^{197}Au(^{14}N,5nγ),^{194}Pt(^{16}O,4nγ) 1981Ho29,1981Ma28,2008An01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 109, 1527 (2008)	31-Jan-2008

1981Ho29: ^{197}Au(^{14}N,5nγ) reaction with E(^{14}N)=80-94 MeV and ^{194}Pt(^{16}O,4nγ) reaction on enriched (97%) target with E(^{16}O)=85-110 MeV. The targets were backed with 8-10 mg/cm^2 thick ^{208}Pb layers; Detectors: Ge(Li); Measured: excitation functions, Eγ, Iγ, $\gamma\gamma$(t) coin, $T_{1/2}$; Deduced: level scheme. No longer lived isomers ($T_{1/2}$<0.05 s) were observed in a pulsed beam experiment.

1981Ma28: ^{198}Hg(^{12}C,4nγ), E(^{12}C)=80 MeV with 85.3% enriched ^{198}Hg target cooled at −30° C. The beam was pulsed with 1 ns width separated by 1.5 μs periods. Detectors: twoGe(Li); Measured: Eγ, Iγ, γ(t) I(t,θ), angular distributions, g-factors, $T_{1/2}$; Deduced: μ.

2008An01: ^{197}Au(^{14}N,5nγ) reaction with E(^{14}N)=82 MeV. Target: 3 mg/cm^2; OSIRIS-II gamma-ray spectrometer consisting of 10 HPGe detectors and internal electron conversion spectrometer with two Si(Li) and three PIPS detectors; Deduced: α(K)exp and α(L)exp.

Others: 1970InZZ, 1969Ru08.

^{206}Rn Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$	Comments
0.0	0$^+$		
575.40 *10*	2$^+$		
1134.50 *15*	4$^+$		
1763.30 *18*	6$^+$		
1818.30 *18*	6$^+$		
1924.60 *20*	8$^+$	19 ns *3*	$T_{1/2}$: From 575.4γ(t) and by taking into account the half-life of the 65 ns isomer. Other: 13.5 ns *10* (1981Ma28) using 575.4-559.1-628.8γ(t). μ: g=0.83 *5* (1981Ma28). This value was corrected for diamagnetic and Knight shift by +1.86% 2. μ=6.6 *4*. Configuration=(π $h_{9/2}8^+$).
2270.4 *3*	9$^-$		
2476.0 *3*	10$^-$	65 ns *5*	$T_{1/2}$: From 551.2γ(t). The non-observation of prompt component in the time spectrum suggests that this γ directly depopulates the isomer. Other: 75 ns *10* (1981Ma28) using 575.4-559.1-628.8γ(t). μ: g=1.120 *10* (1981Ma28). This value was corrected for diamagnetic and Knight shift by +1.86% 2. μ=11.20 *10*. Configuration=$((\pi\ f_{7/2})^{+1}(\pi\ i_{13/2})^{+1})_{10-}$. The assignment is tentative.
2534.9 *3*	10$^+$		
2585.8 *4*	11$^{(+)}$		
2834.6? *5*	(12)		
3131.8 *5*	12$^+$		
3362.4 *5*	13$^{(+)}$		
3887.9? *6*	14		
4130.2 *9*	15	11 ns *2*	$T_{1/2}$: From 768γ(t). Possible Configuration=$((\pi\ h_{9/2})^{+3}(\pi\ i_{13/2})^{+1})$. The assignment is tentative.

† From a least-squares fit to Eγ.

‡ From angular distribution data (1981Ho29), apparent band structures and the J$^\pi$ assignments made in 1981Ho29.

^{197}Au(^{14}N,5nγ),^{194}Pt(^{16}O,4nγ) 1981Ho29,1981Ma28,2008An01 (continued)

γ(^{206}Rn)

E_γ†	E_i(level)	J_i^π	E_f	J_f^π	Mult.‡	$I_{(\gamma+ce)}$#	Comments
109.8 *3*	2585.8	11$^{(+)}$	2476.0	10$^-$	(E1)	4	Mult.: A_2=−0.20 *13* in ^{197}Au(^{14}N,5nγ); A_2=−0.11 *37* in ^{194}Pt(^{16}O,4nγ). $I_{(\gamma+ce)}$: 13 (^{194}Pt(^{16}O,4nγ)).
161.3 *1*	1924.60	8$^+$	1763.30	6$^+$	E2	120	Mult.: A_2=0.11 *7* in ^{197}Au(^{14}N,5nγ); A_2=0.06 *2* and A_4=−0.48 *32* in ^{194}Pt(^{16}O,4nγ). $I_{(\gamma+ce)}$: 90 (^{194}Pt(^{16}O,4nγ)).
205.7 *2*	2476.0	10$^-$	2270.4	9$^-$	M1	32	Mult.: A_2=−0.06 *5* and A_4=0.17 *8* in ^{197}Au(^{14}N,5nγ); A_2=−0.38 *11* and A_4=0.40 *16* in ^{194}Pt(^{16}O,4nγ); From α deduced from intensity balance in $\gamma\gamma$ coin studies. $I_{(\gamma+ce)}$: 31 (^{194}Pt(^{16}O,4nγ)).
242 *1*	4130.2	15	3887.9?	14			E_γ: γ is shown In decay scheme, but not listed In γ table.
248.9 *3*	2834.6?	(12)	2585.8	11$^{(+)}$	D	5	Mult.: A_2=−0.26 *6* in ^{197}Au(^{14}N,5nγ); A_2=−0.52 *9* in ^{194}Pt(^{16}O,4nγ). $I_{(\gamma+ce)}$: 10 (M1) (^{197}Au(^{14}N,5nγ)); 4 (E1) or 8 (M1) (^{194}Pt(^{16}O,4nγ)).
346.0 *2*	2270.4	9$^-$	1924.60	8$^+$	E1	46	Mult.: α(K)exp=0.010 *3* and α(L)exp=0.0097 *23* (2008An01); A_2=−0.08 *2* in ^{197}Au(^{14}N,5nγ); A_2=0.01 *3* in ^{194}Pt(^{16}O,4nγ). $I_{(\gamma+ce)}$: 55 (^{194}Pt(^{16}O,4nγ)).
^{x}427.9							
525.5 *3*	3887.9?	14	3362.4	13$^{(+)}$	D	4	Mult.: A_2=−0.56 *40* in ^{197}Au(^{14}N,5nγ); A_2=−0.13 *30* in ^{194}Pt(^{16}O,4nγ). $I_{(\gamma+ce)}$: 5 (M1) (^{197}Au(^{14}N,5nγ)); I(γ+ce)=6 (E1) or 7 (M1) (^{194}Pt(^{16}O,4nγ)).
527.8 *2*	3362.4	13$^{(+)}$	2834.6?	(12)	D	16	Mult.: A_2=−0.55 *4* and A_4=0.64 *61* in ^{197}Au(^{14}N,5nγ); A_2=−0.50 *6* in ^{194}Pt(^{16}O,4nγ). $I_{(\gamma+ce)}$: 18 (M1) (^{197}Au(^{14}N,5nγ)); 18 (E1) or 20 (M1) (^{194}Pt(^{16}O,4nγ)).
551.2 *2*	2476.0	10$^-$	1924.60	8$^+$	M2	16	Mult.: α(K)exp=0.20 *5* (2008An01); A_2=0.00 *3* in ^{197}Au(^{14}N,5nγ); A_2=0.03 *6* in ^{194}Pt(^{16}O,4nγ). $I_{(\gamma+ce)}$: 30 (^{194}Pt(^{16}O,4nγ)).
559.1 *1*	1134.50	4$^+$	575.40	2$^+$	E2	98	Mult.: α(K)exp=0.027 *7* and α(L)exp=0.0076 *18* (2008An01); A_2=0.13 *1* in ^{197}Au(^{14}N,5nγ) ; A_2=0.16 *2* and A_4=0.31 *22* in ^{194}Pt(^{16}O,4nγ). $I_{(\gamma+ce)}$: 104 (^{194}Pt(^{16}O,4nγ)).
575.4 *1*	575.40	2$^+$	0.0	0$^+$	E2	100	Mult.: α(K)exp=0.018 *4* and α(L)exp=0.0068 *16* (2008An01); A_2=0.13 *2* in ^{197}Au(^{14}N,5nγ) ; A_2=0.15 *1* in ^{194}Pt(^{16}O,4nγ). $I_{(\gamma+ce)}$: 100 (^{194}Pt(^{16}O,4nγ)).
596.9 *3*	3131.8	12$^+$	2534.9	10$^+$	E2	9	Mult.: α(K)exp=0.018 *5* (2008An01);A_2=0.04 *3* and A_4=0.25 *6* in ^{197}Au(^{14}N,5nγ); A_2=0.16 *5* and A_4=0.16 *7* in ^{194}Pt(^{16}O,4nγ). $I_{(\gamma+ce)}$: 20 (^{194}Pt(^{16}O,4nγ)).
610.3 *2*	2534.9	10$^+$	1924.60	8$^+$	E2	16	Mult.: A_2=0.34 *10* in ^{197}Au(^{14}N,5nγ); A_2=0.21 *10* in ^{194}Pt(^{16}O,4nγ). $I_{(\gamma+ce)}$: 26 (^{194}Pt(^{16}O,4nγ)).
628.8 *1*	1763.30	6$^+$	1134.50	4$^+$	E2	93	Mult.: α(K)exp=0.011 *3* and α(L)exp=0.0016 *4* (2008An01); A_2=0.11 *3* in ^{197}Au(^{14}N,5nγ); A_2=0.12 *1* and A_4=−0.48 *16* in ^{194}Pt(^{16}O,4nγ). $I_{(\gamma+ce)}$: 97 (^{194}Pt(^{16}O,4nγ)).
684.0 *1*	1818.30	6$^+$	1134.50	4$^+$	E2		E_γ: From adopted gammas. Mult.: α(K)exp=0.017 *4* (2008An01). Note, that 684γ is labeled as E1 in Table 1 (2008An01).

Continued on next page (footnotes at end of table)

^{197}Au(^{14}N,5nγ),^{194}Pt(^{16}O,4nγ) 1981Ho29,1981Ma28,2008An01 (continued)

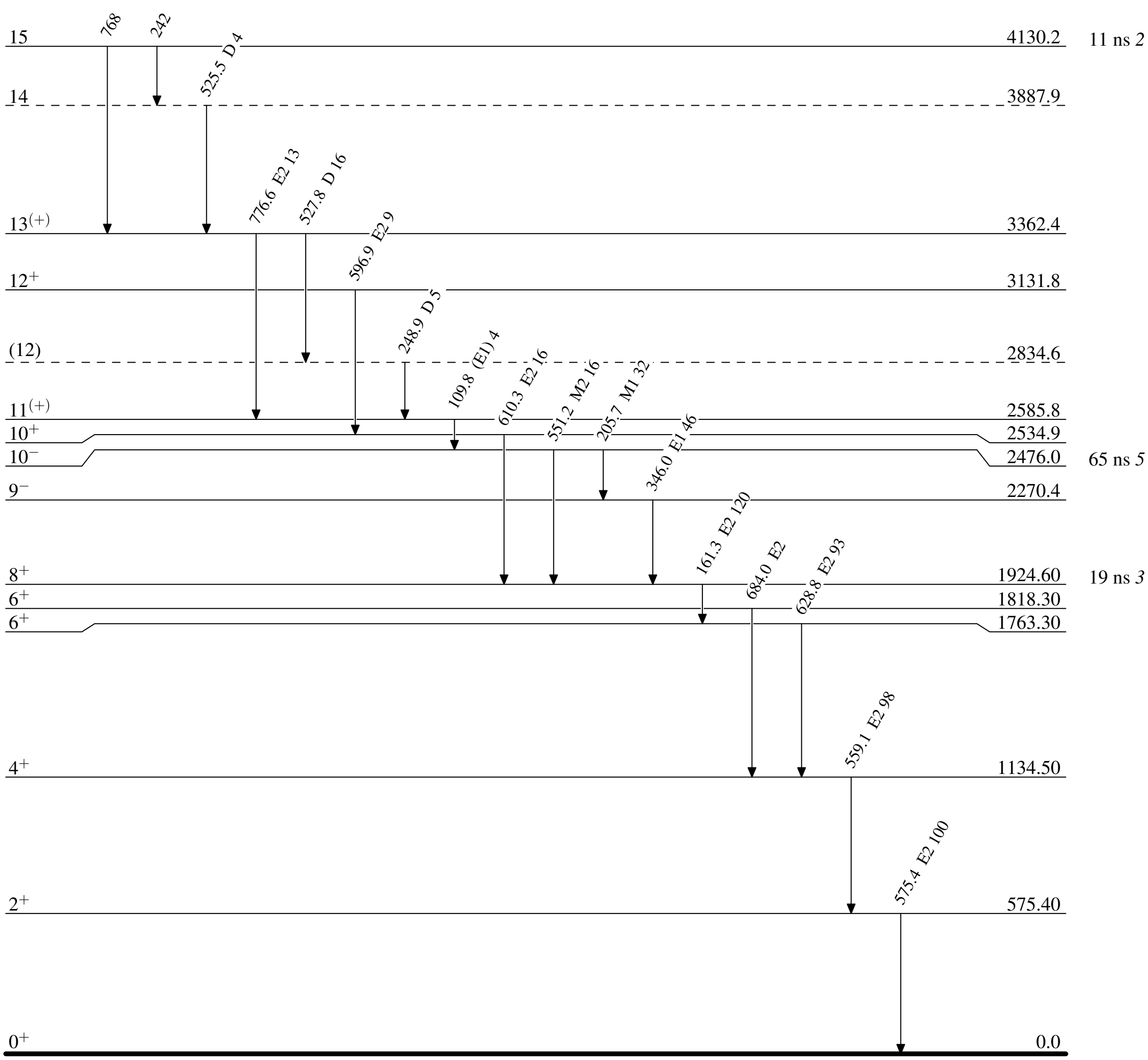
γ(^{206}Rn) (continued)

E_γ[†]	E_i(level)	J^π_i	E_f	J^π_f	Mult.[‡]	$I_{(\gamma+ce)}$[#]	Comments
768 *1*	4130.2	15	3362.4	$13^{(+)}$			E_γ: γ is shown In decay scheme, but not listed In γ table.
776.6 *3*	3362.4	$13^{(+)}$	2585.8	$11^{(+)}$	E2	13	Mult.: A_2=0.22 *3* and A_4=−0.45 *46* in ^{197}Au(^{14}N,5nγ); A_2=0.18 *18* and A_4=0.29 *28* in ^{194}Pt(^{16}O,4nγ). $I_{(\gamma+ce)}$: 15 (^{194}Pt(^{16}O,4nγ)).

† Uncertainties were assigned by the evaluators from authors′ general statement that they are 0.1 to 0.3 keV.
‡ From angular distribution data and the apparent band structures in 1981Ho29 and α(K)exp and α(L)exp in 2008An01.
# From ^{197}Au(^{14}N,5nγ) reaction at 88 MeV (1981Ho29). The α of Rosel (1978Ro21) were used by the authors.
^{x} γ ray not placed in level scheme.

$^{197}Au(^{14}N,5n\gamma),^{194}Pt(^{16}O,4n\gamma)$ 1981Ho29,1981Ma28,2008An01

Level Scheme



$^{206}_{86}Rn_{120}$