^{194}Pt(^{14}N,5nγ) 1983Dy02

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 177, 509, 2021	4-Jul-2021

Produced using ^{194}Pt(^{14}N,5nγ) reaction; Beam: E(^{14}N)=80-100 MeV. The optimum energy of 97 MeV was determined; Additional pulsed beam measurements with a beam repetition period of 2 μs and a pulse width of about 10 ns (FWHM) was also carried out; Targets: enriched to >95% in ^{194}Pt, 7 mg/cm^2 thick; Detectors: two Ge(Li); Measured: excitation functions (singles) γ(t), $\gamma(\theta)$, $\gamma\gamma$(coin), DCO; Deduced: level scheme, J^π, $T_{1/2}$.

^{203}At Levels

E(level)[†]	J$^\pi$[e]	T$_{1/2}$[f]	Comments
0[‡]	9/2$^-$	7.4 min *2*	J$^\pi$,T$_{1/2}$: From Adopted Levels.
648.59[#] *10*	13/2$^-$		
660.14[#] *14*	11/2$^-$		
872.02[@] *13*	13/2$^+$		
1225.29[&] *14*	17/2$^-$		
1379.01[a] *20*	15/2$^+$		
1633.36[a] *20*	17/2$^+$		
1636.59[b] *17*	21/2$^-$		
1695.61 *20*	17/2$^+$		
1792.89 *25*	19/2$^-$,21/2$^-$		
1942.03 *23*	19/2$^+$		
1942.03+x		16.6 ns *7*	Additional information 1. E(level): The isomer is expected to be less than 100 keV above the 1942 keV (J^π=19/2$^+$) level, since no Eγ was observed in coincidence with the 660, 872, 212, 507, 254, 761, 317, 824, 246 and 309γ.
1964.6[c] *3*	23/2$^{(-)}$		
1964.6+y[d]	(25/2$^+$)	11.8 ns *14*	Additional information 2. E(level): The isomer is expected to be less than 100 keV above the 1965 keV (J^π=23/2$^{(-)}$) level, since no Eγ was observed in coincidence with the 649, 577, 411 and 328γ. J$^\pi$: From systematics arguments (see 1983Dy02).
2071.99 *25*			
2079.39 *25*			
2227.93+x *20*			
2330.40+y *20*			
2486.33+x *20*			
2502.9 *4*			
2701.1+x *3*			

[†] From a least-squares fit to Eγ.
[‡] Configuration=$\pi(h^{+1}_{9/2})$.
[#] Configuration=$\pi(h^{+1}_{9/2})\otimes 2^+$.
[@] Configuration=$\pi(i^{+1}_{13/2})$.
[&] Configuration=$\pi(h^{+1}_{9/2})\otimes 4^+$.
[a] Configuration=$\pi(i^{+1}_{13/2})\otimes 2^+$.
[b] Configuration=$\pi(h^{+3}_{9/2})$.
[c] Configuration=$\pi(h^{+2}_{9/2},f_{7/2})^{+1}$).
[d] Configuration=$\pi(h^{+1}_{9/2})\otimes\nu(i^{-1}_{13/2},f^{-1}_{5/2})$ The assignment is tentative.
[e] Based on deduced transition multipolarities, multiple decay branches and systematics arguments in 1983Dy02.
[f] From γ(t) in 1983Dy02, unless otherwise stated. The existence of two additional isomers, one with T$_{1/2}$=13.9 ns *14*, above the

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^{194}Pt(^{14}N,5nγ) 1983Dy02 (continued)

^{203}At Levels (continued)

2072-keV level that is depopulated by 847γ, and another with $T_{1/2}$>1.4 μs that feeds the yrast cascade, have been reported by 1983Dy02.

$\gamma(^{203}At)$

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	Comments
≤100		1942.03+x		1942.03	19/2$^+$		E_γ: An upper limit based on the non-observation of low energy Eγ in coincidence with the 660, 872, 212, 507, 254, 761, 317, 824, 246 and 309γ.
≤100		1964.6+y	(25/2$^+$)	1964.6	23/2$^{(-)}$		E_γ: An upper limit based on the non-observation of low energy Eγ in coincidence with the 649, 577, 411 and 328γ.
211.9 *1*	67 *4*	872.02	13/2$^+$	660.14	11/2$^-$	E1	Mult.: A_2=−0.098 *19*, A_4=0.02 *2*; α from intensity balance considerations. I_γ: Delayed intensity, Iγ(delayed)=40 *3*. Delayed component of 24 ns *1*.
214.8 *2*	6‡ *2*	2701.1+x		2486.33+x			I_γ: Delayed intensity, Iγ(delayed)=7 *2*. Delayed component of 16 ns *2*.
223.5 *2*	9 *2*	872.02	13/2$^+$	648.59	13/2$^-$	(E1)	Mult.: A_2=−0.03 *5*, A_4=0.14 *8*.
246.3 *2*	13‡ *1*	1942.03	19/2$^+$	1695.61	17/2$^+$		I_γ: Delayed intensity, Iγ(delayed)=11 *2*. Delayed component of 25 ns *2*.
254.4 *2*	17 *4*	1633.36	17/2$^+$	1379.01	15/2$^+$	M1(+E2)	Mult.: A_2=−0.3 *1*, A_4=0.0 *1*. I_γ: Delayed intensity, Iγ(delayed)=12 *1*. Delayed component of 30 ns *3*.
285.9 *2*	17‡ *5*	2227.93+x		1942.03+x			
308.8 *2*	39 *3*	1942.03	19/2$^+$	1633.36	17/2$^+$	M1(+E2)	Mult.: A_2=−0.26 *3*, A_4=0.01 *5*. I_γ: Delayed intensity, Iγ(delayed)=27 *2*. Delayed component of 26 ns *1*.
316.5 *3*	7‡ *2*	1695.61	17/2$^+$	1379.01	15/2$^+$		I_γ: Delayed intensity, Iγ(delayed)=6 *2*. Delayed component of 23 ns *4*.
328.0 *2*	21‡ *1*	1964.6	23/2$^{(-)}$	1636.59	21/2$^-$	M1(+E2)	Mult.: DCO(gate on 411γ, 577γ and 649γ)=1.48 *14*.
365.8 *2*	11‡ *1*	2330.40+y		1964.6+y	(25/2$^+$)		
411.3 *1*	43‡ *3*	1636.59	21/2$^-$	1225.29	17/2$^-$	E2	Mult.: DCO(gate on 577γ)=0.95 *9*; DCO(gate on 649γ)=1.02 *11*. I_γ: Delayed intensity, Iγ(delayed)=19 *5*. Delayed component of 16 ns *2*.
507.0 *2*	47 *2*	1379.01	15/2$^+$	872.02	13/2$^+$	M1(+E2)	Mult.: A_2=−0.46 *3*, A_4=−0.03 *3*.
544.3 *2*	15 *2*	2486.33+x		1942.03+x			A_2=−0.58 *5*, A_4=−0.12 *7*. I_γ: Delayed intensity, Iγ(delayed)=11 *3*. Delayed component of 13 ns *2*.
567.6 *2*	14 *1*	1792.89	19/2$^-$,21/2$^-$	1225.29	17/2$^-$	E2(+M1)	Mult.: A_2=0.31 *7*, A_4=0.0 *1*. I_γ: No delayed component.
576.7 *1*	74 *4*	1225.29	17/2$^-$	648.59	13/2$^-$	E2	Mult.: A_2=0.183 *16*, A_4=−0.01 *2*. I_γ: Delayed intensity, Iγ(delayed)=25 *4*. Delayed component of 18 ns *2*.
648.6 *1*	100 *4*	648.59	13/2$^-$	0	9/2$^-$	E2	Mult.: A_2=0.211 *14*, A_4=−0.030 *17*. I_γ: Delayed intensity, Iγ(delayed)=34 *3*. Delayed component of 19 ns *1*.
660.2 *2*	75 *3*	660.14	11/2$^-$	0	9/2$^-$	M1+E2	Mult.: A_2=−0.41 *2*, A_4=0.05 *2*. I_γ: Delayed intensity, Iγ(delayed)=44 *3*. Delayed component of 23 ns *1*.
710.0 *2*	7 *2*	2502.9		1792.89	19/2$^-$,21/2$^-$		

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^{194}Pt(^{14}N,5nγ) 1983Dy02 (continued)

$\gamma(^{203}At)$ (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	Comments
761.4 *2*	36[‡] *3*	1633.36	$17/2^+$	872.02	$13/2^+$	E2	Mult.: A_2=0.18 *4*, A_4=0.00 *5*. I_γ: Delayed intensity, Iγ(delayed)=26 *2*. Delayed component of 24 ns *1*.
823.5 *2*	19 *1*	1695.61	$17/2^+$	872.02	$13/2^+$	E2	Mult.: A_2=0.21 *7*, A_4=−0.17 *13*.
846.7 *2*	10 *2*	2071.99		1225.29	$17/2^-$		I_γ: Delayed intensity, Iγ(delayed)=7 *2*. Delayed component of 20 ns *3*.
854.1 *2*	7 *1*	2079.39		1225.29	$17/2^-$		
871.9 *2*	28 *2*	872.02	$13/2^+$	0	$9/2^-$	(M2)	Mult.: A_2=0.16 *5*, A_4=0.15 *7*. I_γ: Delayed intensity, Iγ(delayed)=18 *3*. Delayed component of 23 ns *2*.

[†] From 1983Dy02.
[‡] Intensity extracted from a coincidence projection in 1983Dy02.
[#] From $\gamma(\theta)$, DCO and total electron conversion coefficients (from intensity balances) in 1983Dy02.

^{194}Pt(^{14}N,5nγ) 1983Dy02

Level Scheme

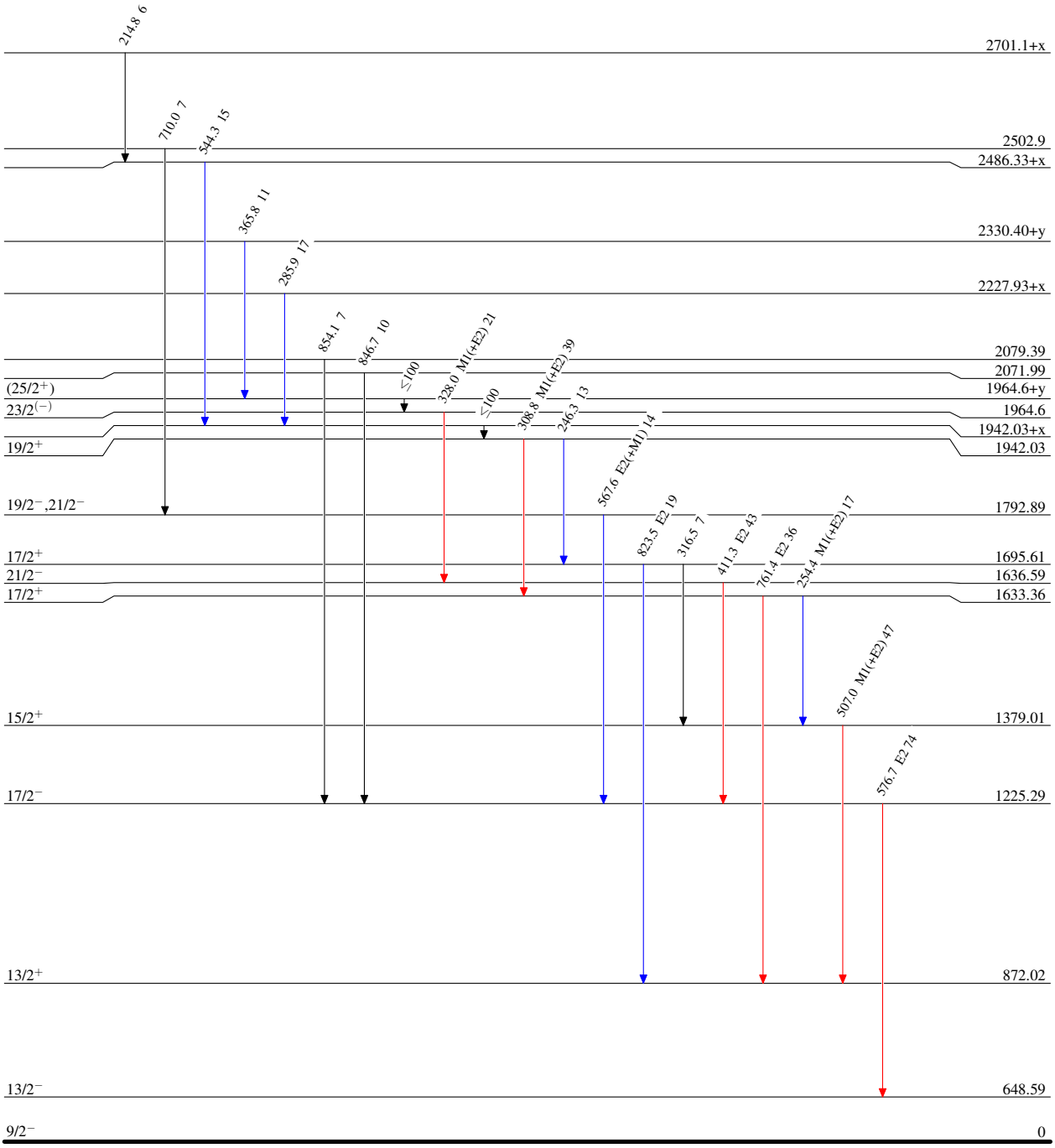
Intensities: Relative I_γ

Legend

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

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

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

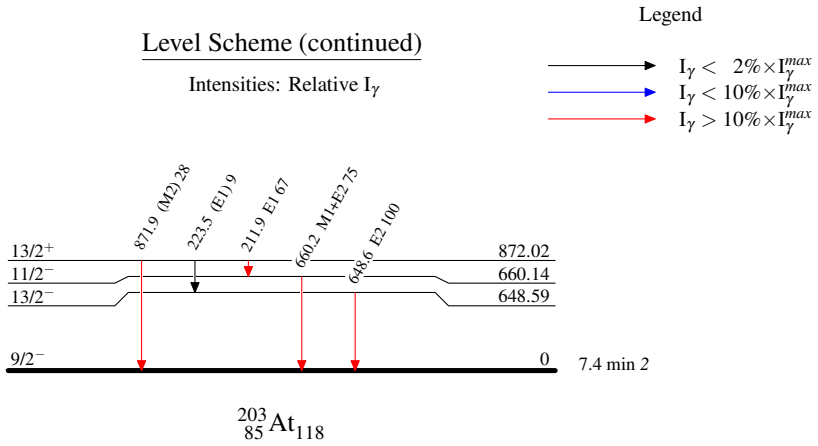


$^{203}_{85}At_{118}$

^{194}Pt(^{14}N,5nγ) 1983Dy02

Level Scheme (continued)

Intensities: Relative I_γ



$^{203}_{85}At_{118}$