

$^{238}\text{U}(^{12}\text{C},\text{x}\gamma)$ 2002Lu15

Type	History		Literature Cutoff Date
	Author	Citation	
Full Evaluation	Jean Blachot	ENSDF	1-Mar-2009

Includes $^{208}\text{Pb}(^{18}\text{O},\text{X}\gamma)$ and $^{176}\text{Yb}(^{31}\text{P},\text{X}\gamma)$ reactions.

$^{238}\text{U}(^{12}\text{C},\text{X}\gamma)$ E= 90 MeV; $^{208}\text{Pb}(^{18}\text{O},\text{X}\gamma)$ E= 85 MeV; $^{176}\text{Yb}(^{31}\text{P},\text{X}\gamma)$ E=152 MeV. Measured $E\gamma$, $I\gamma$, $\gamma\gamma$ using EUROBALL III array of 15 cluster Ge detectors, 26 clover Ge detectors, and 30 tapered single-crystal Ge detectors.

 ^{117}In Levels

E(level) [†]	J ^π	Comments
0.0 [‡]	9/2 ⁺	
659 [@]	3/2 ⁺	E(level): not populated in this study. See ENSDF for ^{117}In for details about this level.
748.0 [@] 10	7/2 ⁺	
1066.0 ⁹	(11/2 ⁺)	
1209.0 [@] 15	(11/2 ⁺)	
1235.0 [‡] 9	(13/2 ⁺)	
1898.0 [@] 18	(15/2 ⁺)	
2124.4 [#] 13	(15/2 ⁻)	
2261.8 [#] 14	(17/2 ⁻)	
2263.8 [‡] 12	(17/2 ⁺)	
2430.2 [#] 14	(19/2 ⁻)	
2446.8 ¹²	(17/2 ⁺)	
2622.2 [#] 17	(21/2 ⁻)	
2670.6 [‡] 13	(21/2 ⁺)	
2727.0 [@] 20	(19/2 ⁺)	
2731.6 [‡] 16	(23/2 ⁺)	
2837.6 [‡] 19	(25/2 ⁺)	
2857.2 [#] 20	(23/2 ⁻)	
3031.2 [#] 22	(25/2 ⁻)	
3192.2 [‡] 22	(27/2 ⁺)	
3559.5 [#] 24	(27/2 ⁻)	
3727.2 [‡] 25	(29/2 ⁺)	
4187.9 [#] 24	(29/2 ⁻)	

[†] From least-squares fit to $E\gamma$'s, assuming $\Delta(E\gamma) = 1$ keV for each γ ray.

[‡] Band(A): $\pi g_{9/2}^{-1} \nu h_{11/2}^2$.

[#] Band(B): $\pi g_{9/2}^{-1} \nu h_{11/2}^1 (\nu d_{5/2} \text{ and/or } g_{7/2})^1$.

[@] Band(C): $\pi 1/2[431]$ from $\pi(g_{7/2} \text{ and/or } d_{5/2})$.

 $\gamma(^{117}\text{In})$

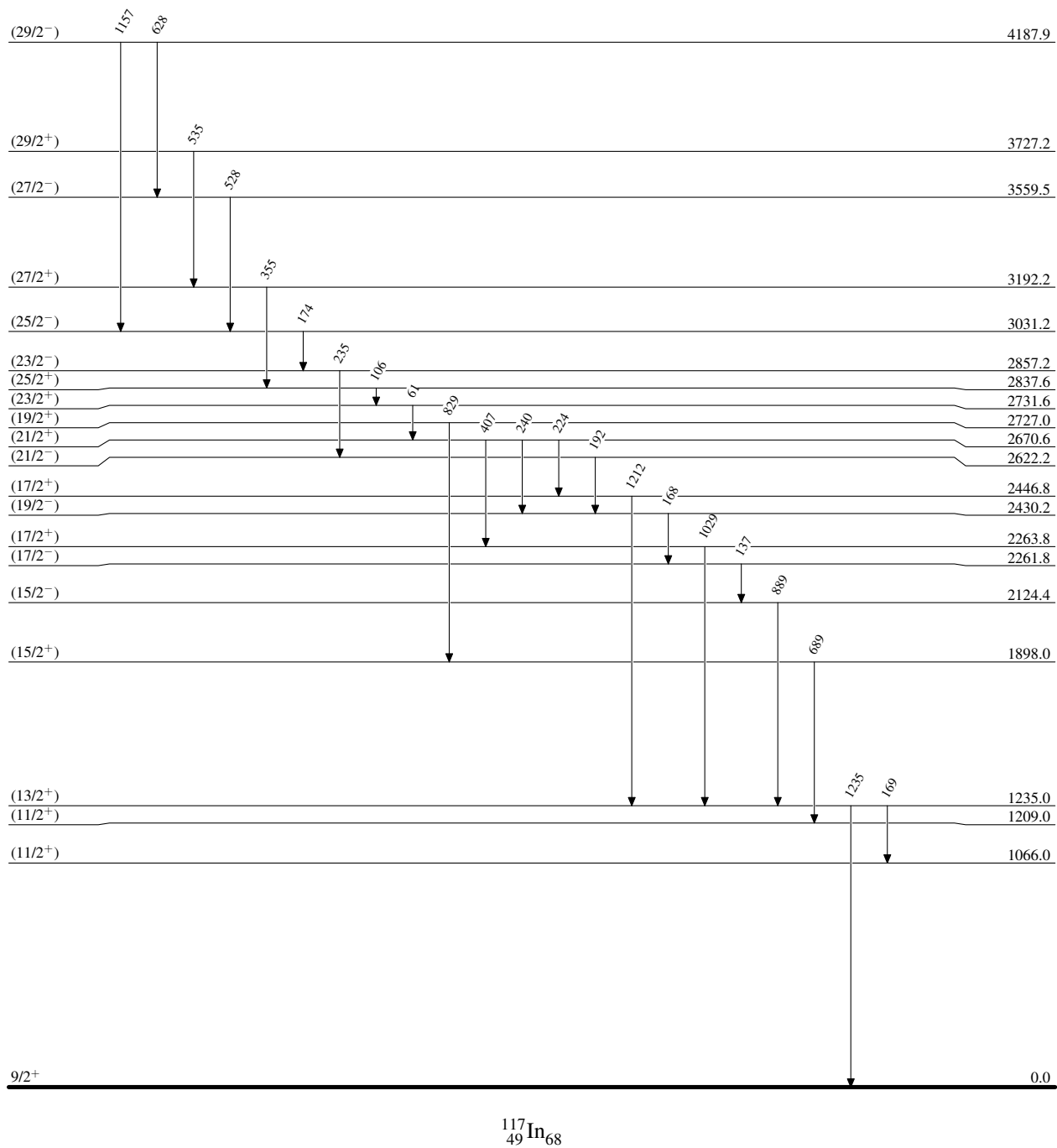
E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
61 [†]	2731.6	(23/2 ⁺)	2670.6	(21/2 ⁺)
106 [†]	2837.6	(25/2 ⁺)	2731.6	(23/2 ⁺)
137 [†]	2261.8	(17/2 ⁻)	2124.4	(15/2 ⁻)
168 [†]	2430.2	(19/2 ⁻)	2261.8	(17/2 ⁻)
169	1235.0	(13/2 ⁺)	1066.0	(11/2 ⁺)

Continued on next page (footnotes at end of table)

$^{238}\text{U}(^{12}\text{C},\text{x}\gamma)$ **2002Lu15** (continued) $\gamma(^{117}\text{In})$ (continued)

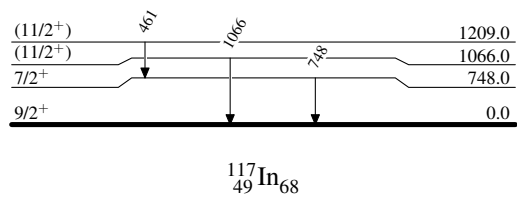
E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π
174 [‡]	3031.2	(25/2 ⁻)	2857.2	(23/2 ⁻)	628	4187.9	(29/2 ⁻)	3559.5	(27/2 ⁻)
192 [†]	2622.2	(21/2 ⁻)	2430.2	(19/2 ⁻)	689	1898.0	(15/2 ⁺)	1209.0	(11/2 ⁺)
224	2670.6	(21/2 ⁺)	2446.8	(17/2 ⁺)	748 [‡]	748.0	7/2 ⁺	0.0	9/2 ⁺
235 [†]	2857.2	(23/2 ⁻)	2622.2	(21/2 ⁻)	829	2727.0	(19/2 ⁺)	1898.0	(15/2 ⁺)
240 [†]	2670.6	(21/2 ⁺)	2430.2	(19/2 ⁻)	889 [†]	2124.4	(15/2 ⁻)	1235.0	(13/2 ⁺)
355 [†]	3192.2	(27/2 ⁺)	2837.6	(25/2 ⁺)	1029 [‡]	2263.8	(17/2 ⁺)	1235.0	(13/2 ⁺)
407 [‡]	2670.6	(21/2 ⁺)	2263.8	(17/2 ⁺)	1066	1066.0	(11/2 ⁺)	0.0	9/2 ⁺
461	1209.0	(11/2 ⁺)	748.0	7/2 ⁺	1157	4187.9	(29/2 ⁻)	3031.2	(25/2 ⁻)
528	3559.5	(27/2 ⁻)	3031.2	(25/2 ⁻)	1212	2446.8	(17/2 ⁺)	1235.0	(13/2 ⁺)
535 [‡]	3727.2	(29/2 ⁺)	3192.2	(27/2 ⁺)	1235 [†]	1235.0	(13/2 ⁺)	0.0	9/2 ⁺

[†] Strong transition.[‡] Medium-intensity transition.

$^{238}\text{U}(^{12}\text{C},\text{x}\gamma)$ 2002Lu15Level Scheme

$^{238}\text{U}(^{12}\text{C},\text{x}\gamma)$ **2002Lu15**

Level Scheme (continued)



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