^{135}Ba(n,γ) E=2,24 keV: av res 1982ScZP,1974Ch14

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan	NDS 152,331 (2018)	1-Apr-2018

Target $J^\pi=3/2^+$.

1974Ch14: E(n)=24.5 keV. Measured primary Eγ, Iγ using coaxial Ge(Li) detectors. Neutron energies from tof. See also 24.4 – 463.4 eV Res dataset.

1982ScZP,1982ScZO: E(n)=2 and 24 keV. Measured primary Eγ, Iγ using shielded Ge(Li) detector.

^{136}Ba Levels

E(level)†	J$^\pi$‡	Comments
0.0	0^+#	
818.5 *4*	2^+@	
1551.5 *4*	2^+@	
1580.0 *7*	0^+#	
1866.7& *9*	4^+*a*	
2081.1 *5*	2^+@	
2130.0 *5*	2^+@	
2142.4& *7*	0^+#	
2223.4 *5*	$(2,1)^+$@	
2316.4& *10*	0^+#	
2376.8?*c* *11*	5^+	
2392.1 *6*	$(1^+,2^+)$@	
2401.0& *5*	$(1)^+$@	
2429.4& *6*	3^+*d*	
2486.2& *6*	2^+@	
2533.8 *4*	3^-*d*	
2641.9 *6*	(1^+)@	
2662.1 *5*	$1,2^+$@	
2694.5 *6*	1@	
2769.6?*c* *17*	2^+	
2778.5?*c* *8*	2^+	
2806.9?*c* *11*	(3^+)	
2905.8?*c* *15*		
2972.0?*c* *8*		
3014.2?*c* *9*	$(1,2^+)$	
3047.4?*c* *11*	$1^{(-)}$	
3110.9?*c* *11*	2^+	
3760.3?*c* *11*		
3856.7?*c* *7*	$(1,2^+)$	
S(n)+2*b*		
S(n)+24*b*	1^+	J$^\pi$: from 1974Ch14.

† From 1982ScZP, except where noted.

‡ From the Adopted Levels. Results from average resonance capture (ARC) data are given as footnotes.

Analysis of ARC data gives $J^\pi=0^+,3^+$.

@ Analysis of ARC data gives $J^\pi=1^+,2^+$.

& Not observed by 1974Ch14.

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^{135}Ba(n,γ) E=2,24 keV: av res 1982ScZP,1974Ch14 (continued)

^{136}Ba Levels (continued)

[a] Analysis of ARC data gives $J^\pi=4^+$.
[b] S(n)=9107.74 *4* (2012Wa38).
[c] From 1974Ch14.
[d] Analysis of ARC data gives $J^\pi=0^-,3^-$.

γ(^{136}Ba)

See (n,γ) E=thermal for secondary γ's.
E_γ/I_γ^5 from 1982ScZP given in comments. See 1982ScZP for Iγ(2 keV)/Iγ(24 keV).

E_γ †	I_γ ‡	E_i(level)	J_i^π	E_f	J_f^π	Comments
5274.3@a	0.13 *5*	S(n)+24	1^+	3856.7?	$(1,2^+)$	
5371.7@a	0.20 *8*	S(n)+24	1^+	3760.3?		
6021.1@a	0.39 *10*	S(n)+24	1^+	3110.9?	2^+	
6083.6@a	0.37 *9*	S(n)+24	1^+	3047.4?	$1^{(-)}$	
6116.8@a	0.11 *3*	S(n)+24	1^+	3014.2?	$(1,2^+)$	
6168.0@a	0.22 *7*	S(n)+24	1^+			
6225.2@a	0.05 *2*	S(n)+24	1^+	2905.8?		
6324.1@a	0.22 *8*	S(n)+24	1^+	2806.9?	(3^+)	
6352.5@a	0.08 *3*	S(n)+24	1^+	2778.5?	2^+	
6361.4@a	0.11 *4*	S(n)+24	1^+	2769.6?	2^+	
6414.8 *6*		S(n)+2		2694.5	1	Iγ/Eγ^5=490 *54*.
6434.3 *15*	0.05 *2*	S(n)+24	1^+	2694.5	1	Iγ/Eγ^5=403 *80*.
6447.2 *5*		S(n)+2		2662.1	$1,2^+$	Iγ/Eγ^5=698 *55*.
6467.4 *6*		S(n)+2		2641.9	(1^+)	Iγ/Eγ^5=393 *50*.
6468.5 *6*	0.22 *6*	S(n)+24	1^+	2662.1	$1,2^+$	Iγ/Eγ^5=411 *56*.
6488.9 *8*	0.15 *5*	S(n)+24	1^+	2641.9	(1^+)	Iγ/Eγ^5=272 *55*.
6575.5 *4*		S(n)+2		2533.8	3^-	Iγ/Eγ^5=1083 *60*.
6598.7 *9*	0.19 *7*	S(n)+24	1^+	2533.8	3^-	Iγ/Eγ^5=196 *51*.
6623.1 *6*		S(n)+2		2486.2	2^+	Iγ/Eγ^5=394 *43*.
6645.0# *5*		S(n)+24	1^+	2486.2	2^+	Iγ/Eγ^5=365 *50*, corrected for contribution from contaminant.
6679.9 *6*		S(n)+2		2429.4	3^+	Iγ/Eγ^5=990 *12*.
6699.4# *8*		S(n)+24	1^+	2429.4	3^+	Iγ/Eγ^5=292 *58*.
6708.3 *5*		S(n)+2		2401.0	$(1)^+$	Iγ/Eγ^5=443 *43*.
6717.2 *6*		S(n)+2		2392.1	$(1^+,2^+)$	Iγ/Eγ^5=350 *50*, corrected for contribution from contaminant.
6729.5# *8*		S(n)+24	1^+	2401.0	$(1)^+$	Iγ/Eγ^5=242 *50*.
6739.8 *6*	1.25 *26*	S(n)+24	1^+	2392.1	$(1^+,2^+)$	Iγ/Eγ^5=205 *77*, corrected for contribution from contaminant.
6754.2&a	1.43 *29*	S(n)+24	1^+	2376.8?	5^+	
6792.9 *10*		S(n)+2		2316.4	0^+	Iγ/Eγ^5=129 *34*.
6814.5# *11*		S(n)+24	1^+	2316.4	0^+	Iγ/Eγ^5=118 *46*.
6885.9 *5*		S(n)+2		2223.4	$(2,1)^+$	Iγ/Eγ^5=407 *34*.
6908.4 *9*	0.51 *9*	S(n)+24	1^+	2223.4	$(2,1)^+$	Iγ/Eγ^5=282 *55*.
6966.9 *7*		S(n)+2		2142.4	0^+	Iγ/Eγ^5=149 *25*.
6979.3 *5*		S(n)+2		2130.0	2^+	Iγ/Eγ^5=399 *35*.
6986.6# *15*		S(n)+24	1^+	2142.4	0^+	Iγ/Eγ^5=65 *19*.
7001.7 *3*	0.55 *14*	S(n)+24	1^+	2130.0	2^+	Iγ/Eγ^5=307 *32*.
7028.2 *5*		S(n)+2		2081.1	2^+	Iγ/Eγ^5=414 *30*.
7051.1 *6*	0.44 *7*	S(n)+24	1^+	2081.1	2^+	Iγ/Eγ^5=269 *34*.
7242.6 *9*		S(n)+2		1866.7	4^+	Iγ/Eγ^5=36 *15*, corrected for contribution from contaminant.

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^{135}Ba(n,γ) E=2,24 keV: av res 1982ScZP,1974Ch14 (continued)

$\gamma(^{136}Ba)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Comments
7264.2[#] *9*		S(n)+24	1^+	1866.7	4^+	Iγ/Eγ^5=86 *18*.
7529.4 *7*		S(n)+2		1580.0	0^+	Iγ/Eγ^5=153 *20*.
7553.1 *12*	0.11 *9*	S(n)+24	1^+	1580.0	0^+	Iγ/Eγ^5=46 *15*.
7557.8 *4*		S(n)+2		1551.5	2^+	Iγ/Eγ^5=419 *24*.
7580.4 *5*	0.55 *11*	S(n)+24	1^+	1551.5	2^+	Iγ/Eγ^5=336 *27*.
8290.8 *4*		S(n)+2		818.5	2^+	Iγ/Eγ^5=344 *17*.
8313.1 *5*	1.02 *14*	S(n)+24	1^+	818.5	2^+	Iγ/Eγ^5=287 *22*.
9109.6 *5*		S(n)+2		0.0	0^+	Iγ/Eγ^5=100 *8*.
9131.7 *6*	0.54 *9*	S(n)+24	1^+	0.0	0^+	Iγ/Eγ^5=100 *10*.

[†] From 1982ScZP except where noted.
[‡] Photon intensity per 100 captures (1974Ch14).
[#] Not observed by 1974Ch14.
[@] From 1974Ch14.
[&] Seen only in the 24.5-keV spectra of 1974Ch14. While they were unable to assign the transition to any known contaminant, it is probably a contaminant since the level fed has $J^\pi=(5^+)$.
[a] Placement of transition in the level scheme is uncertain.

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Level Scheme

Intensities: Relative I_γ

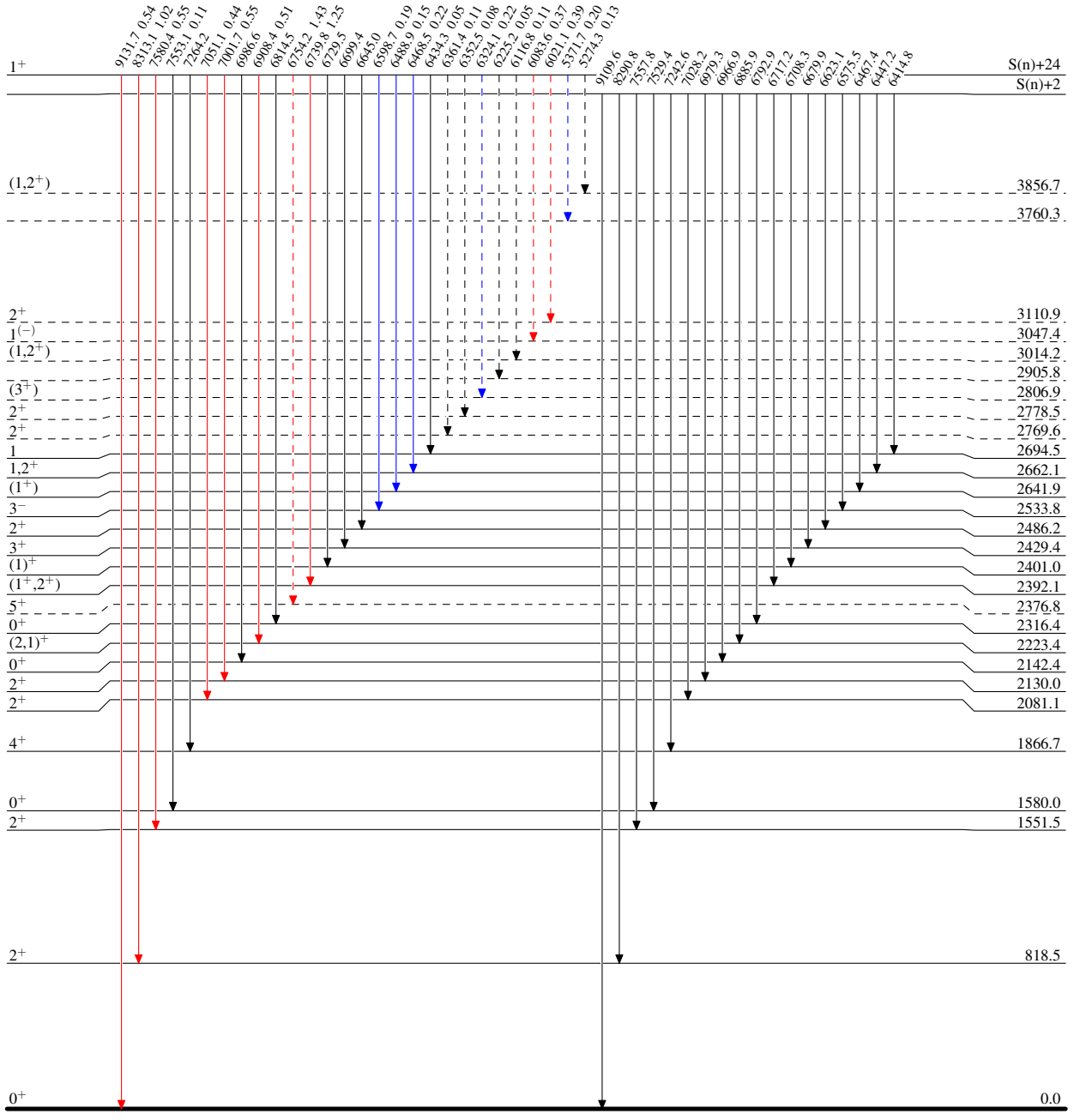
Legend

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

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

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

γ Decay (Uncertain)



$^{136}_{56}Ba_{80}$