^{194}Pt(^{12}C,5nγ) 1985We05

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 187,355 (2023)	20-Sep-2022

1985We05: Produced in ^{194}Pt(^{12}C,5n) (E(^{12}C)=102 and 106 MeV) and ^{195}Pt(^{12}C,6n) (E(^{12}C)=100 MeV) reactions; Detectors: two n-type HPGE and two liquid scin neutron detectors; Measured: Eγ, Iγ, γ singles, γ-γ coin, n-γ and n-γ-γ coin, γ(θ); Deduced: level scheme, J^{π}.

Others: 2004Ro09, but no ^{201}Po levels and transitions were reported.

^{201}Po Levels

E(level)[†]	Jπ[#]	$T_{1/2}$[‡]
0[‡&]	3/2−[‡]	15.50 min *22*
5.61[‡@] *13*	5/2−[‡]	
423.41[‡a] *22*	13/2+[‡]	8.96 min *12*
1037.0[be] *11*	17/2+	
1593.6[ce] *15*	21/2+	
1912.3[de] *18*	25/2+	
2101.6 *21*		
2133.8 *21*	25/2+,(29/2+)	
2239.6 *23*		
2332.2 *21*	(27/2)	
2347.6 *18*		
2354.7 *21*	27/2+	
2463.9 *21*		
2570.2 *21*	27/2+	
2627.5 *23*	(29/2+)	
2770.1 *21*		
2979.0 *23*	27/2+,31/2+	
3039.6 *23*		
3196.5 *23*	(29/2+)	
3210.3 *23*	31/2+	
3333.1 *25*		
3710.1 *25*	(35/2+)	
4153? *3*		

† From a least-squares fit to Eγ and by assuming ΔEγ=0.5 keV, unless otherwise stated.
‡ From Adopted Levels.
\# From 1985We05, unless otherwise stated.
@ Configuration=ν $f_{5/2}^{-1}$.
& Configuration=ν $p_{3/2}^{-1}$.
a Configuration=ν $i_{13/2}^{-1}$.
b Configuration=ν $(i_{13/2}^{-1})\otimes 2^{+}$.
c Configuration=ν $(i_{13/2}^{-1})\otimes 4^{+}$.
d Possibly a mixture between configuration=ν $(i_{13/2}^{-1})\otimes 6^{+}$ and configuration=ν $(i_{13/2}^{-1})$ π $(h_{9/2}^{+2})_{8+}$.
e The 1985We05 authors stated that the ordering of the 318.7γ, 556.6γ and 613.6γ, and hence, the placement of corresponding level energies, is based on systematics and their relative population.

γ(^{201}Po)

Eγ[†]	Iγ[†]	E_i(level)	J_i^{π}	E_f	J_f^{π}	Mult.[#]	α[@]	Comments
(5.61[‡] *13*)		5.61	5/2−	0	3/2−			
138.0	≈2	2239.6		2101.6				
189.3	6 *2*	2101.6		1912.3	25/2+	D,Q		Mult.: A_2=0.1 *4*, A_4=0.2 *3*.
221.5	14 *1*	2133.8	25/2+,(29/2+)	1912.3	25/2+	D,Q		α(K)=0.6 *5*; α(L)=0.162 *13*; α(M)=0.0402 *10*; α(N+..)=0.0135 *4* Mult.: A_2=0.10 *6*, A_4=−0.11 *9*.
272.8	7 *2*	2627.5	(29/2+)	2354.7	27/2+	D,Q		α(K)=0.558 *17*; α(L)=0.098 *3*; α(M)=0.0230 *7*; α(N+..)=0.00773 *24* Mult.: A_2=0.3 *3*, A_4=0.4 *3*.
318.7	94 *1*	1912.3	25/2+	1593.6	21/2+	E2	0.107	α(K)=0.0590 *18*; α(L)=0.0356 *11*; α(M)=0.0092 *3*; α(N+..)=0.00309 *10* Mult.: A_2=0.22 *1*, A_4=−0.05 *1*.

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^{194}Pt(^{12}C,5nγ) 1985We05 (continued)

$\gamma(^{201}$Po) (continued)

E_γ †	I_γ †	E_i(level)	J^π_i	E_f	J^π_f	Mult. #	α @	Comments
354.1	4 *1*	3333.1		2979.0	27/2+,31/2+	D		Mult.: A_2=0.02 *16*, A_4=0.1 *2*.
408.8	12 *1*	2979.0	27/2+,31/2+	2570.2	27/2+	Q		α(K)=0.11 *8*; α(L)=0.023 *9*; α(M)=0.0057 *20*; α(N+..)=0.0019 *7* Mult.: A_2=0.5 *2*, A_4=0.1 *3*.
417.8‡ *2*		423.41	13/2+	5.61	5/2−			
419.9	2	2332.2	(27/2)	1912.3	25/2+	D		Mult.: A_2=−0.2 *3*, A_4=−0.1 *4*.
442.4&	19& *1*	2354.7	27/2+	1912.3	25/2+	D		α(K)=0.150 *5*; α(L)=0.0261 *8*; α(M)=0.00615 *19*; α(N+..)=0.00206 *7* Mult.: A_2=−0.05 *7*, A_4=0.27 *9*. Doublet.
442.4&	&	4153?		3710.1	(35/2+)			
499.8	≈9	3710.1	(35/2+)	3210.3	31/2+			α(K)=0.109 *4*; α(L)=0.0188 *6*; α(M)=0.00444 *14*; α(N+..)=0.00149 *5* Mult.: A_2=0.07 *3*, A_4=−0.16 *4* consistent with M1(+E2), but the 1985We05 level scheme requires E2.
551.6	8 *1*	2463.9		1912.3	25/2+			A_2>0.
556.6	100	1593.6	21/2+	1037.0	17/2+	E2	0.0253	α(K)=0.0180 *6*; α(L)=0.00548 *17* Mult.: A_2=0.24 *4*, A_4=−0.01 *5*.
613.6	≈100	1037.0	17/2+	423.41	13/2+	(E2)	0.0203	α(K)=0.0148 *5*; α(L)=0.00413 *13* Mult.: A_2=0.5 *2*, A_4=0.1 *3*, but values are distorted since the 613.6γ is situated on the slope of both the neutron bump and the stronger 611.2γ.
626.3	8 *2*	3196.5	(29/2+)	2570.2	27/2+	D		Mult.: A_2=−0.36 *7*, A_4=−0.48 *10*.
640.1	12 *1*	3210.3	31/2+	2570.2	27/2+	Q		α(K)=0.0136 *4*; α(L)=0.00367 *11* Mult.: A_2=0.44 *19*, A_4=−0.2 *3*.
657.9	34 *5*	2570.2	27/2+	1912.3	25/2+	D		α(K)=0.0530 *16*; α(L)=0.0091 *3* Mult.: A_2=−0.30 *18*, A_4=−0.2 *2*.
754.0	≈2	2347.6		1593.6	21/2+			
857.8	10 *2*	2770.1		1912.3	25/2+			A_2=0.1 *5*, A_4=0.3 *7*.
905.8	11 *1*	3039.6		2133.8	25/2+,(29/2+)	D		Mult.: A_2=−0.1 *3*, A_4=−0.1 *5*.

† From ^{194}Pt(^{12}C,5n) reaction at 106 MeV in 1985We05, unless otherwise stated.
‡ From adopted gammas.
# From $\gamma(\theta)$ in 1985We05.
@ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.
& Multiply placed with undivided intensity.

$^{194}Pt(^{12}C,5n\gamma)$ **1985We05**

Level Scheme

Intensities: Relative I_γ

& Multiply placed: undivided intensity given