gamma\gamma$ data.
& Ordering of the 320γ-2153γ is reversed in 2001Li67. This creates an intermediate level at 6521 keV, compared with the 4687 level proposed by 2000St29.
a Multiply placed with intensity suitably divided.

^{80}Se(^{11}B,p2nγ) **2000St29**

Level Scheme

Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



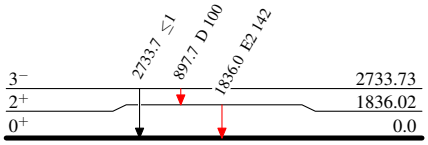
$^{88}_{38}Sr_{50}$

^{80}Se(^{11}B,p2nγ) 2000St29

Level Scheme (continued)

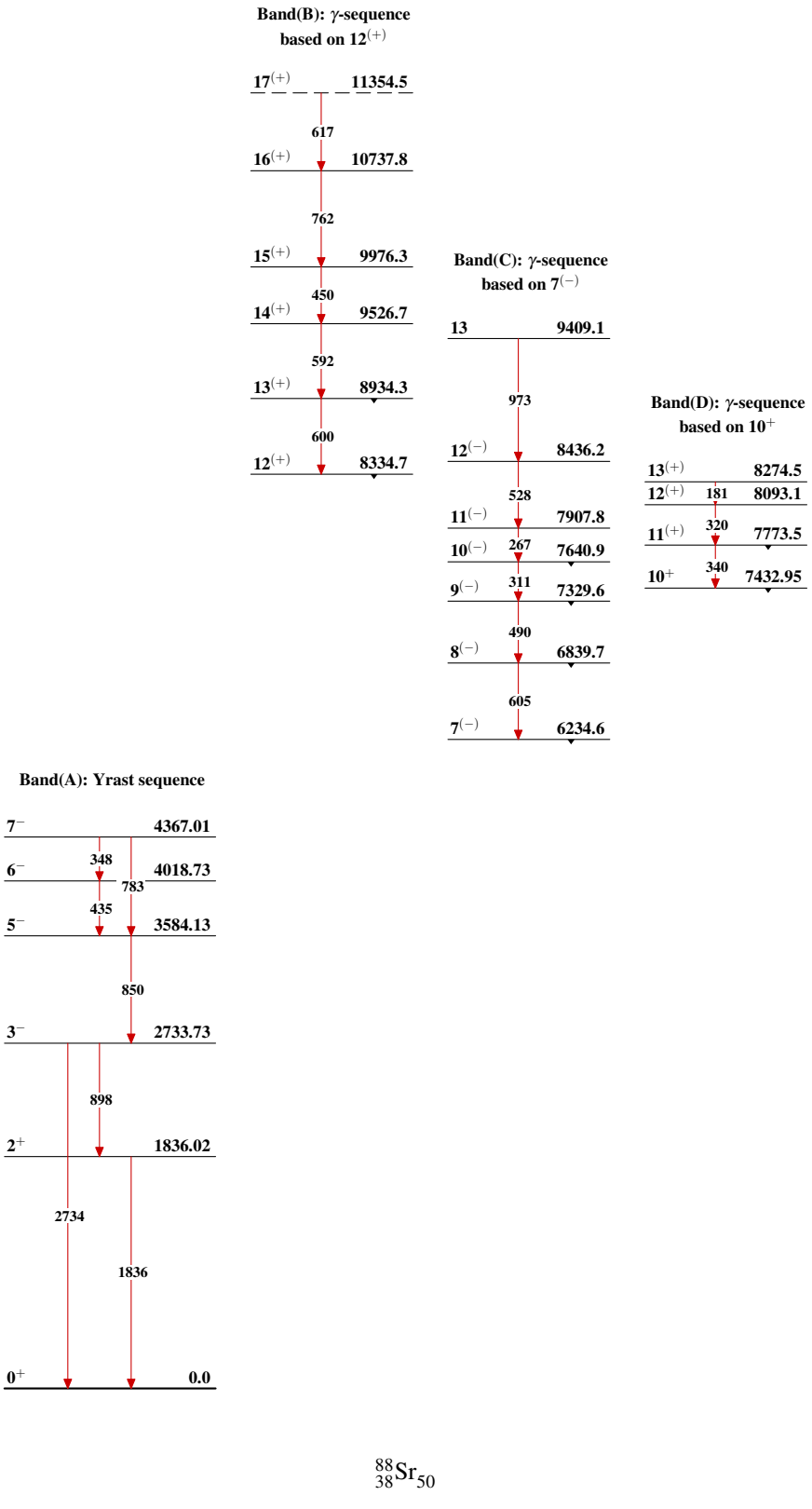
Intensities: Relative I_γ
@ Multiply placed: intensity suitably divided

Legend
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$



$^{88}_{38}Sr_{50}$

^{80}Se(^{11}B,p2nγ) 2000St29



$^{88}_{38}Sr_{50}$