^{74}Se(p,γ),(d,nγ),(^{3}He,pnγ) 1981Wi05

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Alexandru Negret, Balraj Singh	NDS 114, 841 (2013)	30-Jun-2013

^{74}Se(^{3}He,pnγ); E=28, 32 MeV.
^{74}Se(p,γ); E=6.7 MeV.
^{74}Se(d,nγ); E=12, 13.5 MeV.
Measured γ, $\gamma\gamma$, $\gamma(\theta)$, σ(Eγ, θ), $T_{1/2}$ using Ge(Li) detectors and a high resolution photon spectrometer dedicated to low energy γ rays.
Other:
1978Be08: ^{75}As(α,4nγ); E=30-55 MeV; γ rays reported only by these authors are 66.4, 360.3, 427.1 and 474.6 keV.

^{75}Br Levels

E(level)	J$^{\pi}$‡	$T_{1/2}$†	Comments
0.0	$3/2^-$		
119.58 *8*	$5/2^-$	1.7 ns *3*	
132.41 *10*	$5/2^+$	5.6 ns *4*	J$^{\pi}$: $\gamma(132\gamma)(\theta)$ rules out J=3/2, 1/2, given mult(132γ)=E1.
154.69 *10*	$3/2^+$	1.2 ns *3*	J$^{\pi}$: $\gamma(154\gamma)(\theta)$ rules out J=1/2. Authors suggest J=3/2 based on interpretation as bandhead.
179.3 *1*	$(1/2^-)$		
220.81 *13*	$9/2^+$	26 ns *2*	J$^{\pi}$: 9/2 favored by relative population in (p,γ) and (d,nγ), given mult(88γ)=E2 to the 132 level.
273.1 *1*	$(1/2^-,3/2^-)$		
295.6 *1*	$(3/2^-,5/2^-)$		
352.48 *9*	$(5/2^-,7/2^-)$		
374.01 *13*	$7/2^+$		J$^{\pi}$: $\gamma(\theta)$ of γ's to 132(J=5/2) and 220(J=9/2) favors J=7/2.
518.04 *8*	$7/2^-$		
524.30 *15*			
773.79 *13*	$(9/2^-)$		
783.81 *17*	$(13/2^+)$		J$^{\pi}$: stretched Q to 220.
939.91 *24*	$(11/2^+)$		J$^{\pi}$: probable stretched Q to 374.
1149 *1*	$(11/2^-)$		
1516.5 *4*	$(13/2^-)$		
1613.92 *20*	$(17/2^+)$		J$^{\pi}$: stretched Q to 783.
1790.9 *11*	$(15/2^+)$		J$^{\pi}$: probable stretched Q to 939.
1896.2 *11*	$(15/2^-)$		J$^{\pi}$: from Adopted Levels.
2355.5 *11*			
2659.1 *5*			
2755.4 *12*	$(19/2^-)$		J$^{\pi}$: from Adopted Levels.

† From pulsed-beam γ-ray timing method (1981Wi05).
‡ From 1981Wi05 based on $\gamma(\theta)$ data and decay pattern. See also Adopted Levels.

γ(^{75}Br)

A_2 and A_4 are from $\gamma(\theta)$ in (^{3}He,pnγ), unless stated otherwise.

E$_{\gamma}$†	I$_{\gamma}$†	E$_i$(level)	J$_i^{\pi}$	E$_f$	J$_f^{\pi}$	Mult.	α@	Comments
88.4 *1*	35 *3*	220.81	$9/2^+$	132.41	$5/2^+$	E2	1.388	α(K)=1.179 *18*; α(L)=0.179 *3*; α(M)=0.0283 *5*; α(N)=0.00233 *4* Mult.: α=1.5 *3* from intensity balance in delayed spectrum. A_2=+0.02 *4*, A_4=−0.03 *6*.

Continued on next page (footnotes at end of table)

^{74}Se(p,γ),(d,nγ),(^{3}He,pnγ) 1981Wi05 (continued)

γ(^{75}Br) (continued)

E_γ †	I_γ †	E_i(level)	J_i^π	E_f	J_f^π	Comments
119.5 *1*	24 *2*	119.58	5/2$^-$	0.0	3/2$^-$	Mult.: D+Q from γ(θ). A_2=−0.25 *4*, A_4=−0.03 *6*.
132.4 *1*	100	132.41	5/2$^+$	0.0	3/2$^-$	A_2=+0.01 *2*, A_4=+0.01 *2*.
153.2 *1*	14 *2*	374.01	7/2$^+$	220.81	9/2$^+$	A_2=−0.13 *3*, A_4=−0.12 *7*.
154.7 *1*	5.4 *6*	154.69	3/2$^+$	0.0	3/2$^-$	A_2=−0.03 *5*, A_4=+0.02 *11*.
179.3 *1*		179.3	(1/2$^-$)	0.0	3/2$^-$	A_2=+0.02 *5*, A_4=−0.01 *8* from (p,γ).
220 *1*	≈1‡	374.01	7/2$^+$	154.69	3/2$^+$	
228.7 *1*	1.0 *3*	524.30		295.6	(3/2$^-$,5/2$^-$)	
232.8 *2*	0.5 *3*	352.48	(5/2$^-$,7/2$^-$)	119.58	5/2$^-$	
241.6 *1*	3.3 *5*	374.01	7/2$^+$	132.41	5/2$^+$	A_2=+0.3 *1*, A_4=+0.3 *2*, from (p,γ).
273.1 *1*	9 *1*	273.1	(1/2$^-$,3/2$^-$)	0.0	3/2$^-$	A_2=+0.05 *2*, A_4=−0.03 *4*, from (p,γ).
295.6 *1*	3.1 *5*	295.6	(3/2$^-$,5/2$^-$)	0.0	3/2$^-$	A_2=−0.07 *6*, A_4=+0.2 *1*, from (p,γ).
352.5 *1*	8.9 *8*	352.48	(5/2$^-$,7/2$^-$)	0.0	3/2$^-$	A_2=+0.21 *5*, A_4=+0.05 *7*.
398.4 *1*	6.7 *7*	518.04	7/2$^-$	119.58	5/2$^-$	A_2=−0.4 *1*, A_4=+0.1 *2*.
518.1 *1*	12 *2*	518.04	7/2$^-$	0.0	3/2$^-$	A_2=+0.3 *1*, A_4=0.0 *2*.
563.0 *1*	24 *2*	783.81	(13/2$^+$)	220.81	9/2$^+$	A_2=+0.35 *4*, A_4=−0.06 *4*.
565.9 *2*	4.7 *6*	939.91	(11/2$^+$)	374.01	7/2$^+$	A_2=+0.3 *1*, A_4=−0.1 *2*.
631#		1149	(11/2$^-$)	518.04	7/2$^-$	E_γ: assigned by authors to ^{74}Se, but shown by 1985Lu02 and 1989Ma27 to be due, at least in part, to ^{75}Br.
654.2 *1*	15 *2*	773.79	(9/2$^-$)	119.58	5/2$^-$	A_2=+0.34 *6*, A_4=−0.03 *9*.
719.0& *3*	≈4‡	939.91	(11/2$^+$)	220.81	9/2$^+$	
742.7 *3*	9 *1*	1516.5	(13/2$^-$)	773.79	(9/2$^-$)	A_2=+0.41 *1*, A_4=0.0 *1*.
747.2# *3*	7 *1*	1896.2	(15/2$^-$)	1149	(11/2$^-$)	E_γ: assigned by authors to 1265 level. A_2=+0.1 *2*, A_4=0.0 *2*.
830.1 *1*	12 *3*	1613.92	(17/2$^+$)	783.81	(13/2$^+$)	A_2=+0.26 *7*, A_4=−0.09 *9*.
839 *1*	≈2‡	2355.5		1516.5	(13/2$^-$)	
851 *1*	3.5 *9*	1790.9	(15/2$^+$)	939.91	(11/2$^+$)	A_2=+0.4 *1*, A_4=0.0 *2*.
859.1# *4*	≈3‡	2755.4	(19/2$^-$)	1896.2	(15/2$^-$)	E_γ: assigned by authors to 2124 level.
1045.2 *4*	≈2	2659.1		1613.92	(17/2$^+$)	

† From (^{3}He,pnγ) reaction at E=32 MeV.
‡ Estimated from γγ coin.
# Placement assigned (evaluators) from results of heavy-ion reactions (see ^{48}Ti(^{30}Si,p2nγ)).
@ Additional information 1.
& Placement of transition in the level scheme is uncertain.

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Level Scheme

Intensities: Relative I_γ

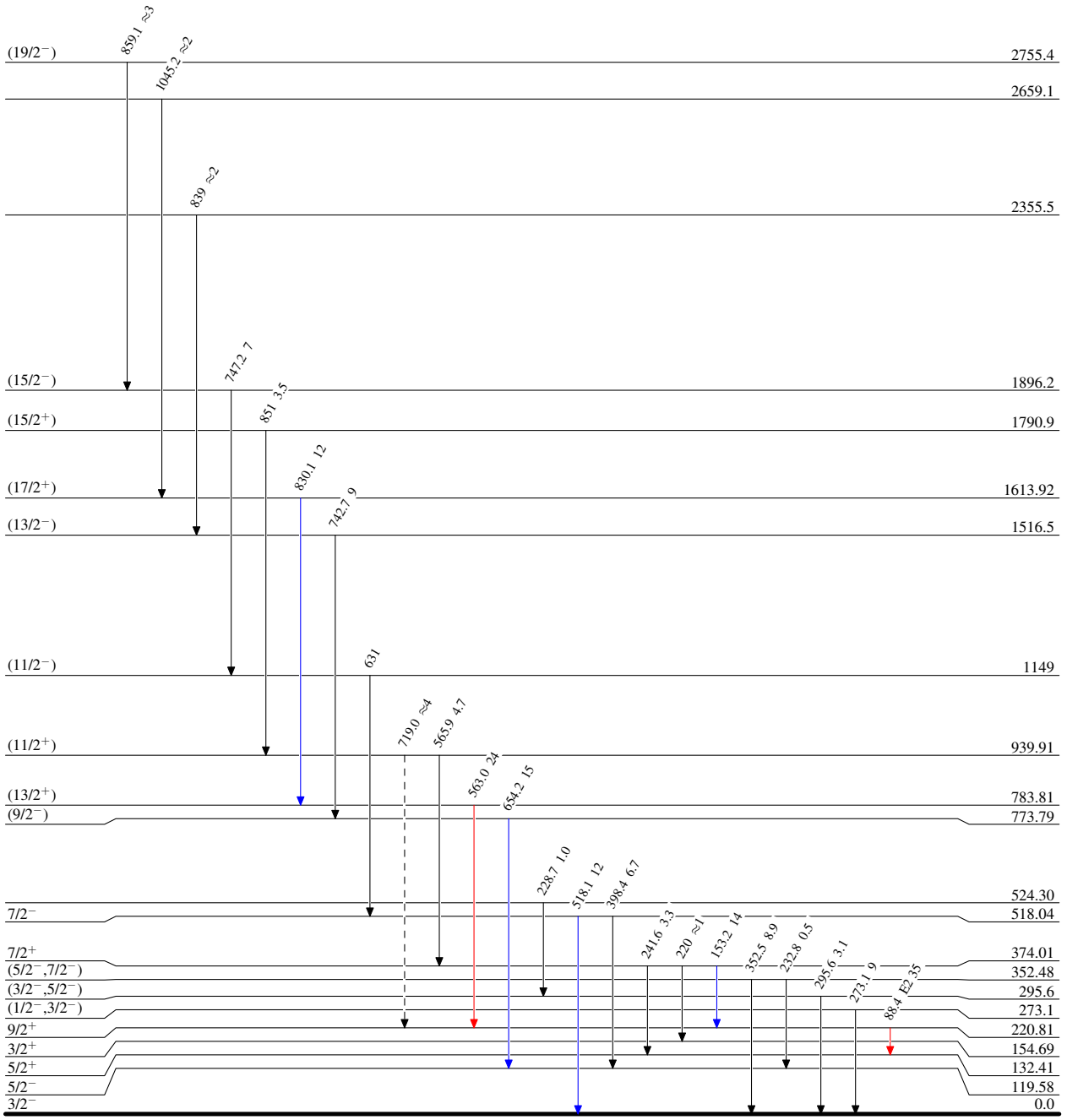
Legend

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

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

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

γ Decay (Uncertain)



$^{75}_{35}Br_{40}$

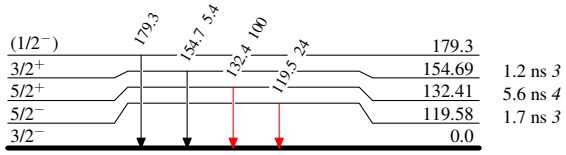
^{74}Se(p,γ),(d,nγ),(^{3}He,pnγ) 1981Wi05

Level Scheme (continued)

Intensities: Relative I_γ

Legend

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



$^{75}_{35}Br_{40}$