^{106}Cd(^{58}Ni,2nγ) 2004Jo12

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 195,1 (2024)	19-Sep-2023

Additional information 1.

^{106}Cd(^{58}Ni,2nγ), E(^{58}Ni)=270 MeV. Target was a self-supporting ^{106}Cd foil (enrichment=96%) of nominal thickness 0.9 mg/cm^2. γ radiation studied using the JUROGAM spectrometer, consisting of 43 escape-suppressed Ge detectors. The recoiling fusion-evaporation residues separated from the products of fission and the beam projectiles using the gas-filled recoil spectrometer RITU and deposited in the focal plane of the GREAT spectrometer, consisting of a multiwire proportional counter, Si and Ge detectors, and an implantation detector involving two double-sided silicon-strip detectors. Parent-daughter relations among the reaction products were established using the recoil-tagging technique. Measured Eγ, Eα, Iγ, $\gamma\gamma$, $\alpha\gamma\gamma$.

^{162}Os Levels

E(level)	J$^\pi$[†]	Comments
0.0	0$^+$	
706.7[‡] *3*	(2$^+$)	
1406.5[‡] *8*	(4$^+$)	
1990.6[‡] *8*	(6$^+$)	
2189.5[‡] *8*	(8$^+$)	E(level): regardless of the ordering of the γ's deexciting this level and those lying below it, this energy may be independent of that ordering.

[†] Except for the g.s., the values are those suggested by 2004Jo12 based on considerations from systematics and expected nuclear structure.

[‡] Value based on the listed placement of the deexciting γ, as reported by 2004Jo12. If the deexciting γ belongs elsewhere in the level scheme, then this energy will have to be appropriately modified.

γ(^{162}Os)

The placement of the γ's in the level scheme is that of the authors and is based on considerations of intensity and expectations from systematics in neighboring nuclides.

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Comments
198.9[†] *1*	34 *6*	2189.5	(8$^+$)	1990.6	(6$^+$)	
[x]270.3 *2*	14 *4*					
[x]342.9 *2*	19 *5*					
[x]375.5 *2*	23 *6*					
584.1[†] *2*	73 *14*	1990.6	(6$^+$)	1406.5	(4$^+$)	E$_\gamma$: from $\alpha\gamma\gamma$ coin, 2004Jo12 report that this transition is a doublet.
[x]685.2 *2*	76 *15*					
699.8[†] *7*	64 *16*	1406.5	(4$^+$)	706.7	(2$^+$)	
706.7[†] *3*	100 *19*	706.7	(2$^+$)	0.0	0$^+$	
[x]715.0 *4*	28 *8*					
[x]788.7 *5*	61 *13*					

[†] γ is in coin with the other placed γ's, but its ordering in the level scheme is not established. Its placement is that proposed by 2004Jo12.

[x] γ ray not placed in level scheme.

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Level Scheme

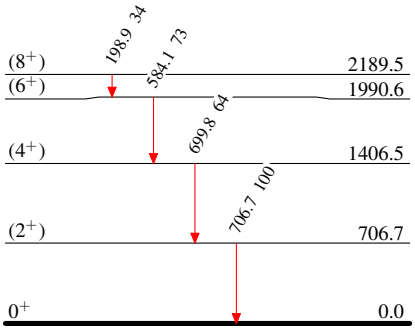
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{162}_{76}Os_{86}$