^{102}Pd(^{58}Ni,3pnγ) 2001Di17

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich	NDS 113, 2537 (2012)	1-Mar-2012

Additional information 1.

Some elements of the XUNDL file entry compiled by C. T. Malcolmson, C. Grinyer and B. Singh (August, 2001) have been incorporated in this evaluation.

2001Di17: E(^{58}Ni)=270 MeV. 1 mg/cm^2 enriched (69% ^{102}Pd) target. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$, $\gamma\alpha$ coin using the Gammasphere array consisting of 101 Ge detectors coupled to a Fragment Mass Analyzer. Recoil products were observed using a position-sensitive parallel-grid avalanche detector, implanted in a double-sided Si-strip detector and studied using the "recoil-decay tagging" technique.

These data are also discussed by 2001Ci03.

Level scheme is based on coincidence data and consideration of γ intensities, the lower-intensity transitions being presumed to lie above those with higher intensities.

^{156}Lu Levels

E(level)	J$^\pi$[†]	T$_{1/2}$	Comments
(0+x)	9$^+$	198 ms *2*	2001Di17 do not report this level, but indicate that it might have escaped detection in their experiment. Since the associated α transition presumably populates a 9$^+$ level in ^{152}Tm, the evaluator assumes that this level lies below the 10$^+$ level (otherwise, the 10$^+$ level would be the α emitter and should have different α-decay properties). E(level): If this level is populated in this reaction, then x<y. From systematics, 2003Au02 estimate x=0.22 MeV *8*. J$^\pi$: From adopted values. T$_{1/2}$: From adopted values. 2001Di17 associate this value with the 10$^+$ level.
0+y[‡]	10$^+$		
744.97+y[‡] *10*	12$^+$		
1363.42+y[‡] *15*	14$^+$		
1677.27+y[‡] *18*	16$^+$		
2139.24+y *21*	18$^+$		
2178.10+y[‡] *20*	18$^+$		
2713.4+y *3*			
2909.51+y[‡] *23*	20$^+$		
3962.9+y[‡] *3*	22$^+$		
4409.2+y[‡] *3*			
4488.1+y *3*			
4599.7+y[‡] *3*			
4975.5+y[‡] *4*			
5001.8+y *4*			
5286.7+y?[‡] *5*			

[†] Unless noted otherwise, values are based on multipolarities, intensity considerations, and systematics of structures in adjacent nuclides presumed to have related configurations.

[‡] Band(A): Level sequence based on the 10$^+$ state. Configuration=((π 1h$_{11/2}$)(ν 1h$_{9/2}$)(ν 1f$_{7/2}$)$^{+2}$).

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$\gamma(^{156}Lu)$

If the proposed 9^+ state is in fact populated in this reaction, 2001Di17 suggest that some of the unplaced γ's may be associated with a sequence of non-yrast levels built on this state.

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	Comments
190.48 *10*	13.8 *11*	4599.7+y		4409.2+y		M1	A_2=−0.62 *18*.
x304.3 *3*	2.4 *6*						
311.2# *4*	4.6 *15*	5286.7+y?		4975.5+y			
313.85 *10*	77 *3*	1677.27+y	16^+	1363.42+y	14^+	E2	A_2=0.17 *4*.
x364.89 *11*	10.2 *7*						
375.81 *10*	21.1 *14*	4975.5+y		4599.7+y		E2	A_2=0.18 *4*.
402.16 *12*	8.1 *10*	5001.8+y		4599.7+y			
446.29 *10*	27.3 *17*	4409.2+y		3962.9+y	22^+		
461.97 *12*	16.8 *12*	2139.24+y	18^+	1677.27+y	16^+	E2	A_2=0.21 *14*.
500.83† *10*	42.7 *23*	2178.10+y	18^+	1677.27+y	16^+	E2	A_2=0.37 *7*.
x523.9 *8*	4 *3*						
525.17 *12*	14.4 *11*	4488.1+y		3962.9+y	22^+		
574.2 *2*	6.5 *8*	2713.4+y		2139.24+y	18^+		
x584.1 *3*	5.4 *11*						
618.45 *10*	94 *4*	1363.42+y	14^+	744.97+y	12^+	E2	A_2=0.18 *6*.
731.41† *11*	41.3 *23*	2909.51+y	20^+	2178.10+y	18^+	E2	A_2=0.12 *4*.
744.97 *10*	100	744.97+y	12^+	0+y	10^+	E2	A_2=0.12 *6*.
1053.39† *12*	42 *3*	3962.9+y	22^+	2909.51+y	20^+	E2	A_2=0.35 *13*.

† The relative ordering of these transitions is uncertain.
‡ Values reported by 2001Di17, from A_2 values, with mult=Q being assumed to be E2, rather than M2.
# Placement of transition in the level scheme is uncertain.
x γ ray not placed in level scheme.

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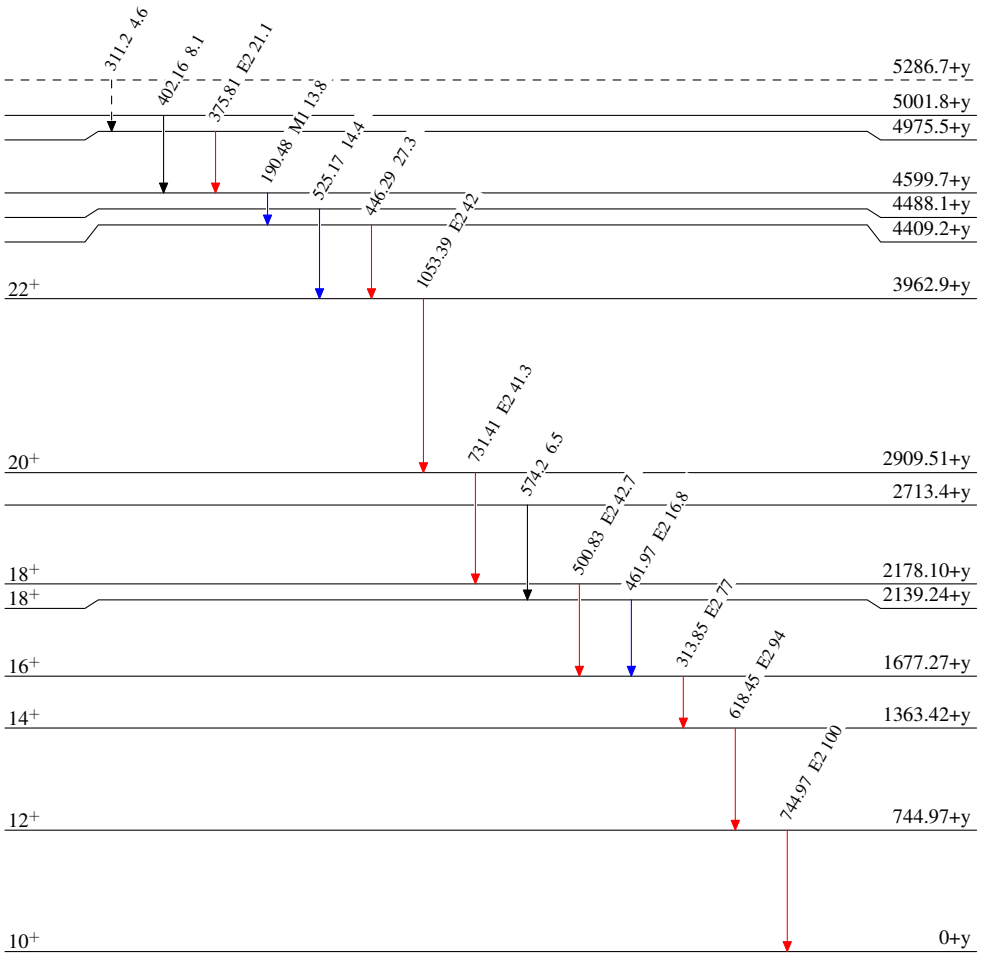
Level Scheme

Intensities: Relative I_γ

Legend

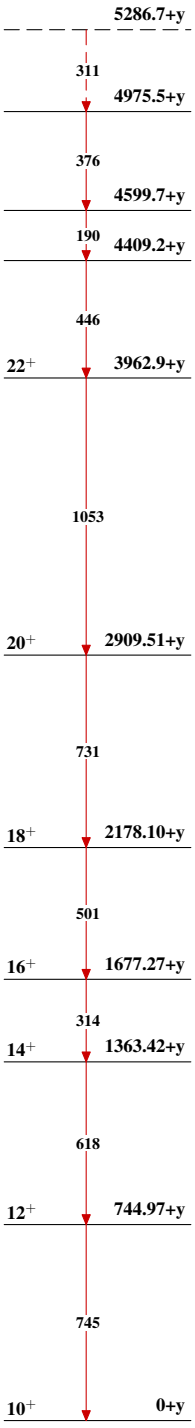
$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



$^{156}_{71}Lu_{85}$

^{102}Pd(^{58}Ni,3pnγ) 2001Di17

Band(A): Level sequence based on the 10$^+$ state



$^{156}_{71}Lu_{85}$