^{232}Th(^{136}Xe,Xγ) 1999Co02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, M. S. Basunia, Murray Martin et al. ,	NDS 160, 405 (2019)	30-Oct-2019

1999Co02 (also 1998Bu17,1997Co08,1997Co14): E(^{136}Xe)=833 MeV. Measured Eγ, Iγ, $\gamma\gamma\gamma$ using GAMMASPHERE array consisting of 73 HPGe detectors.

^{218}Rn Levels

E(level)†	J$^\pi$‡	Comments
0.0#	0^+	
324.5# *2*	2^+	
653.5# *3*	(4^+)	
796.7		No population or decay modes shown by 1999Co02.
840.0?@ *2*	(3^-)	
1014.8# *7*	(6^+)	
1026.2@ *5*	(5^-)	
1328.2@ *7*	(7^-)	D_0/Q_0=0.000097 fm^{-1} *8*, from the γ-ray branching ratio and rotational model, where D_0 and Q_0 are intrinsic electric dipole moment and quadrupole moment, respectively.
1393.4# *8*	(8^+)	
1694.6@ *8*	(9^-)	
1775.7# *8*	(10^+)	
2071.2@ *10*	(11^-)	
2169.4# *9*	(12^+)	
2458.2@ *11*	(13^-)	
2577.1# *11*	(14^+)	
2853.5?@ *11*	(15^-)	
3002.5# *12*	(16^+)	
3265.7?@ *12*	(17^-)	
3438.0# *13*	(18^+)	
3683.7?@ *12*	(19^-)	
3860.0# *14*	(20^+)	
4287.5# *15*	(22^+)	
4725.5# *16*	(24^+)	
5168.5?# *16*	(26^+)	

† From least-squares fit to Eγ data, by evaluators.
‡ As proposed by 1999Co02 based on observation of γ-ray cascades assigned to the g.s. band and an octupole band.
# Band(A): g.s. band.
@ Band(B): Octupole band.

γ(^{218}Rn)

E$_\gamma$†	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
186.3‡ *5*		1026.2	(5^-)	840.0?	(3^-)
301.4‡ *5*		1694.6	(9^-)	1393.4	(8^+)
302.0 *5*	33 *5*	1328.2	(7^-)	1026.2	(5^-)
313.4 *5*	17 *4*	1328.2	(7^-)	1014.8	(6^+)

Continued on next page (footnotes at end of table)

^{232}Th(^{136}Xe,Xγ) 1999Co02 (continued)

γ(^{218}Rn) (continued)

E_γ[†]	I_γ	E_i(level)	J_i^π	E_f	J_f^π	E_γ[†]	I_γ	E_i(level)	J_i^π	E_f	J_f^π
324.5 *2*	100 *19*	324.5	2^+	0.0	0^+	395.1[‡] *5*		2853.5?	(15^-)	2458.2	(13^-)
329.0 *2*	96 *18*	653.5	(4^+)	324.5	2^+	407.7 *5*	30 *3*	2577.1	(14^+)	2169.4	(12^+)
361.1 *2*	83 *5*	1014.8	(6^+)	653.5	(4^+)	412.2[‡] *5*		3265.7?	(17^-)	2853.5?	(15^-)
366.4 *5*	34 *5*	1694.6	(9^-)	1328.2	(7^-)	418.0[‡] *5*		3683.7?	(19^-)	3265.7?	(17^-)
372.7 *5*	34 *5*	1026.2	(5^-)	653.5	(4^+)	421.9 *5*	10 *3*	3860.0	(20^+)	3438.0	(18^+)
376.6 *5*	38 *13*	2071.2	(11^-)	1694.6	(9^-)	425.4 *5*	21 *3*	3002.5	(16^+)	2577.1	(14^+)
378.6 *2*	68 *13*	1393.4	(8^+)	1014.8	(6^+)	427.6 *5*	7 *3*	4287.5	(22^+)	3860.0	(20^+)
382.3 *2*	49 *7*	1775.7	(10^+)	1393.4	(8^+)	435.5 *5*	13 *3*	3438.0	(18^+)	3002.5	(16^+)
387.0 *5*	24 *8*	2458.2	(13^-)	2071.2	(11^-)	438.0 *5*	5 *3*	4725.5	(24^+)	4287.5	(22^+)
393.7 *5*	39 *7*	2169.4	(12^+)	1775.7	(10^+)	442.8[‡] *5*		5168.5?	(26^+)	4725.5	(24^+)

[†] Uncertainties assigned (by the evaluators) as 0.2 keV for transitions in the g.s. band up to 10^+ and 0.5 keV for all other transitions based on a general comment by 1999Co02 that the uncertainties range from 0.2 keV for low-lying transitions in the g.s. band up to 0.5 keV for intraband transitions in the octupole band and higher-lying transitions.

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

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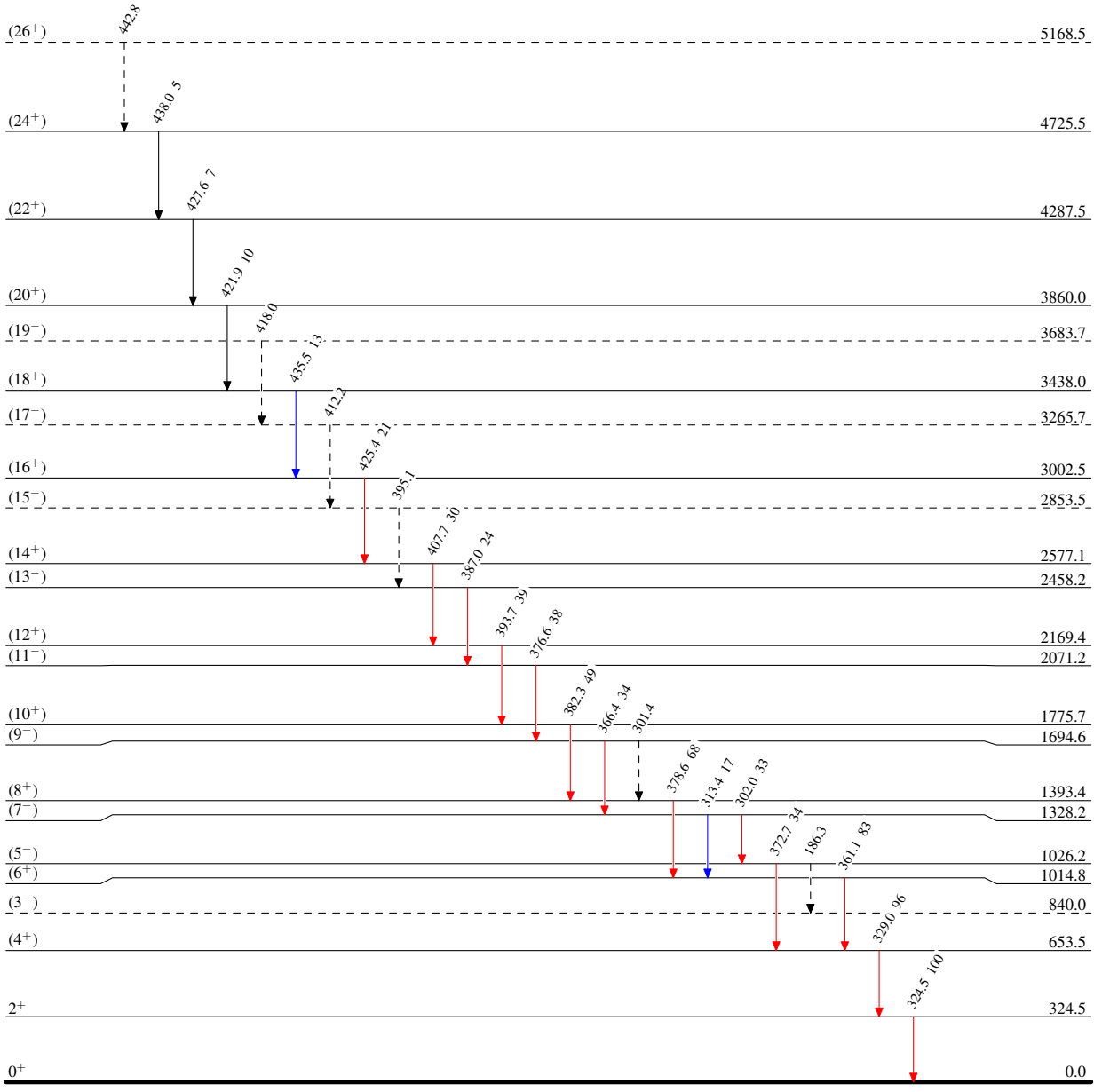
Level Scheme

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)



$^{218}_{86}Rn_{132}$

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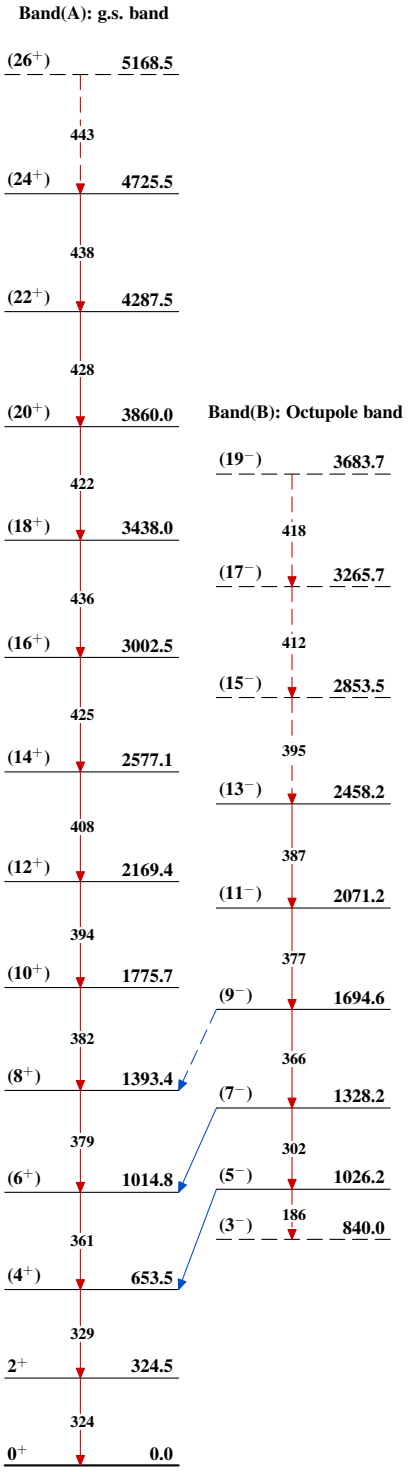

$^{218}_{86}Rn_{132}$