Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 113,1871 (2012)	15-Jun-2012

Q(β^-)=−1.101×10^4 *4*; S(n)=11073 *14*; S(p)=2120 *14*; Q(α)=7320 *4* 2012Wa38
Note: Current evaluation has used the following Q record −10990 60 *11087* 16 *2120* 13 *7320* 3 2011AuZZ.
Values are from 2011AuZZ (cf. S(n)=11089 *16*, S(p)=2120 *14* and Q(α)=7319 *5* from 2003Au03).
Identification: excitation functions for ^{182}W(^{20}Ne,xn) (1977De32).
Activity ($T_{1/2}$=0.5 s *1*, Eα=6580 keV *40*), attributed in 1958To25 to ^{192}Po, disagrees with systematics and with data of 1981Le23.
Theory (partial list only):
Calculations using Coulomb and proximity potential model: T(−1/2), branching and HF for g.s. α decay (2011Sa10); $T_{1/2}$ and HF for g.s. α decay (2010Sa36).

^{192}Po Levels

Cross Reference (XREF) Flags

- A ^{196}Rn α decay
- B ^{160}Dy(^{36}Ar,4nγ),
- C ^{192}Po IT decay

E(level)†	Jπ‡	$T_{1/2}$	XREF	Comments
0.0#	0$^+$	32.2 ms *3*	ABC	%ε+%β^+≈0.5; %α≈99.5 Δ<r^2>(^{192}Po,^{210}Po)=−0.537 fm^2 13 (2011Co01); there exists an additional systematic uncertainty of 0.022 fm^2. Datum obtained using in-source resonant LASER spectroscopy. %α: only α decay observed. %(ε+β^+)≈0.4 can be estimated from gross β decay theory (partial $T_{1/2}$≈8 s) (1973Ta30), or ≈0.54 from partial β $T_{1/2}$ of 6.1 s calculated by 1997Mo25. $T_{1/2}$: weighted average of 33.2 ms *14* (1996Bi17) and 32.2 ms *3* (2001Ju09) in ^{160}Dy(^{36}Ar,4nγ), 31.8 ms *15* (2003Va16) in IT decay and 34 ms *3* (1981Le23) from α(t). Others: 32 ms (1995Mo14; from time difference between feeding α and decay α); 34 ms *+80−20* and 52 ms *+88−37* (1997Pu01); 31 ms *4* (1998Al27) in (^{36}Ar,4nγ); 29 ms *+15−8* (2001Ke06,2001Uu01).
262.0# *3*	(2$^+$)		BC	
605.2# *5*	(4$^+$)		BC	
1043.3# *7*	(6$^+$)		BC	
1561.2# *9*	(8$^+$)		BC	
2140.6# *13*	(10$^+$)		BC	
2294.6	(11$^-$)	0.58 μs *10*	C	%IT=100 E(level): level must lie above the (10$^+$) 2141 level because the 579γ from that level is observed in IT decay. Jπ: analogous to 11$^-$ isomers known in neighboring even-A Po isotopes with A≥194; possible E1 154γ to (10$^+$) 2141. $T_{1/2}$: from α(t) (2003Va16) in IT decay.

† From least-squares fit to Eγ.
‡ From (^{36}Ar,4nγ); based on Iγ, $\alpha\gamma\gamma$ coin, and level-energy systematics for neighboring nuclei (see, e.g., fig. 4 of 2003Va05), 1996He22 tentatively identify the observed gammas with the E2 cascade of the g.s. band of ^{192}Po.
# Band(A): K$^\pi$=0$^+$ g.s. Band.

Adopted Levels, Gammas (continued)

$\gamma(^{192}Po)$

E_i(level)	J_i^π	E_γ[†]	I_γ[†]	E_f	J_f^π	Mult.	α[‡]	Comments
262.0	(2^+)	262.0 *3*	100	0.0	0^+	[E2]	0.191	
605.2	(4^+)	343.2 *3*	100	262.0	(2^+)	[E2]	0.0853	
1043.3	(6^+)	438.1 *5*	100	605.2	(4^+)	[E2]	0.0444	
1561.2	(8^+)	517.9 *5*	100	1043.3	(6^+)	[E2]	0.0295	
2140.6	(10^+)	579.4 *5*	100	1561.2	(8^+)	[E2]	0.0228	
2294.6	(11^-)	154[#]	100	2140.6	(10^+)	E1	0.1558	B(E1)(W.u.)=9.6×10^{-8} *17* E_γ,Mult.: from IT decay.

[†] From (^{36}Ar,4nγ), except as noted.
[‡] 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.
[#] Placement of transition in the level scheme is uncertain.

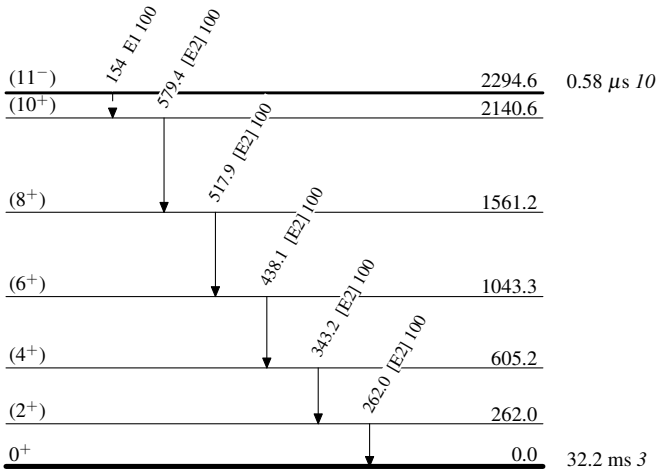
Adopted Levels, Gammas

Legend

Level Scheme

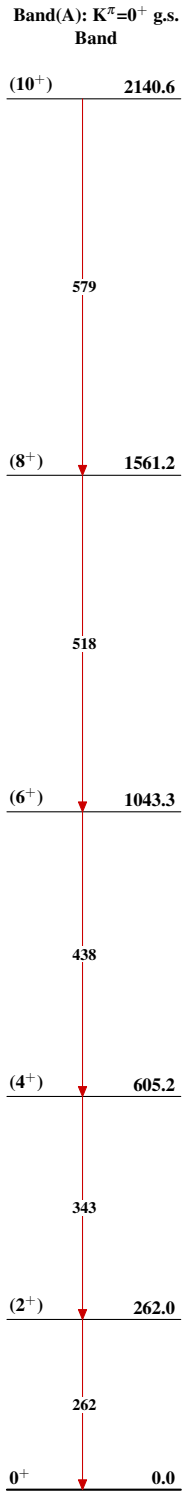
Intensities: Relative photon branching from each level

– – – – – – ► γ Decay (Uncertain)



$^{192}_{84}Po_{108}$

Adopted Levels, Gammas



$^{192}_{84}Po_{108}$