

$^9\text{Be}(^{238}\text{U}, \text{X}\gamma)$ **1998Pf02**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	C. J. Chiara and F. G. Kondev		NDS 111,141 (2010)	1-Oct-2009

1998Pf02: 1-g/cm² ^9Be target; $E(^{238}\text{U}) = 1$ GeV/A; FRS fragment separator at GSI, mass-to-charge ratio from ToF and position-sensitive multiwire detectors; ions stopped in Al catcher between two Ge detectors with 3% efficiency at 300 keV and 1% at 1.3 MeV; measured $E\gamma$, $\gamma(t)$ within a 30- μs coin window of ion implantation.

 ^{204}Tl Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	2^-		J^π : From Adopted Levels.
2318.8			E(level): From Adopted Levels.
2318.8+x	(12^-)	$2.6 \mu\text{s}$	E(level): The 350 γ and 668 γ reported in 1998Pf02 as being from the decay of an unplaced (12^-) isomer are also observed and placed in the ^{204}Tl level scheme by 2008Fo03 in $(n,2n\gamma)$. Strong population of a $J=12$ level was not expected in the N-induced reaction, and the 668 γ , depopulating a level at 2318.8 keV (see Adopted Levels), was not observed in the delayed spectra of 2008Fo03 . Therefore, these γ 's likely do not directly depopulate the isomer, but may be fed by a decay path by-passing the isomer in $(n,2n\gamma)$. Thus, the energy of the proposed (12^-) level is above 2318.8 keV. Additional information 1. J^π : Proposed by 1998Pf02 based on analogy with ^{206}Tl , with possible configuration $\pi[(h_{11/2})^{-1}]\nu[(i_{13/2})^{-1}]$. $T_{1/2}$: From 350 $\gamma(t)$ and 668 $\gamma(t)$ in 1998Pf02 . The possibility that feeding from the higher-lying isomer may influence the lifetime fit for this level was not discussed in 1998Pf02 .
2318.8+y	(20^+)	$1.6 \mu\text{s}$	E(level): Based on the relative population of the 1.6- and 2.6- μs isomers in 1998Pf02 , the former is expected to be at a higher energy. J^π : Proposed by 1998Pf02 with no experimental basis given. Additional information 2. $T_{1/2}$: From $\gamma(t)$ in 1998Pf02 .

 $\gamma(^{204}\text{Tl})$

E_γ	$E_i(\text{level})$	Comments
$^{x350}_{\ddagger}$		
$^{x414}_{\dagger}$		
$^{x451}_{\#}$		
$^{x546}_{\#}$		Placement by 1998Pf02 disagrees with that of 2008Fo03 in $(n,2n\gamma)$, where 546 γ was placed below the (12^-) isomer.
$^{x586}_{\#}$		
$^{x668}_{\ddagger}$		
$^{x689}_{\dagger}$		
$^{x1037}_{\#}$		

$\dagger$ Associated with the decay of the 61.7- μs $(7)^+$ isomer (see adopted level scheme).

$\ddagger$ Suggested by [1998Pf02](#) to form part of the decay of the proposed (12^-) isomer.

$\#$ Suggested by [1998Pf02](#) to form part of the decay of the proposed (20^+) isomer.

x γ ray not placed in level scheme.