^{9}Be(^{238}U,Xγ) 2009Al29

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. Chen # and F. G. Kondev	NDS 126, 373 (2015)	30-Sep-2013

2009Al29: E=1 GeV/nucleon ^{238}U beam was produced by the SIS-18 accelerator at GSI, Darmstadt. A target of 2.5 g/cm^2 ^{9}Be on a 223 mg/cm^2 Nb. The nuclides were selected by the Fragments Separator (FRS) and implanted into a stopper with an area of 15 cm by 5 cm and a thickness of 2 mm, consisting of 6 double-sided silicon detectors; x- and γ-rays were detected by the RISING array of 15 Euroball cluster Ge detectors. Measured β-delayed Eγ, Iγ, $\gamma\gamma$(t) coin, γ(t), (fragments)γ(t), (fragment)$\beta\gamma$(t) coin. Comparison with shell-model calculations. Other (from the same collaboration): 2009Al15.

^{209}Tl Levels

E(level)†	J$^\pi$	T$_{1/2}$	Comments
0.0	1/2$^+$‡		
324	3/2$^+$‡		
985	(7/2$^+$)#		
985+x	(9/2$^+$)#		
1123+x	(13/2$^+$)#		
1123+z	(17/2$^+$)#	95 ns *11*	E(level): from expected (unobserved) γ-ray transition to E=1123+x−keV level with z=x+y. T$_{1/2}$: from 661.2γ(t), 323.1γ(t) and 136.8γ(t) in 2009Al29. configuration: $\pi(s_{1/2})^{-1}\otimes\nu(g_{9/2})^{+2}$.

† From 2009Al29.
‡ From Adopted Levels.
# From 2009Al29, based on comparison of the observed levels with shell-model predictions (2009Al29).

γ(^{209}Tl)

E$_\gamma$†	I$_\gamma$†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	Comments
x‡		985+x	(9/2$^+$)	985	(7/2$^+$)		
y‡		1123+z	(17/2$^+$)	1123+x	(13/2$^+$)	[E2]	
136.8	41 *10*	1123+x	(13/2$^+$)	985+x	(9/2$^+$)	E2	Mult.: α(exp)=1.5 *4* from intensity balances in 2009Al29.
323.1	100 *15*	324	3/2$^+$	0.0	1/2$^+$		
661.2	96 *19*	985	(7/2$^+$)	324	3/2$^+$		

† From 2009Al29.
‡ Not observed directly, but required by the coincidence relationships. A low-energy transition (less than 85.6 keV, which is th binding energy of the K-shell electrons) is expected to depopulate this state, as indicated by the low intensity of the observed K$_\alpha$ x-rays in 2009Al29.

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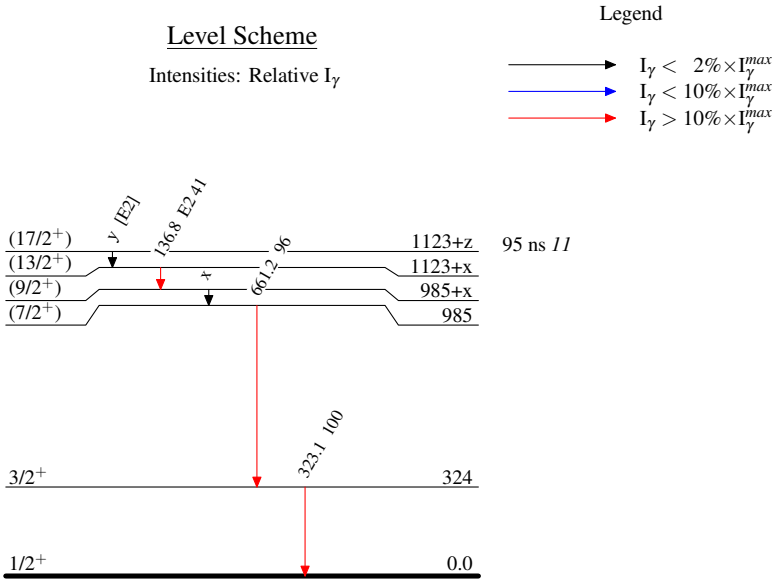
Level Scheme

Intensities: Relative I_γ



$^{209}_{81}Tl_{128}$