

$^9\text{Be}(^{238}\text{U},\text{X}\gamma)$ **2012BoZQ,2013Bo18,2013BoZT**

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 187,355 (2023)	20-Sep-2022

2013Bo18,2012BoZQ,2013BoZT: $E(^{238}\text{U})=1000$ MeV/A from the SIS-18 synchrotron (GSI), pulsed beam 3-4 s beam-on with 2 s beam-off periods; Target: ^9Be , 1.63 g/cm²-thick; Fragments were identified in flight by the Fragment Separator (FRS), based on time of flight, $B\rho$ and energy loss. Transmitted ions were slowed by a degrader and stopped in a passive ion 10-mm-thick Perspex catcher, that was surrounded by the RISING γ -ray spectrometer. Measured $E\gamma$, $I\gamma$, delayed γ rays, isomer lifetime.

^{201}Tl Levels

E(level) [†]	J^π [‡]	$T_{1/2}$ [‡]	Comments
0.0	1/2 ⁺		
331.15 6	3/2 ⁺		
919.45 12	(9/2 ⁻)	2.11 ms 11	%IT=100
1238.6 3	(11/2 ⁻)		
1572.0 3	(13/2 ⁻)		
1962.9 3	(15/2 ⁻)		
2016.1 7	(17/2 ⁻)	2.9 ns +19-5	J^π : (13/2,15/2) in 2013BoZT .
2713.8 4	(15/2 ⁻)		
2747.9 5	(17/2 ⁺)		
2747.9+x 5		95 ns +39-21	Additional information 1. E(level): From 2013Bo18 . The observed 148, 158, 314 and 853 keV delayed gammas are expected above the 2747.9-keV level, but their ordering is unknown. J^π : Tentative $J=(33/2)$ in 2013Bo18 . $T_{1/2}$: From sum of (148,158,314,319,333,444,726,785,853) $\gamma(t)$ in 2012BoZQ, 2013BoZT .

[†] From least-squares fit to $E\gamma$, unless otherwise stated.

[‡] From Adopted Levels, unless otherwise stated.

$\gamma(^{201}\text{Tl})$

E_γ [†]	I_γ [#]	$E_i(\text{level})$	J_i^π	E_f	J_f^π
(34.3 7)		2747.9	(17/2 ⁺)	2713.8	(15/2 ⁻)
^x 148 [‡]					
^x 158 [‡]					
^x 314 [‡]					
319.3 [‡] 3	517 88	1238.6	(11/2 ⁻)	919.45	(9/2 ⁻)
331.15 6		331.15	3/2 ⁺	0.0	1/2 ⁺
333.4 [‡] 3	411 76	1572.0	(13/2 ⁻)	1238.6	(11/2 ⁻)
390.9 1		1962.9	(15/2 ⁻)	1572.0	(13/2 ⁻)
444.1 [‡] 6	283 85	2016.1	(17/2 ⁻)	1572.0	(13/2 ⁻)
588.3 1		919.45	(9/2 ⁻)	331.15	3/2 ⁺
652.2 5		1572.0	(13/2 ⁻)	919.45	(9/2 ⁻)
724.3 1		1962.9	(15/2 ⁻)	1238.6	(11/2 ⁻)
784.9 [‡] 5	167 61	2747.9	(17/2 ⁺)	1962.9	(15/2 ⁻)
^x 853 [‡]					
1141.8 1		2713.8	(15/2 ⁻)	1572.0	(13/2 ⁻)

[†] From adopted gammas, unless otherwise stated.

[#] Delayed γ rays observed in [2012BoZQ](#).

Continued on next page (footnotes at end of table)

$^9\text{Be}(^{238}\text{U},\text{X}\gamma)$ **2012BoZQ,2013Bo18,2013BoZT (continued)**

$\gamma(^{201}\text{Tl})$ (continued)

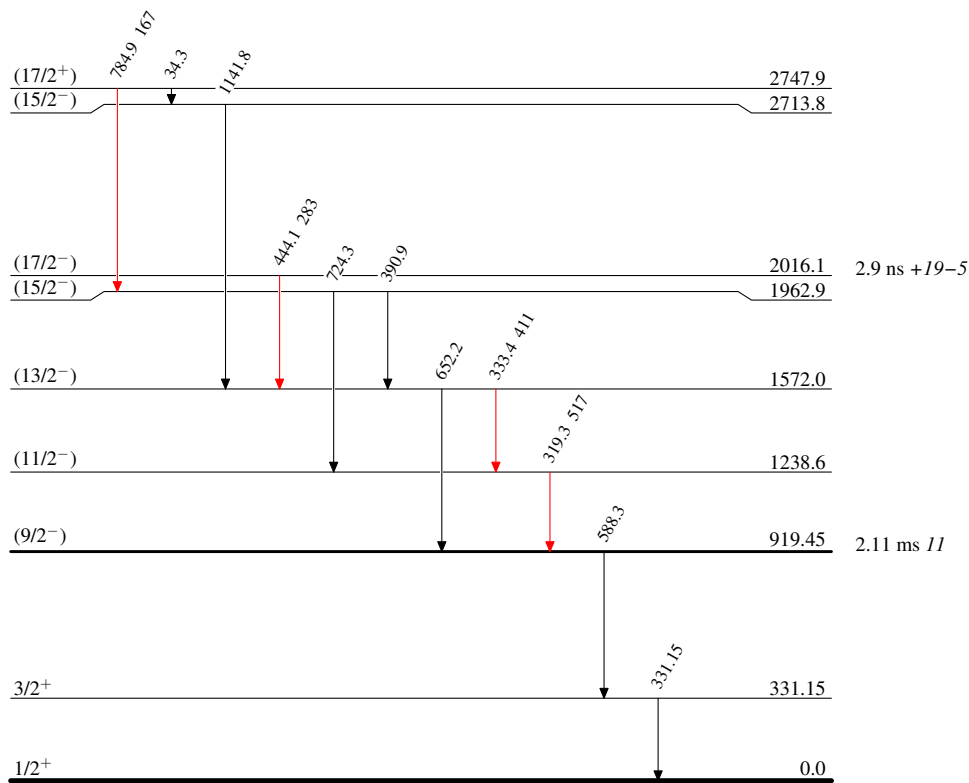
Delayed intensities from 2013BoZT.
 x γ ray not placed in level scheme.

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Legend

Level Scheme
 Intensities: Type not specified

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



$^{201}_{81}\text{Tl}_{120}$