^{198}Po α decay (1.77 min) 1993Wa04,1982Bo04,1971Ho01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen and Balraj Singh	NDS 177, 1 (2021)	3-Sep-2021

Parent: ^{198}Po: E=0.0; $J^\pi=0^+$; $T_{1/2}$=1.77 min *5*; Q(α)=6309.7 *14*; %α decay=58 *2*

^{198}Po-$T_{1/2}$: Weighted average of 1.70 min *5* (1967Le21), 1.80 min *5* (1967Si09), 1.78 *5* (1971Ho01 and 1984Da14), 1.8 min *1* (1982Bo04), 1.75 min *5* (1993Wa04), 1.88 min *12* (1996Ta18 from correlated α events) and 1.83 min *15* (1996Ta18, from uncorrelated single α events). In ^{198}Po Adopted Levels in the ENSDF database (Dec 2015 update), a slightly different value of 1.760 min *24* is adopted.

^{198}Po-Q(α): From 2021Wa16.

^{198}Po-%α decay: %α=58 *2* from weighted average of 57 *2* in 1993Wa04, 59 *3* in 1998Bo14, and 70 *8* in 1971Ho01.

1993Wa04, 1994Wa13: samples of ^{198}Po were produced at the Leuven Isotope Separator On-Line (LISOL) facility in Belgium. α particles were detected with a PIPS detector (FWHM=15 keV). Measured Eα, Iα, decay curve. Deduced parent $T_{1/2}$, α-decay branching ratio.

1982Bo04: samples of ^{198}Po were produced via (p,X) with E=5 GeV proton beam from the LBL Bevatron. α particles were detected with gold-plated silicon surface-barrier detectors. Measured Eα, Iα, decay curve. Deduced parent $T_{1/2}$.

1971Ho01: ^{198}Po samples were produced in ISOLDE facility via (p,X) with E=600 MeV proton beam from the CERN synchro-cyclotron. α particles were detected with silicon surface-barrier detectors. Measured Eα, Iγ, decay curve. Deduced parent $T_{1/2}$, α-decay branching ratio.

Others: 2015We13, 2013Ja06, 1998Bo14, 1996Ta18, 1989De18, 1984Da14, 1967Si09, 1967Le21, 1967Tr06.

^{194}Pb Levels

E(level)	J^π	Comments
0.0	0^+	
931	0^+	E(level): from 1994Wa13.

α radiations

Eα	E(level)	Iα[†#]	HF[‡]	Comments
5273	931	0.00133 *24*	3.1 *6*	Eα: from 1989De18 and 1994Wa13. Iα: from Iα(6181α)/Iα(5273α)=57/0.00076, measured by 1994Wa13. The Iα uncertainty is obtained from the uncertainty listed by 1994Wa13 for HF(5273α).
6181 *3*	0.0	99.9987 *3*	1.0	Eα: weighted average of 6181 *5* (1967Si09), 6178 *5* (1967Tr06), 6174 *8* (1971Ho01), 6183 *3* (1982Bo04), 6180 *4* (1993Wa04), and 6182 *5* (1996Ta18). Other: 6184 *49* (2015We13). Iα: from 100-Iα(5273). See comment for 5273α.

† α intensity per 100 α decays. No α transition (5236-keV) to the 2^+ state at 965.0 keV has been observed. Its intensity is calculated as <0.0027 per 100 α decays by assuming HF(unobserved 5236α)>1.

‡ Deduced by evaluators using the ALPHAD code, with $r_0(^{194}Pb)$=1.4967 *22* calculated assuming HF(6181α)=1.0.

For absolute intensity per 100 decays, multiply by 0.58 *2*.