

$^9\text{Be}(^{238}\text{U},\text{X}\gamma)$  2021Va03

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia	NDS 181, 475 (2022)	1-Jan-2022

Produced from  $^{238}\text{U}$  fragmentation bombarding  $^9\text{Be}$  target,  $E=1$  GeV/nucleon; fragments were separated according to their magnetic rigidity ( $B\rho$ ) with the double-stage magnetic spectrometer, implanted in a double-sided silicon-strip detector (DSSSD). The RISING  $\gamma$  spectrometer consisted of 105 germanium crystals arranged in 15 clusters surrounded the implantation DSSSD. Measured decay products,  $E_\gamma$ ,  $I_\gamma$ ; deduced half-life, isomer decays with asymmetric E2 transition probabilities.

 $^{213}\text{Pb}$  Levels

E(level) <sup>†</sup>	$J^\pi$ <sup>‡</sup>	$T_{1/2}$	Comments
0.0	(9/2 <sup>+</sup> )	10.2 min 3	$T_{1/2}, J^\pi$ : From Adopted Levels.
772.0 10	(13/2 <sup>+</sup> ) <sup>#</sup>		
1083.2 14	(15/2 <sup>+</sup> )		
1141.0 15	(17/2 <sup>+</sup> ) <sup>#</sup>		
1259.8 14	(17/2 <sup>+</sup> )		
1331.0 18	(21/2 <sup>+</sup> ) <sup>#</sup>	0.26 $\mu\text{s}$ 2	Suggested configuration: $\nu(g_{9/2}^{+3})$ . $T_{1/2}$ : From sum (176,190,311,369,488 and 772) $\gamma(t)$ (2021Va03).

<sup>†</sup> From  $E_\gamma$ .

<sup>‡</sup> Tentative spin-parity assignment from 2021Va03, based on the systematics and shell model calculations.

<sup>#</sup> Based on the  $\gamma$  cascade from the (21/2<sup>+</sup>) seniority isomer, configuration:  $\nu(g_{9/2}^3)$  (2021Va03).

 $\gamma(^{213}\text{Pb})$ 

$E_\gamma$ <sup>†</sup>	$I_\gamma$ <sup>&amp;</sup>	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult.	$\alpha^a$	$I_{(\gamma+ce)}$ <sup>@</sup>	Comments
(71)		1331.0	(21/2 <sup>+</sup> )	1259.8	(17/2 <sup>+</sup> )				
176 <sup>#</sup> 2	7 6	1259.8	(17/2 <sup>+</sup> )	1083.2	(15/2 <sup>+</sup> )	[M1]	1.87 7	19 16	
190 <sup>‡</sup> 1	15 10	1331.0	(21/2 <sup>+</sup> )	1141.0	(17/2 <sup>+</sup> )	[E2]	0.512 12	22 15	
311 <sup>#</sup> 1	17 7	1083.2	(15/2 <sup>+</sup> )	772.0	(13/2 <sup>+</sup> )	[M1]	0.387 7	23 10	
369 <sup>‡</sup> 1	29 9	1141.0	(17/2 <sup>+</sup> )	772.0	(13/2 <sup>+</sup> )	[E2]	0.0640 11	30 9	
488 1	77 8	1259.8	(17/2 <sup>+</sup> )	772.0	(13/2 <sup>+</sup> )	[E2]	0.0311	79 8	$E_\gamma$ : In coincidence with 772 $\gamma$ .
772 <sup>‡</sup> 1	100 10	772.0	(13/2 <sup>+</sup> )	0.0	(9/2 <sup>+</sup> )	[E2]	0.01119	100 10	

<sup>†</sup> Uncertainty from statements in the text.

<sup>‡</sup> In mutual coincidence.

<sup>#</sup> The ordering of 176 $\gamma$  and 311 $\gamma$  is supported by the proposed level scheme.

<sup>@</sup> From 2021Va03.

<sup>&</sup> Deduced by the evaluator, rounded value, using  $I(\gamma+ce)$  and  $\alpha$  for assumed  $\gamma$  multipolarity.

<sup>a</sup> Additional information 1.

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## Level Scheme

Intensities: Relative  $I_\gamma$ 

## Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$
- - - - -→  $\gamma$  Decay (Uncertain)
- Coincidence

