

Pd(⁵⁸Ni,xnpxγ) 2000Di18

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 141, 1 (2017)	1-Feb-2017

2000Di18: Pd(⁵⁸Ni,xnpxγ) on enriched (69%) ¹⁰²Pd target which contained significant amounts of other Pd isotopes. E=270 MeV, measured E_γ, I_γ, γ(θ) and γγ using Gammasphere array with 101 Compton-suppressed Ge detectors, in conjunction with the Fragment Mass Analyzer, recoil-decay tagging technique.

1992DrZU: ¹⁰⁷Ag(⁵⁴Fe,p2nγ) at 233 MeV; γ's measured in detector array and reported 11 γ's; no decay scheme reported.

¹⁵⁸Hf Levels

E(level) [†]	J ^{π‡}	E(level) [†]	J ^{π‡}	E(level) [†]	J ^{π‡}	E(level) [†]	J ^{π‡}
0 ^b	0 ⁺	3904.4 ^c 3	(13 ⁻)	5779.4 4	(19 ⁻)	7557.2 6	(26 ⁺)&
476.36 ^b 11	2 ⁺	4159.6 ^d 3	14 ⁺	5850.6 ^c 4	(19 ⁻)	7597.1 ^c 7	(25 ⁻)
1033.33 ^b 15	4 ⁺	4591.5 ^c 3	(15 ⁻)	6010.7 ^e 9	(20 ⁺)	7985.9 ^c 7	
1642.61 ^b 19	6 ⁺	4807.9 ^d 3	16 ⁺	6154.9 ^d 5	(20 ⁺)	8046.4 7	
2259.24 ^b 22	8 ⁺	4917.8 ^e 4	16 ⁺	6462.3 ^c 6	(21 ⁻)	8901.3 ^c 7	
2940.05 ^b 24	10 ⁺	5065.4 ^c 4	(17 ⁻)	6523.7 6	(22 ⁺)#	9106.6 ^c 7	
2981.72 ^d 24	10 ⁺	5249.5 ^e 4	(18 ⁺)	6884.7 ^c 6	(23 ⁻)		
3093.20 ^c 25	(11 ⁻)	5439.5 ^d 4	(18 ⁺)	7210.3 6	(24 ⁺)@		
3519.79 ^d 25	12 ⁺	5667.0 4		7268.1 6	(24 ⁺) ^a		

[†] From least-squares fit to E_γ's.

[‡] Based on adopted multiplicities and band assignments, assuming stretched transitions and increasing values of spins with increasing excitation energy.

(E1) γ from (23⁻).

@ (E1) γ to (23⁻).

& (E2) γ to (24⁺).

^a (E2) γ from (26⁺).

^b Band(A): ground-state band.

^c Band(B): band based on 11⁻ level.

^d Band(C): band based on 10⁺ level.

^e Band(D): band based on 16⁺ level.

γ(¹⁵⁸Hf)

E _γ	I _γ	E _i (level)	J _i ^π	E _f	J _f ^π	Mult. [†]	Comments
61.3 3	27 7	6523.7	(22 ⁺)	6462.3	(21 ⁻)		
111.49 12	45 6	3093.20	(11 ⁻)	2981.72	10 ⁺	(E1)	A ₂ =-0.76 14.
153.14 10	235 20	3093.20	(11 ⁻)	2940.05	10 ⁺	(E1)	A ₂ =-0.50 5.
183.6 2	29 7	5850.6	(19 ⁻)	5667.0			
189.9 2	23 6	5439.5	(18 ⁺)	5249.5	(18 ⁺)		
205.31 14	44 8	9106.6		8901.3			
289.07 15	51 8	7557.2	(26 ⁺)	7268.1	(24 ⁺)	(E2)	A ₂ =+0.42 11.
325.64 12	95 12	7210.3	(24 ⁺)	6884.7	(23 ⁻)	(E1)	A ₂ =-0.30 11.
331.70 14	64 9	5249.5	(18 ⁺)	4917.8	16 ⁺		
339.9 2	46 8	5779.4	(19 ⁻)	5439.5	(18 ⁺)	(E1)	A ₂ =-0.41 29.
346.97 14	66 9	7557.2	(26 ⁺)	7210.3	(24 ⁺)		
360.94 12	112 13	6884.7	(23 ⁻)	6523.7	(22 ⁺)	(E1)	A ₂ =-0.42 17.
383.3 2	51 9	7268.1	(24 ⁺)	6884.7	(23 ⁻)		

Continued on next page (footnotes at end of table)

Pd($^{58}\text{Ni},\text{xnp}\gamma$) 2000Di18 (continued) $\gamma(^{158}\text{Hf})$ (continued)

E_γ	I_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [†]	Comments
386.8 5	<29	7597.1	(25 ⁻)	7210.3	(24 ⁺)		
388.72 12	143 14	7985.9		7597.1	(25 ⁻)		
422.37 12	160 15	6884.7	(23 ⁻)	6462.3	(21 ⁻)	E2	$A_2=+0.30$ 10.
441.3 4	24 9	5249.5	(18 ⁺)	4807.9	16 ⁺		
473.95 11	387 46	5065.4	(17 ⁻)	4591.5	(15 ⁻)	E2	$A_2=+0.15$ 11.
476.36 11	887 60	476.36	2 ⁺	0	0 ⁺	E2	$A_2=+0.22$ 6.
537.95 12	193 16	3519.79	12 ⁺	2981.72	10 ⁺	E2	
556.97 10	1000	1033.33	4 ⁺	476.36	2 ⁺	E2	
579.89 13	189 16	3519.79	12 ⁺	2940.05	10 ⁺	E2	$A_2=+0.24$ 16.
601.6 2	83 11	5667.0		5065.4	(17 ⁻)		
609.28 11	1074 76	1642.61	6 ⁺	1033.33	4 ⁺	E2	$A_2=+0.16$ 9.
611.7 4	245 56	6462.3	(21 ⁻)	5850.6	(19 ⁻)		
616.63 11	962 49	2259.24	8 ⁺	1642.61	6 ⁺	E2	$A_2=+0.11$ 5.
631.7 2	117 12	5439.5	(18 ⁺)	4807.9	16 ⁺		
639.79 12	326 22	4159.6	14 ⁺	3519.79	12 ⁺	E2	$A_2=+0.29$ 6.
648.36 14	179 15	4807.9	16 ⁺	4159.6	14 ⁺	E2	$A_2=+0.42$ 7.
680.89 10	650 36	2940.05	10 ⁺	2259.24	8 ⁺	E2	$A_2=+0.32$ 6.
687.09 11	424 27	4591.5	(15 ⁻)	3904.4	(13 ⁻)	E2	$A_2=+0.44$ 7.
712.5 5	92 21	7597.1	(25 ⁻)	6884.7	(23 ⁻)		
715.4 3	121 22	6154.9	(20 ⁺)	5439.5	(18 ⁺)		
722.31 14	200 17	2981.72	10 ⁺	2259.24	8 ⁺	E2	$A_2=+0.40$ 7.
758.2 3	177 16	4917.8	16 ⁺	4159.6	14 ⁺	E2	$A_2=+0.32$ 14.
761.2 8	58 30	6010.7	(20 ⁺)	5249.5	(18 ⁺)		
785.17 12	341 24	5850.6	(19 ⁻)	5065.4	(17 ⁻)	E2	$A_2=+0.23$ 8.
811.18 13	478 31	3904.4	(13 ⁻)	3093.20	(11 ⁻)	E2	$A_2=+0.24$ 5.
915.4 2	79 10	8901.3		7985.9		E2	$A_2=+0.36$ 10.
1161.7 3	76 14	8046.4		6884.7	(23 ⁻)		

[†] Authors' assignments from A_2 values. Since the A_2 values only determine dipole or quadrupole character, all the assignments are strictly either Q, or D. However based on the heavy ion reaction type, the Q can be assigned E2, while the D transitions assignment as electric or magnetic is tentative and based on weaker arguments following from theory, systematics, etc. In this case for all occurrences D transitions were assigned electric character by authors, which were adopted as (E1) (tentatively, by evaluator). The assignments shown without measured A_2 were dropped by evaluator.

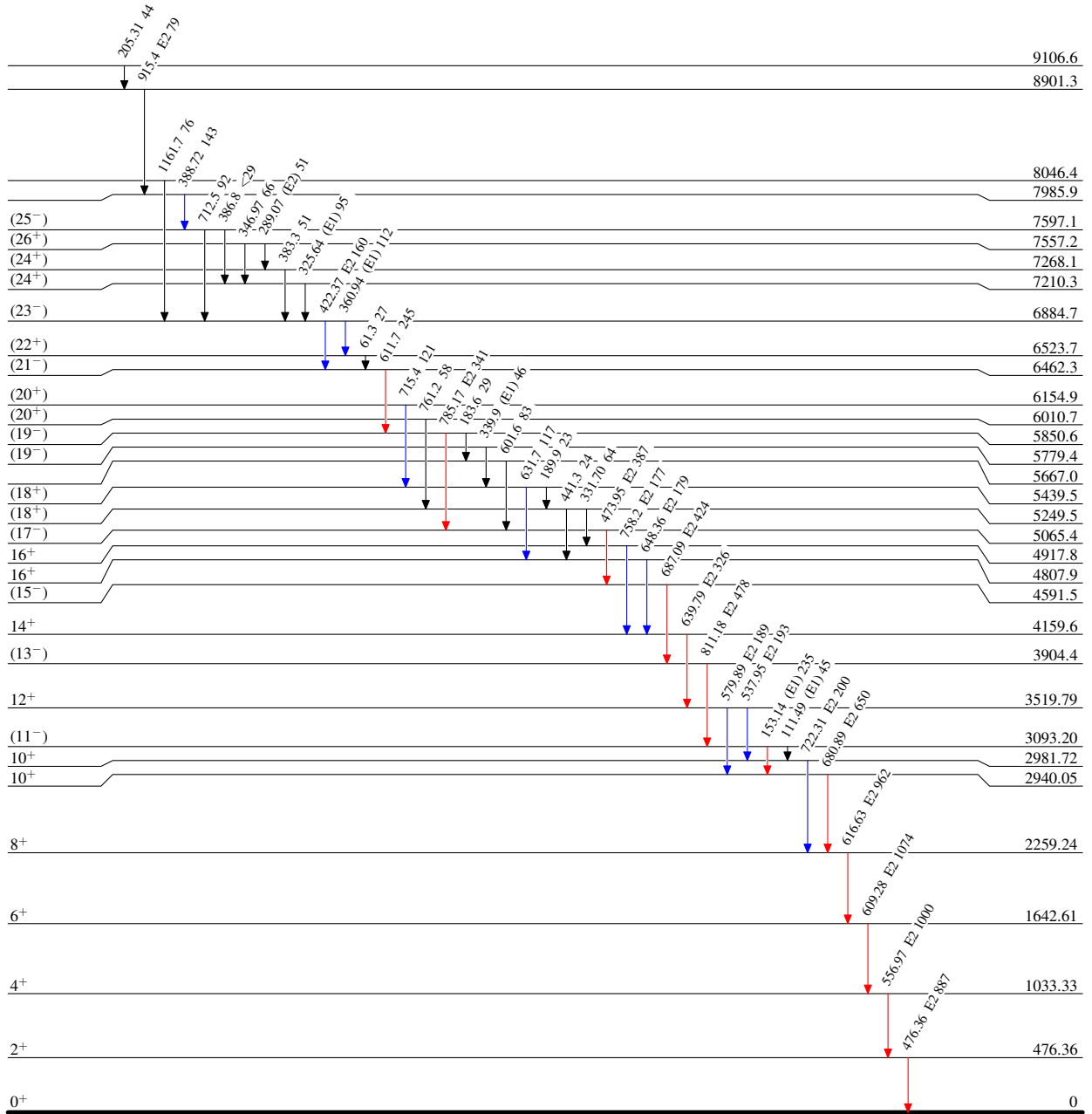
Pd(⁵⁸Ni,xnpγ) 2000Di18

Level Scheme

Intensities: Relative I_γ

Legend

- I_γ < 2% × I_γ^{max}
- I_γ < 10% × I_γ^{max}
- I_γ > 10% × I_γ^{max}



Pd($^{58}\text{Ni},\text{xnp}\gamma$) 2000Di18