^{202}Rn α decay (9.7 s) 1995Bi17,1992Wa29,1967Va17

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Huang Xiaolong and Kang Mengxiao	NDS 133, 221 (2016)	1-Dec-2015

Parent: ^{202}Rn: E=0; $J^\pi=0^+$; $T_{1/2}$=9.7 s *1*; Q(α)=6773.7 *18*; %α decay=78 *8*

^{202}Rn-$T_{1/2}$: Weighted average of 10.3 s *4* (1996Ta18), 9.5 s *2* (1992Wa29), 9.85 s *20* (1971Ho01) in α decay. Others: 10 s *1* (1987He10), 10.5 s *15* (1969Ha03), 13 s *2* (1967Va17).

Sources produced by ^{197}Au(^{14}N,xn) (1967Va17), ^{16}O on Pt (1967Va17), and protons on thorium (1971Ho01).

α branching of ^{202}Rn was from parent-daughter (Eα_1-Eα_2) correlations (1987He10). Others: 80-100% (1993Wa04), ≥80% (1992Wa29), 85% *15* (1969Ha03,1986BrZQ), 93% (1971Ho01), 85% recommended by 1991Ry01.

^{198}Po Levels

E(level)†	J^π†	$T_{1/2}$†	Comments
0.0	0^+	1.760 min *24*	
604.94 *10*	2^+		
816.0 *10*	0^+	<0.4 ns	$T_{1/2}$: From $\alpha\gamma$(t) (1992Wa29).

† From Adopted Levels.

α radiations

Eα	E(level)	Iα†#	HF‡	Comments
5836 *5*	816.0	0.0018 *6*	20 *7*	Eα: From 1992Wa29. Others: Eα=5841 measured by 1994Wa13. Eα=5839.7 *18* is calculated from Q(α)=6773.7 *18* and E(level)=816.0 *10*. Iα: Absolute α intensity was measured by 1994Wa13, and the ratio is listed: Iα(6639.5α)/Iα(5841α)=(80-100)/(0.0014-0.0018). In 1995Bi17, this intensity ratio is quoted as 100/0.0018 *6*, referring to their earlier work in 1994Wa13.
(6046 *2*)	604.94	<0.018	>18	Eα: This α transition was not observed; its energy is calculated from Q(α)=6773.7 *18* and E(level)=604.94 *10*. Iα: A lower limit of 18 was calculated by 1995Bi12 for HF from their experimental upper limit for its intensity which is not quoted. From HF>18, we calculate Iα(6046α)<0.018.
6639.6 *18*	0.0	99.9982 *6*	1.0	Eα: Recent measurements are 6640.9 *25* (1993Wa04), 6639 *1* (1995Le04) and 6641 *1* (1996Ta18; the energy uncertainty is statistical only). Eα=6637 *3* was recommended by 1991Ry01 from earlier measurements. Eα=6639.6 *18* is calculated from Q(α)=6773.7 *18*.

† Intensities per 100 α decays are deduced from relative α intensities listed by 1995Bi17.

‡ $r_0(^{198}Po)$=1.516 *7* is calculated from HF(6639.6α)=1.0.

For absolute intensity per 100 decays, multiply by 0.78 *8*.

$\gamma(^{198}Po)$

Eγ†	E$_i$(level)	J_i^π	E$_f$	J_f^π	Mult.	I$_{(\gamma+ce)}$‡#	Comments
211	816.0	0^+	604.94	2^+		31 *25*	
816	816.0	0^+	0.0	0^+	E0	69 *25*	Mult.: From $T_{1/2}$, strong(α)(ce) and (α)(K x ray) coin, and absence of (α)(816γ).

† From 1992Wa29.

‡ Relative intensity from each level.

For absolute intensity per 100 decays, multiply by 0.00179 *19*.

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Decay Scheme