

$^{232}\text{Th}(^{209}\text{Bi}, ^{210}\text{Po}\gamma)$ [2002AbZV](#)

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, Jagdish K. Tuli, and Edgardo Browne		NDS 185, 560 (2022)	31-Aug-2022

[2002AbZV](#), [2000JaZY](#): $^{232}\text{Th}(^{209}\text{Bi}, ^{210}\text{Po}\gamma)$, $E=1406$ MeV. Measured E_γ , I_γ , $\gamma\gamma$ -coin using the Gammasphere array with 101 Compton-suppressed HPGe detectors at ATLAS-ANL facility.

 ^{231}Ac Levels

E(level) [†]	J^π [‡]	Comments
0.0 [@]	$1/2^+$ [#]	
37.8 4	$(3/2)^+$ [#]	
74.70 [@] 6	$(5/2^+)$	E(level), J^π : from the Adopted Levels.
74.70+x [@]	$(9/2^+)$	Additional information 1 . E(level): From rotational-energy analysis.
236.7+x [@] 10	$(13/2^+)$	
452.2+x [@] 14	$(17/2^+)$	
715.8+x [@] 17	$(21/2^+)$	
1022.2+x [@] 20	$(25/2^+)$	
1364.1+x [@] 22	$(29/2^+)$	
1736.8+x [@] 25	$(33/2^+)$	
2136.7+x [@] 26	$(37/2^+)$	
2559.1+x [@] 28	$(41/2^+)$	
2999.7+x? [@] 30	$(45/2^+)$	

[†] From E_γ data, assuming $\Delta E_\gamma=1$ keV, when not stated.

[‡] As given in [2000JaZY](#), based on band assignment, unless indicated otherwise.

[#] From the Adopted Levels.

[@] Band(A): $\pi 1/2[400]$ band.

 $\gamma(^{231}\text{Ac})$

E_γ [†]	$E_i(\text{level})$	J^π_i	E_f	J^π_f	Comments
x	74.70+x	$(9/2^+)$	74.70	$(5/2^+)$	E_γ : x=106 keV from γ -ray spectrum (1999Br17), also expected from rotational-energy analysis.
36.74 [‡] 5	74.70	$(5/2^+)$	37.8	$(3/2)^+$	
37.8 [‡] 4	37.8	$(3/2)^+$	0.0	$1/2^+$	
162.0	236.7+x	$(13/2^+)$	74.70+x	$(9/2^+)$	
215.5	452.2+x	$(17/2^+)$	236.7+x	$(13/2^+)$	
263.6	715.8+x	$(21/2^+)$	452.2+x	$(17/2^+)$	
306.4	1022.2+x	$(25/2^+)$	715.8+x	$(21/2^+)$	
341.9	1364.1+x	$(29/2^+)$	1022.2+x	$(25/2^+)$	
372.7	1736.8+x	$(33/2^+)$	1364.1+x	$(29/2^+)$	
399.9	2136.7+x	$(37/2^+)$	1736.8+x	$(33/2^+)$	
422.4	2559.1+x	$(41/2^+)$	2136.7+x	$(37/2^+)$	
440.6 [#]	2999.7+x?	$(45/2^+)$	2559.1+x	$(41/2^+)$	

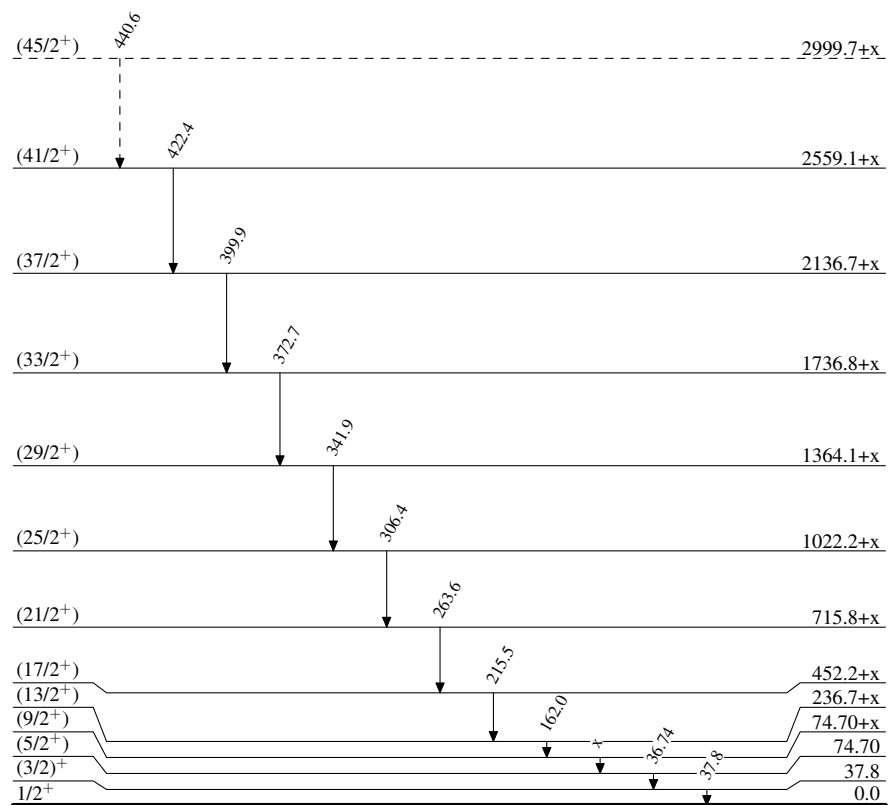
[†] From [2002AbZV](#), unless otherwise specified.

[‡] From the Adopted dataset.

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

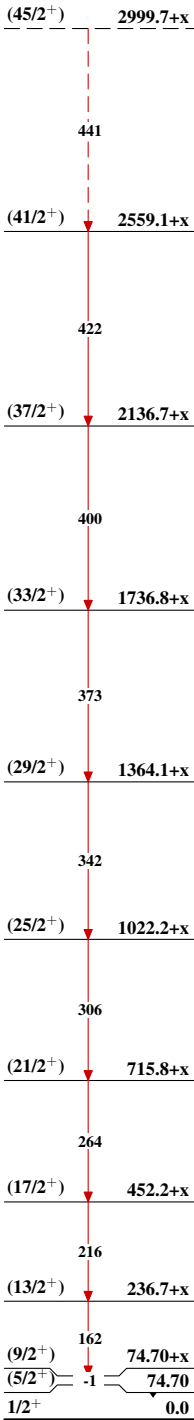
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Legend

Level Scheme-----> γ Decay (Uncertain) $^{231}_{89}\text{Ac}_{142}$

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Band(A): $\pi 1/2[400]$ band



$^{231}_{89}\text{Ac}_{142}$