

$^{58}\text{Ni}(^{58}\text{Ni},\text{p}3\text{n}\gamma)$ 2012Wa10,2012Ca03,1994Pa12

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	S. Lalkovski, F. G. Kondev		NDS 124, 157 (2015)	1-Aug-2014

2012Wa10: Facility: ATLAS at ANL; Beam: $E(^{58}\text{Ni})=260$ MeV; Target: $565\text{ }\mu\text{g}/\text{cm}^2$ thick, self-supporting ^{58}Ni ; Detectors: GAMMASPHERE comprising 101 HPGe, FMA, parallel-grid avalanche counter, DSSD; Measured: $E(\text{p})$, $E(\alpha)$, implant-decay time and spatial correlations, $E\gamma$, $I\gamma$, recoil- γ - γ coin, proton- γ - γ coin, $T_{1/2}$.

2012Ca03: Facility: HRIBF facility at ORNL; Beam: $E(^{58}\text{Ni})=250$ MeV; Target: rotating $300\text{ }\mu\text{g}/\text{cm}^2$ thick ^{58}Ni ; Detectors: Recoil Mass Spectrometer, microchannel plate detector, DSSD, Si-box detector consisting of four Si detectors, one 5-mm thick Si(Li) detector; Measured: $E(\text{p})$, $E(\alpha)$, implant-decay time and spatial correlations, $T_{1/2}$.

1994Pa12: Facility: Daresbury, UK; Beam: $E(^{58}\text{Ni})=529$ MeV; Target: $520\text{ }\mu\text{g}/\text{cm}^2$ isotopically enriched in ^{58}Ni ; Detectors: Daresbury Recoil Mass Separator, one DSSSD; Measured: $E(\text{p})$, $E(\alpha)$, implant-decay time and spatial correlations, $T_{1/2}$.

 ^{112}Cs Levels

$E(\text{level})^\dagger$	$J^\pi^\ddagger$	$T_{1/2}$	Comments
0		0.49 ms 3	%p=100; % α <0.26 $T_{1/2}$: weighted average of 0.47 ms 5 (2012Wa10), 0.506 ms 55 (2012Ca03) and 0.50 ms 10 (1994Pa12), deduced from HI(implant)-p(decay)(Δt) spectra. $E(\text{p})=807$ keV 7 (1994Pa12) and 810 keV 5 (2012Wa10). % α : No $E\alpha$ was observed in 2012Ca03. The value is an upper limit. Additional information 1.
0+x	(10 ⁺)		
272.1+x [#] 12	(11 ⁺)		
707.7+x [#] 14	(13 ⁺)		
1351.4+x [#] 17	(15 ⁺)		
2143.4+x [#] 20	(17 ⁺)		

[†] From a least-squares fit to $E\gamma$.

[‡] Tentative assignments from 2012Wa10.

[#] Band(A): rotational band with a tentative configuration= $\pi h_{11/2} \otimes \nu h_{11/2}$ assignment.

 $\gamma(^{112}\text{Cs})$

$E_\gamma^\dagger$	$I_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
^x 154.6 6	5 2					
272.1 12	9 3	272.1+x	(11 ⁺)	0+x	(10 ⁺)	
435.6 6	7 3	707.7+x	(13 ⁺)	272.1+x	(11 ⁺)	
643.7 10	5 2	1351.4+x	(15 ⁺)	707.7+x	(13 ⁺)	
792 1	4 2	2143.4+x	(17 ⁺)	1351.4+x	(15 ⁺)	
^x 818 1	3 2					E_γ : assignment to ^{112}Cs is tentative.

[†] From 2012Wa10.

^x γ ray not placed in level scheme.

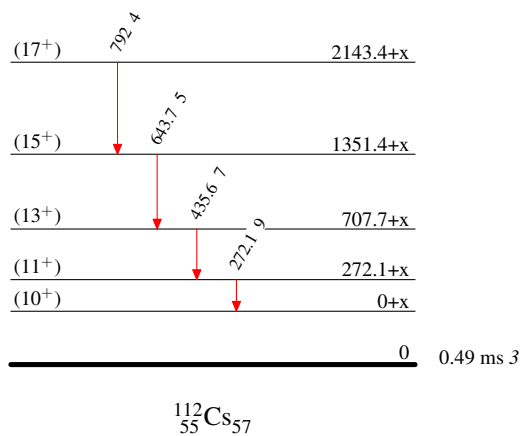
$^{58}\text{Ni}(^{58}\text{Ni},\text{p}3\text{n}\gamma)$ 2012Wa10,2012Ca03,1994Pa12

Level Scheme

Intensities: Relative I_γ

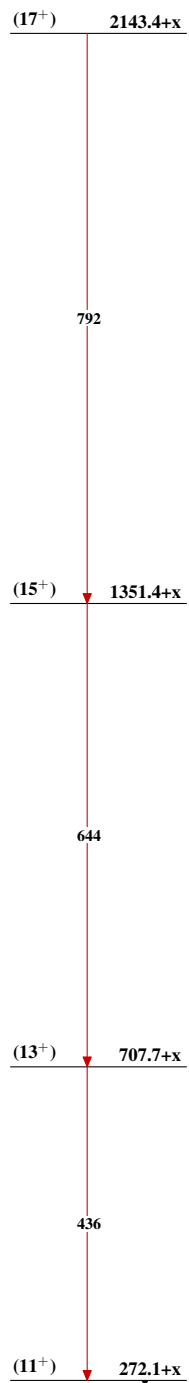
Legend

→ $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
→ $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
→ $I_\gamma > 10\% \times I_\gamma^{\text{max}}$



$^{58}\text{Ni}(^{58}\text{Ni},\text{p}3\text{n}\gamma)$ 2012Wa10,2012Ca03,1994Pa12

Band(A): Rotational band
with a tentative
configuration=
 $\pi h_{11/2} \otimes \nu h_{11/2}$
assignment



$^{112}_{55}\text{Cs}_{57}$