^{82}Se(^{7}Li,α2nγ) 1995Sc04

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 125, 201 (2015)	31-Dec-2014

1995Sc04: E(^{7}Li)=32,35 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma\gamma\alpha$, $\gamma(\theta)$, $\gamma\gamma(\theta)$(DCO) using OSIRIS CUBE consisting of six Ge detectors for γ-rays and 14 Si detectors for α particles; deduced $T_{1/2}$ using Doppler Shift Attenuation method (DSAM). Subset of results published in 1995Sc48.

1989Wi01: E(^{7}Li)=35 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$, $\alpha\gamma$(t), γ-ray linear polarization using two Ge(Li) detectors for γ rays and two Si detectors for α particles.

1982Ze02: E(^{7}Li)=25-36 MeV in 2 MeV steps. Includes also (^{6}Li,αnγ) at E(^{6}Li)=21-29 MeV. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$, excitation function using two Ge(Li) detectors. See also thesis 1979PeZM.

^{83}Br Levels

E(level)[†]	J$^{\pi}$[‡]	$T_{1/2}$[#]	Comments
0	3/2^{-}		
356.61 *15*	5/2^{-}		
866.80 *15*	7/2^{-}		
1091.90 *20*	9/2^{+}		
1438.84 *19*	9/2^{-}	1.5[a] ps *4*	
1701.2 *3*	13/2^{+}	21[@] ps *4*	
1810.2 *3*	(7/2^{+})		
1929.8? *4*			E(level): reported only by 1982Ze02; not included in Adopted Levels.
2127.24 *21*	11/2^{-}	1.2[a] ps *4*	
2134.2 *3*	11/2^{+}	0.3[&] ps *2*	
2337.8 *3*	(11/2^{+})		
2765.5 *3*	17/2^{+}	1.4[@] ps *2*	
2788.7 *3*	13/2^{+}	1.0[&] ps *4*	
2811.61 *23*	13/2^{-}		
3024.0 *3*			
3050.4 *3*	15/2$^{(+)}$		
3068.9 *4*	(19/2^{-})	0.6 μs *2*	$T_{1/2}$: from $\alpha\gamma$(t) (1989Wi01).
3135.0 *3*	(17/2)		
3260.0 *3*			
3333.5 *3*	15/2^{-}		
3418.4 *4*	(15/2^{+})		
3533.6 *5*			
3874.8 *4*			
4221.9 *4*	(21/2^{+})	0.3[@] ps *1*	
4582.5 *5*			
5118.3 *6*			
5390.7 *7*			
5635.1 *8*			

[†] From a least-squares fit to Eγ, by evaluator.
[‡] From the Adopted Levels.
[#] From DSAM in 1995Sc04, except where noted.
[@] $T_{1/2}$ of the feeding of the level at 4582.3 keV has been assumed to be in the range of 0.35-3.5 ps (1995Sc04).
[&] $T_{1/2}$ of the feeding of the levels at 3023.8 keV and 3050.2 keV have been assumed to be in the range of 0.7-2.1 ps, and $T_{1/2}$ of the feeding of the level at 3418.3 keV has been assumed to be in the range of 0.35-1.4 ps (1995Sc04).
[a] $T_{1/2}$ of the feeding of the levels at 2811.6 keV and 3333.5 keV have been assumed to be in the range of 0.35-3.5 ps (1995Sc04).

^{82}Se(^{7}Li,α2nγ) 1995Sc04 (continued)

$\gamma(^{83}Br)$

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	Comments
225.0 *2*	72.6 *11*	1091.90	9/2$^+$	866.80	7/2$^-$	E1(+M2)	−0.07 *7*	E_γ,I_γ: other: 224.4 *1*, 66 *4* (1982Ze02). Mult.,δ: D(+Q) from R(DCO)=0.95 *4* gated on D 356γ; $\Delta\pi$=no from linear polarization in 1989Wi01.
235.2 *4*	0.3 *1*	3024.0		2788.7	13/2$^+$			
244.3 *4*	<1	5635.1		5390.7				
261.5 *4*	0.7 *1*	3050.4	15/2$^{(+)}$	2788.7	13/2$^+$			
272.4 *4*	<1	5390.7		5118.3				
303.4 *2*	2.6 *1*	3068.9	(19/2$^-$)	2765.5	17/2$^+$	D(+Q)	−0.04 *7*	E_γ,I_γ: other: 303.4 *1*, 9.9 *8* (1982Ze02). Mult.,δ: R(DCO)=1.01 *3* gated on D 225γ.
356.6 *2*	100 *1*	356.61	5/2$^-$	0	3/2$^-$	M1(+E2)	+0.02 *16*	E_γ,I_γ: other: 356.6 *1*, 100 *3* (1982Ze02). Mult.,δ: D(+Q) from R(DCO) in coincidence with 609γ; $\Delta\pi$=no from linear polarization in 1989Wi01.
360 *1*	1.6 *3*	4582.5		4221.9	(21/2$^+$)			
398.6 *4*	0.9 *1*	3533.6		3135.0	(17/2)			
432.9 *2*	1.3 *1*	2134.2	11/2$^+$	1701.2	13/2$^+$	D+Q	0.6 *4*	Mult.,δ: R(DCO)=0.72 *15* gated on D 225γ and R(DCO)=0.45(16) gated on Q 609γ.
495 *1*	0.2 *1*	3260.0		2765.5	17/2$^+$			
510.1 *2*	87 *2*	866.80	7/2$^-$	356.61	5/2$^-$	D(+Q)	−0.04 *12*	E_γ,I_γ: other: 510.5 *1*, 80 *4* (1982Ze02). Mult.,δ: R(DCO)=1.04 *3* gated on D 356γ.
517 *1*	≤0.8	5635.1		5118.3				
521.9 *2*	1.3 *1*	3333.5	15/2$^-$	2811.61	13/2$^-$			
527.4 *4*	1.0 *1*	2337.8	(11/2$^+$)	1810.2	(7/2$^+$)			
572.0 *2*	9.1 *2*	1438.84	9/2$^-$	866.80	7/2$^-$	D(+Q)	−0.07 *13*	E_γ,I_γ: other: 572.1 *2*, 9.5 *10* (1982Ze02). Mult.,δ: R(DCO)=1.02 *3* gated on D 356γ and R(DCO)=0.98 *3* gated on D 510γ.
609.3 *2*	38.4 *6*	1701.2	13/2$^+$	1091.90	9/2$^+$	E2		E_γ,I_γ: other: 609.6 *1*, 44 *3* (1982Ze02). Mult.: Q from R(DCO)=1.69 *5* gated on D 225γ and R(DCO)=1.50 *7* gated on D 356γ; $\Delta\pi$=no from linear polarization in 1989Wi01.
629.7 *2*	1.5 *1*	3418.4	(15/2$^+$)	2788.7	13/2$^+$	D+Q	−1.2 *7*	Mult.,δ: R(DCO)=0.42 *16* gated on D 225γ.
636.6 *2*	4.7 *1*	2337.8	(11/2$^+$)	1701.2	13/2$^+$	D+Q	0.36 *24*	Mult.,δ: R(DCO)=0.80 *13* gated on D 225γ and R(DCO)=0.53 *11* gated on Q 609γ.
654.5 *2*	3.8 *1*	2788.7	13/2$^+$	2134.2	11/2$^+$	D+Q	−1.1 *4*	Mult.,δ: R(DCO)=0.45 *7* gated on D 225γ.
684.3 *2*	1.1 *2*	2811.61	13/2$^-$	2127.24	11/2$^-$	D(+Q)	−0.17 *25*	Mult.,δ: R(DCO)=0.95 *16* gated on D 356γ.
688.3 *2*	3.8 *1*	2127.24	11/2$^-$	1438.84	9/2$^-$	D+Q	−0.19 *16*	Mult.,δ: R(DCO)=0.90 *5* gated on D 356γ and R(DCO)=0.97 *6* gated on D 572γ.
718.2 *2*	3.8 *1*	1810.2	(7/2$^+$)	1091.90	9/2$^+$	D+Q	−0.12 *10*	E_γ,I_γ: other: 718.4 *2*, 6.7 *12* (1982Ze02). Mult.,δ: R(DCO)=0.98 *8* gated on D 225γ.
735.4 *2*	2.9 *2*	1091.90	9/2$^+$	356.61	5/2$^-$			
805.9 *2*	2.1 *1*	3874.8		3068.9	(19/2$^-$)			
837.9[&] *4*		1929.8?		1091.90	9/2$^+$			E_γ: unresolved doublet observed in 1982Ze02 only.

Continued on next page (footnotes at end of table)

^{82}Se(^{7}Li,α2nγ) 1995Sc04 (continued)

$\gamma(^{83}Br)$ (continued)

E_γ [†]	I_γ [‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	Comments
866.8 *2*	12.9 *2*	866.80	7/2$^-$	0	3/2$^-$			E_γ,I_γ: other: 867.1 *1*, 16.6 *13* (1982Ze02).
889.8 *2*	1.4 *1*	3024.0		2134.2	11/2$^+$			
916.2 *2*	1.2 *1*	3050.4	15/2$^{(+)}$	2134.2	11/2$^+$			
1042.3 *2*	7.5 *2*	2134.2	11/2$^+$	1091.90	9/2$^+$	D+Q	≈−1.1[@]	E_γ,I_γ: other: 1042.6 *2*, 9.5 *12* (1982Ze02). Mult.,δ: R(DCO)=0.38 *4* gated on D 225γ.
1064.3 *2*	18.0 *5*	2765.5	17/2$^+$	1701.2	13/2$^+$	Q		E_γ,I_γ: other: 1064.6 *2*, 19.2 *15* (1982Ze02). Mult.: R(DCO)=1.53 *12* gated on D 225γ and R(DCO)=0.93 *11* gated on Q 609γ.
1082.2 *2*	4.3 *2*	1438.84	9/2$^-$	356.61	5/2$^-$	Q		E_γ,I_γ: other: 1082.6 *2*, 5.1 *12* (1982Ze02). Mult.: R(DCO)=1.45 *19* gated on D 356γ.
1206.4 *4*	1.0 *1*	3333.5	15/2$^-$	2127.24	11/2$^-$	Q		Mult.: R(DCO)=1.8 *7* gated on D 356γ.
1243.5 *4*	0.7 *1*	5118.3		3874.8				
1260.5 *2*	3.7 *1*	2127.24	11/2$^-$	866.80	7/2$^-$	Q		Mult.: R(DCO)=1.6 *3* gated on D 356γ.
1349.2 *2*	2.5 *1*	3050.4	15/2$^{(+)}$	1701.2	13/2$^+$	D+Q	≈−1.1[@]	Mult.,δ: R(DCO)=0.35 *6* gated on D 225γ.
1372.8 *2*	1.5 *1*	2811.61	13/2$^-$	1438.84	9/2$^-$	Q		Mult.: R(DCO=2.0 *7* gated on D 356γ.
1433.8 *2*	1.5 *1*	3135.0	(17/2)	1701.2	13/2$^+$	(Q)		Mult.: R(DCO)=1.7 *6* gated on D 225γ.
1456.4 *2*	4.4 *2*	4221.9	(21/2$^+$)	2765.5	17/2$^+$	(Q)		Mult.: R(DCO)=1.2 *4* gated on D 225γ.
1558.8 *2*	1.1 *1*	3260.0		1701.2	13/2$^+$			
1817.1 *4*	0.7 *1*	4582.5		2765.5	17/2$^+$			

[†] From 1995Sc04. Authors provide only a general statement that uncertainties range from 0.1 to 0.4 keV. Evaluator adopts $\Delta E\gamma$=0.2 keV for $I\gamma$>1.0 and $\Delta E\gamma$=0.4 keV for $I\gamma\leq$1.0. For γ-ray energies given to the nearest keV, $\Delta E\gamma$=1 keV is assumed. Values from 1982Ze02 are included in the comments.

[‡] Relative intensity at E(^{7}Li)=32 MeV, normalized to $I\gamma$(356.6γ)=100 (1995Sc04). Values from 1982Ze02 are included in the comments.

[#] From R(DCO) in 1995Sc04, except where noted.

[@] Corresponds to the position of the minimum of the curve R(DCO) versus arctan(δ).

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

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Level Scheme

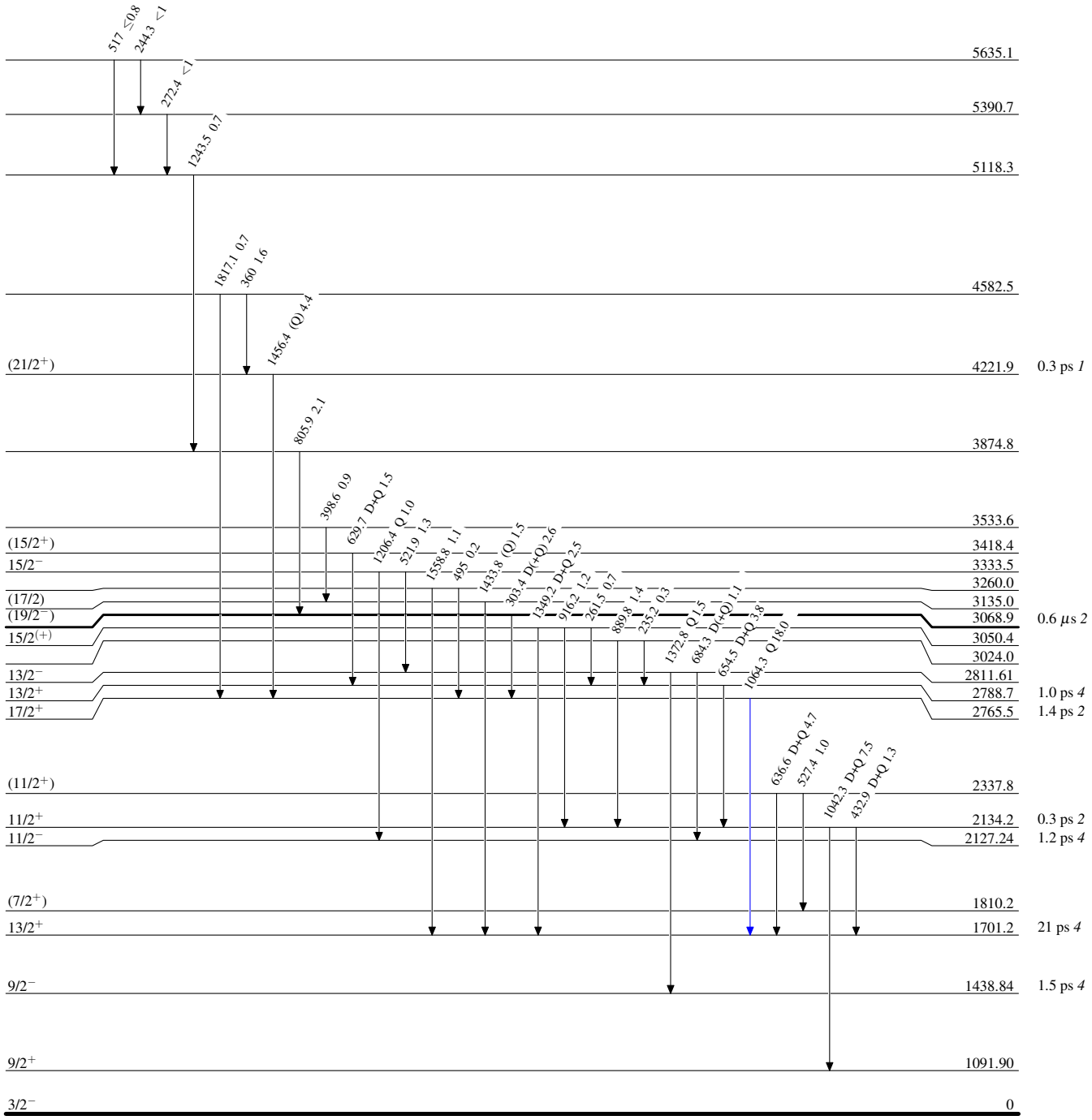
Intensities: Relative I_γ

Legend

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

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

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



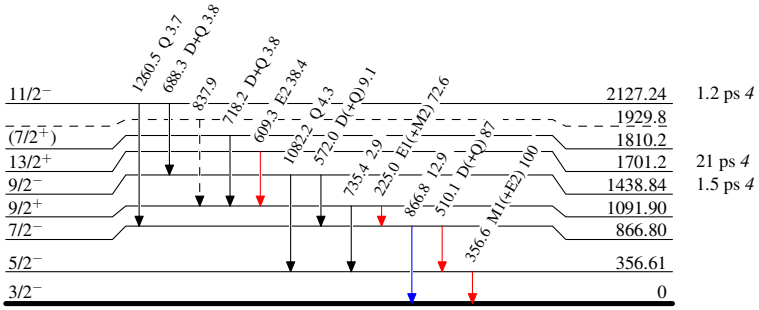
$^{83}_{35}Br_{48}$

^{82}Se(^{7}Li,α2nγ) 1995Sc04

Level Scheme (continued)

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)



$^{83}_{35}Br_{48}$