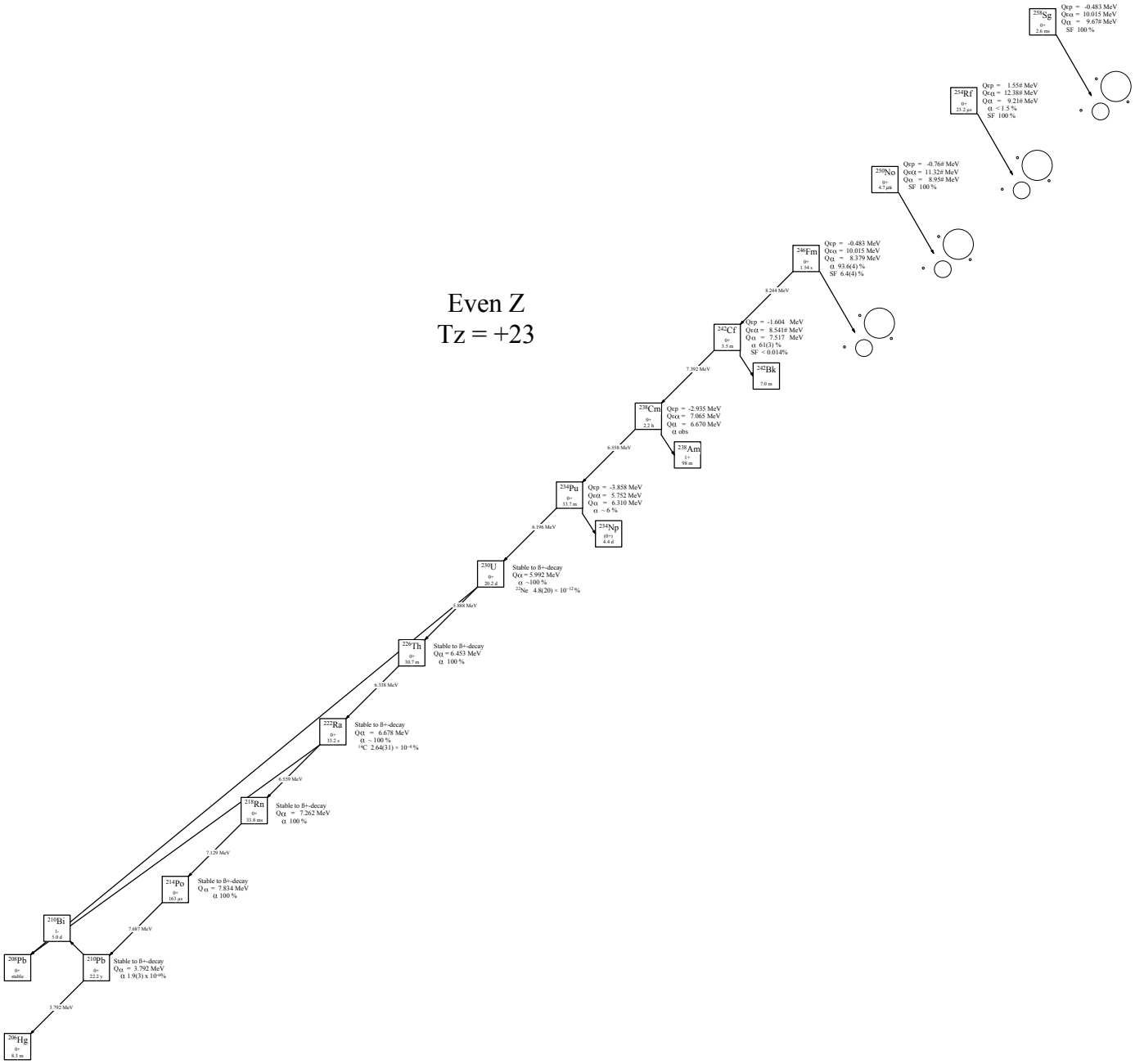


**Fig. 1**: Known experimental values for heavy particle emission of the even-Z $T_z$= +23 nuclei.

Last updated 6/3/2024

**Table 1**
Observed and predicted $\beta$-delayed particle emission from the even-$Z$, $T_z$ = +23 nuclei. Unless otherwise stated, all Q-values are taken from [2021Wa16] or deduced from values therein.

| Nuclide | $J^\pi$ | $T_{1/2}$ | $Q_\varepsilon$ | $Q_{\beta^-}$ | $Q_{\beta^- \alpha}$ | Experimental |
|---|---|---|---|---|---|---|
| $^{210}$Pb(RaD)* | $0^+$ | 22.23(12) y | -5.481(12) | 0.064(1) | 5.280(2) | [**2008ChZV**] |
| $^{214}$Po(RaC') | $0^+$ | 163.45(4) $\mu$s | -3.269(11) | -1.091(4) | — | [**2015Al10**] |
| $^{218}$Rn(Em) | $0^+$ | 33.75(15) ms | -2.883(12) | -1.842(4) | — | [**2012Su11**] |
| $^{222}$Ra | $0^+$ | 33.17(10) s | -2.058(9) | -2.302(6) | — | [**1995Ko54**] |
| $^{226}$Th | $0^+$ | 30.70(3) m | -1.112(5) | -2.836(12) | — | [**2012Po13**] |
| $^{230}$U | $0^+$ | 20.23(2) d | -0.392(2) | -3.620(60) | — | [**2012Po12**] |
| | | | | $Q_{\varepsilon p}$ | $Q_{\varepsilon \alpha}$ | |
| $^{234}$Pu | $0^+$ | 8.7(1) h** | 0.395(11) | -3.858(7) | 5.752(7) | [**1973Ja06, 1949Pe04**] |
| $^{238}$Cm | $0^+$ | 2.2(4) h | 1.020(60) | -2.935(12) | 7.065(15) | [**2006As03**] |
| $^{242}$Cf | $0^+$ | 3.49(10) m*** | 1.64(14)# | -1.604(13) | 8.541(60)# | [**1970Si19, 1967Si07, 1967Il01, 1967Fi04**] |
| $^{246}$Fm | $0^+$ | 1.54(4) s | 2.370(90) | -0.483(14) | 10.015(135) | [**2011Ve03**] |
| $^{250}$No | $0^+$ | 4.7(1) $\mu$s | 3.17(22)# | 0.76(20)# | 11.32(22)# | [**2022Te01**] |
| $^{254}$Rf | $0^+$ | 23.2(11) $\mu$s | 3.56(30)# | 1.55(28)# | 12.38(30)# | [**2015Da12**] |
| $^{258}$Sg | $0^+$ | $2.6^{+0.6}_{-0.4}$ ms | 3.79(42)# | 2.14(41)# | 13.23(42)# | [**2009Fo02**] |

* $\approx$ 100% $\beta^-$ emitter.
** Weighted average of 8.8(1) h [1973Ja06] and 8.5(1) h [1949Pe04].
*** Weighted average of 3.68(44) m [1970Si19], 3.4(2) m [1967Si07], 3.7(3) m [1967Il01] and 3.2(5) m [1967Fi04].

**Table 2**
Particle separation, Q-values, and measured values for direct particle emission of the even-$Z$, $T_z$ = +23 nuclei. Unless otherwise stated, all S and Q-values are taken from [2021Wa16] or deduced from values therein.

| Nuclide | $S_p$ | $Q_\alpha$ | $BR_\alpha$ | $BR_{SF}$ | $BR_{cluster}$ | type | Experimental |
|---|---|---|---|---|---|---|---|
| $^{210}$Pb(RaD) | 8.373(6) | 3.792(20) | $1.9(3) \times 10^{-6}$%* | | | | [**1964Wo05, 1962Ka27**, 1969Ho26] |
| $^{214}$Po(RaC') | 6.527(5) | 7.834(0) | 100% | | | | [**1976Ku08, 1971Gr17, 1961Ry02**, 2022Be20, 2016Al28, 2015Al10, 2013Al11, 2013Be10, 2012Su11, 2011AlZX, 1993Zh30, 1973BoXL, 1973BoXW, 1971Er02, 1965Le08, 1962Br22, 1961Do02, 1960Og01, 1960Ry01, 1953Ba60, 1950Vo02] |
| $^{218}$Rn | 6.466(5) | 7.262(2) | 100% | | | | [**1995Ko54, 1973BoXL**, 2012Su11, 1971Er02, 1963Di08, 1963Le17, 1962Di08, 1961Ru06, 1958To25, 1948St42] |
| $^{222}$Ra | 6.246(6) | 6.678(4) | 100% | | $2.64(31) \times 10^{-8}$%** | $^{14}$C | [**1995Ko54, 1991Hu02, 1985Ho21, 1985Pr01, 1956As38**, 2012Po13, 1991HuZY, 1991LeZV, 1987BaZS, 1976Ka08, 1975VaZD, 1969Pe17, 1964Ba49, 1963Le17, 1961Fo08, 1961Ru06, 1960Be25, 1958To25, 1956Sm88, 1948St42] |
| $^{226}$Th | 5.729(6) | 6.453(1) | 100% | | | | ]**2012Ma30, 1995Ko54, 1976Ku08**, 2012Po13, 1987Mi10, 1975VaZD, 1974KaZM, 1969Br10, 1968GuZU, 1963Le17, 1961Ry06, 1956As38, 1953AsZZ, 1948St42] |
| $^{230}$U | 5.571(5) | 5.992(1) | 100% | | $4.8(20) \times 10^{-12}$% | $^{22}$Ne | [**2012Ma30, 2001Bo11, 1995Ko54, 1976Ku08**, 2012Po12, 2000Pa54, 1999Pa22, 1996Tr10, 1974KaZM, 1969Pe17, 1966Ba14, 1963Le17, 1961Ru06, 1956As38, 1953AsZZ, 1948St42] |
| $^{234}$Pu | 4.888(51) | 6.310(5) | ≈ 6% | | | | [**1964Hy02**, 1973Ja06, 1952Or03, 1949Pe04] |
| $^{238}$Cm | 4.413(61)# | 6.670(10) | obs*** | | | | [**2006As03**, 2002As08. 2002AsZX, 1952Hi63] |
| $^{242}$Cf | 3.88(17)# | 7.517(4) | 61(3)% | ≤ 0.014% | | | [**2011Ve03, 1995La09, 1970Si19**, 1985HiZU, 1981Mu12, 1967Fi04, 1967Il01, 1967Si07] |
| $^{246}$Fm | 3.41(17)# | 8.379(5) | 93.6(4)%[@] | 6.4(4)%[@] | | | [**2022Is05, 2012Pi05, 2011Ve03**, 2015Sv02, 2012Sv01, 2011PiZW, 2010An08, 2010Sv01, 2010SvZW, 2010SvZX, 1982Bo21, 1982BoZN, 1980Ho25, 1980Vi04, 1975Og02, 1970Dr05, 1967Fl15, 1967Nu01, 1966Ak01] |
| $^{250}$No | 2.90(26)# | 8.95(20)# | | 100% | | | [**2022Kh08, 2022Te01**, 2020Ku23, 2020SvZZ, 2006Pe17, 2006PeZY, 2003Be18, 2003Po08, 2003Ye02, 2001Og08] |
| $^{254}$Rf | 2.61(33)# | 9.21(20)# | ≤1.5 % | 100% | | | [**2015Da12, 1997He29**, 2022IsZZ, 2020Kh01, 2020SuZZ, 2016KhZZ, 2008Dr05, 1999He11, 1996HeZZ][a] |
| $^{258}$Sg | 2.15(44)# | 9.67(30)# | | 100% | | | [**1997He29**, 2009Fo02, 1999He11, 1996HeZZ] |

* Weighted average of $2.7(6) \times 10^{-6}$% [1964Wo05] and $1.7(3) \times 10^{-6}$% [1962Ka27].

** Weighted average of $2.31(31) \times 10^{-8}$% [1991Hu02], $3.1(10) \times 10^{-8}$% [1985Ho21] and $3.7(6) \times 10^{-8}$% [1985Pr01].

*** [1952Hi63] report an $\varepsilon$/6.520 MeV $\alpha$ =240(50). This produces an $BR_\alpha$ = 0.54(10)% with a corresponding HF = 6.4 for the $0^+$ to $0^+$ transition. Using an $BR_\alpha$ = 3.5% produces a HF = 1.0.

[@] Weighted average of 93.2(6)% [2011Ve03] and 93.9(5)% [2022Is05].

[a] In addition [1976FlZN] and 1975Te01] reported SF from this nuclide with a half-life values of 0.5(2) ms. As this value does not agree with later work, this assignment seems to be in error.

**Table 3**
direct $\alpha$ emission from $^{210}$Pb, $J^\pi = 0^+$, $T_{1/2}$ = 22.23(12) y*, $BR_\alpha = 1.9(3) \times 10^{-6}$%**

| $E_\alpha$(c.m.) | $E_\alpha$(lab) | $I_\alpha$(abs) | $J_f^\pi$ | $E_{daughter}$($^{206}$Hg) | coincident $\gamma$-rays | $R_0$ (fm) | HF |
|---|---|---|---|---|---|---|---|
| 3.792(20) | 3.720(20)*** | $1.9(3) \times 10^{-6}$%** | $0^+$ | 0.0 | —— | 1.449(21) | $0.99^{+0.19}_{-0.14}$ |

* [2008ChZV].

** Weighted average of $2.7(6) \times 10^{-6}$% [1964Wo05] and $1.7(3) \times 10^{-6}$% [1962Ka27].

*** [1962Ka27].

**Table 4**
direct $\alpha$ emission from $^{214}$Po, $J^{\pi} = 0^+$, $T_{1/2}$ = 163.45(4) $\mu$s*, $BR_{\alpha}$ = 100%

| $E_{\alpha}$(c.m.) | $E_{\alpha}$(lab) | $I_{\alpha}$(rel)** | $I_{\alpha}$(abs) | $J^{\pi}_f$ | $E_{daughter}$($^{210}$Pb)** | coincident $\gamma$-rays** | $R_0$ (fm) | HF |
|---|---|---|---|---|---|---|---|---|
| 6.864 | (6.736)**,@ | $5(2) \times 10^{-5}$% | $5(2) \times 10^{-5}$% | $4^+$ | 1.098 | 0.298, 0.7997 | 1.539616(24) | $470^{+320}_{-140}$ |
| 7.1675 | (7.0335)**,@ | 0.0104(6)% | 0.0104(6)% | $2^+$ | 0.7997 | 0.7997 | 1.539616(24) | 27(2) |
| 7.83324(7) | 7.68682(7)*** | 100% | 99.99% | $0^+$ | 0.0 | —— | 1.539616(24) | 0.9980(3) |

* [2015Al10].
** [1976Ku08].
*** Weighted average of 7.68709(68) MeV [1971Gr17] (adjusted to 7.68683(68) MeV in [1991Ry01] and 7.68695(75) MeV [1961Ry02] (adjusted to 7.68634(75) MeV in [1991Ry01]
@ $\alpha$ not observed, inferred from observed $\gamma$'s from the $\alpha$ decay of $^{214}$Po [1976Ku08].

**Table 5**
direct $\alpha$ emission from $^{218}$Rn*, $J^{\pi} = 0^+$, $T_{1/2}$ = 33.75(15) ms**, $BR_{\alpha}$ = 100%

| $E_{\alpha}$(c.m.) | $E_{\alpha}$(lab) | $I_{\alpha}$(rel) | $I_{\alpha}$(abs) | $J^{\pi}_f$ | $E_{daughter}$($^{214}$Po) | coincident $\gamma$-rays | $R_0$ (fm) | HF |
|---|---|---|---|---|---|---|---|---|
| 5.963 | 5.854 | $9(3) \times 10^{-5}$% | $9(3) \times 10^{-5}$% | $(3^+)$ | 1.2746(2) | 0.60931(1), 0.6653(2) | 1.56062(74) | $10^{+5}_{-3}$ |
| 6.642 | 6.52 | 0.127(4)% | 0.127(4)% | $2^+$ | 0.60931(1) | 0.60931(1) | 1.56062(74) | 4.79(18) |
| 7.262(2) | 7.129(2) | 100% | 99.870(4)% | $0^+$ | 0.0 | —— | 1.56062(74) | 0.996(5) |

* All values taken from [1995Ko54], except where noted.
** [2012Su11].

**Table 6**
direct $\alpha$ emission from $^{222}$Ra*, $J^{\pi} = 0^+$, $T_{1/2}$ = 33.17(10) s, $BR_{\alpha}$ = 100%

| $E_{\alpha}$(c.m.) | $E_{\alpha}$(lab) | $I_{\alpha}$(rel) | $I_{\alpha}$(abs) | $J^{\pi}_f$** | $E_{daughter}$($^{218}$Rn) | coincident $\gamma$-rays | $R_0$ (fm) | HF |
|---|---|---|---|---|---|---|---|---|
| 5.839(5) | 5.734(5) | $4.44(21) \times 10^{-3}$% | $4.3(2) \times 10^{-3}$% | $(3^-)$ | 0.8402 | 0.3243, 0.5158, 0.8402 | 1.5492(18) | 4.36(32) |
| 5.882(5) | 5.776(5) | $4.56(11) \times 10^{-3}$% | $4.42(11) \times 10^{-3}$% | $(3^-)$ | 0.7969 | 0.1449, 0.3243, 0.3289, 0.4726, 0.6531, 0.7968 | 1.5492(18) | 9.3(6) |
| 6.026(5) | 5.918(5) | $4.51(11) \times 10^{-3}$% | $4.37 \times 10^{-3}$% | $(4^+)$ | 0.6532 | 0.3243, 0.3289,0.6531 | 1.5492(18) | 33.8(20) |
| 6.355(5) | 6.241(5) | 3.17(9)% | 3.07(9)% | $2^+$ | 0.3243 | 0.3243 | 1.5492(18) | 1.44(8) |
| 6.679(5) | 6.559(5) | 100(2)% | 96.92(10)% | $0^+$ | 0.0 | —— | 1.5492(18) | 0.9962(32) |

* All values taken from [1995Ko54], except where noted.
** [2019Si39].

**Table 7**
direct $^{14}$C emission from $^{222}$Ra, $J^{\pi} = 0^+$, $T_{1/2}$ = 33.17(10) s*, $BR_{14C} = 2.64(31) \times 10^{-8}$%**

| $E_{14C}$(c.m.) | $E_{14C}$(lab) | $I_{14C}$(abs) | $J^{\pi}_f$ | $E_{daughter}$($^{208}$Pb) | coincident $\gamma$-rays |
|---|---|---|---|---|---|
| 33.012(90) | 30.930(90) | $2.64(31) \times 10^{-8}$%** | $0^+$ | 0.0 | —— |

* [1995Ko54].

**Table 8**
direct $\alpha$ emission from $^{226}$Th, $J^{\pi} = 0^+$, $T_{1/2}$ = 30.70(3) m*, $BR_{\alpha}$ = 100%

| $E_{\alpha}$(c.m.) | $E_{\alpha}$(lab) | $I_{\alpha}$(rel) | $I_{\alpha}$(abs) | $J_f^{\pi}$@ | $E_{daughter}$($^{222}$Ra)@ | coincident $\gamma$-rays*** | $R_0$ (fm) | HF |
|---|---|---|---|---|---|---|---|---|
| 5.4275(10)*** | 5.3314(10) | $1.5 \times 10^{-3}$% | $1.13 \times 10^{-3}$%*** | $(2^+)$ | 1.0249 | 0.1112, 0.1310, 0.2063, 0.2421, 0.7075, 0.7229, 0.7829, 0.9139 | 1.53749(45) | 0.59 |
| 5.5382(10)*** | 5.4402(10) | $4.2 \times 10^{-3}$% | $3.2 \times 10^{-3}$%*** | $(0^+)$ | 0.9142 | 0.1112, 0.1310, 0.2421, 0.6970, 0.8027 | 1.53749(45) | 0.86 |
| 5.9785(10)*** | 5.8727(10) | $4 \times 10^{-4}$% | $3 \times 10^{-4}$%*** | $(5^-)$ | 0.4739 | 0.1112, 0.1310, 0.1725, 0.1903, 0.2063, 0.2421 | 1.53749(45) | $1.7 \times 10^3$ |
| 6.1357(10) | 6.0271(10)** | 0.305(7)% | 0.230(5)%** | $(3)^-$ | 0.3173 | | 1.53749(45) | 12.38(27) |
| 6.1514(10) | 6.0425(10)** | 0.240(5)% | 0.181(4)%** | $4^+$ | 0.3015 | 0.1112, 0.1310, 0.1903, 0.2063, 0.2421 | 1.53749(45) | 18.6(4) |
| 6.2101(10) | 6.1002(10)** | 1.68(1)% | 1.27(1)%** | $1^-$ | 0.2422 | 0.1112, 0.1310, 0.2421 | 1.53749(45) | 4.98(4) |
| 6.3413(10) | 6.2291(10)** | 30.42(13)% | 22.93(9)%** | $2^+$ | 0.1111 | 0.1111 | 1.53749(45) | 1.072(4) |
| 6.4524(10) | 6.3382(10)** | 100.0(19)% | 75.39(10)%** | $0^+$ | 0.0 | —— | 1.53749(45) | 0.9954(17) |

* [2012Po13].
** [2022Ma30].
*** [1995Ko54]. $Q_{\alpha}$ values deduced from coincident $\gamma$'s.
@ [2023Si22].

**Table 9**
direct $\alpha$ emission from $^{230}$U, $J^{\pi} = 0^+$, $T_{1/2}$ = 20.23(2) d*, $BR_{\alpha}$ = 100%

| $E_{\alpha}$(c.m.) | $E_{\alpha}$(lab) | $I_{\alpha}$(rel) | $I_{\alpha}$(abs) | $J_f^{\pi}$** | $E_{daughter}$($^{226}$Th)** | coincident $\gamma$-rays** | $R_0$ (fm) | HF |
|---|---|---|---|---|---|---|---|---|
| 5.1354(10) | 5.0461(10) | $\approx 7.1 \times 10^{-5}$% | $\approx 4.8 \times 10^{-5}$% | $(2^+)$ | 0.8565(3) | 0.07218, 0.08103, 0.15424, 0.23532, 0.54905, 0.62622, 0.78423, 0.8565 | 1.53197(29) | $\approx 1.5$ |
| 5.1438(10) | 5.0543(10) | $\approx 1.1 \times 10^{-4}$% | $\approx 7.5 \times 10^{-4}$%** | $(2^+)$ | 0.8481(2) | 0.07218, 0.08103, 0.15424, 0.23037, 0.23532, 0.54056, 0.61768, 0.7754, 0.8478 | 1.53197(29) | $\approx 1.7$ |
| 5.1870(10) | 5.0968(10) | $1.1^{+3.6}_{-0.5} \times 10^{-4}$% | $7.5^{+2.4}_{-0.4} \times 10^{-4}$%** | $(2^+)$ | 0.8049(3) | 0.07218, 0.23037 0.57457, 0.7328, 0.8049 | 1.53197(29) | $3.1^{+1.5}_{-0.3}$ |
| 5.2237(10) | 5.1329(10) | $4.9^{+2.2}_{-0.6} \times 10^{-4}$% | $3.3^{+1.5}_{-0.4} \times 10^{-4}$%@ | | 0.7682(1) | 0.07218, 0.6960 | 1.53197(29) | $12^{+10}_{-2}$ |
| 5.5412(10) | 5.4448(10) | $\approx 4.9 \times 10^{-4}$% | $\approx 3.3 \times 10^{-4}$%@ | | 0.45071(3) | 0.07218, 0.15424, 0.22429 | 1.53197(29) | $\approx 870$ |
| 5.5445(10) | 5.4481(10) | $\approx 8.9 \times 10^{-6}$% | $\approx 6.0 \times 10^{-5}$%@ | | 0.4474(5) | 0.07218, 0.15424, 0.2210 | 1.53197(29) | $\approx 5 \times 10^3$ |
| 5.6847(10) | 5.5858(10)*** | 0.0193(15)% | 0.013(1)%*** | $(3^-)$ | 0.30749(2) | 0.07218, 0.08103, 0.15424, 0.23037, 0.23532 | 1.53197(29) | 134(10) |
| 5.7621(10) | 5.6619(10)*** | 0.39(13)% | 0.26(9)%*** | $1^-$ | 0.23037(1) | 0.07218, 0.15424, 0.23037 | 1.53197(29) | $17^{+9}_{-5}$ |
| 5.7651(10) | 5.6648(10)*** | 0.56(13)% | 0.38(9)%*** | $4^+$ | 0.22642(2) | 0.07218, 0.15424 | 1.53197(29) | $12^{+4}_{-2}$ |
| 5.9197(10) | 5.8167(10)*** | 47.40(36)% | 31.95(22)%*** | $2^+$ | 0.07218(1) | 0.07218 | 1.53197(29) | 0.917(13) |
| 5.9919(10) | 5.8877(10)*** | 100.00(48)% | 67.4(23)%*** | $0^+$ | 0.0 | —— | 1.53197(29) | 0.998(34) |

* [2012Po13].
** [1995Ko54]. $Q_{\alpha}$ values deduced from coincident $\gamma$'s.
*** [2012Ma30].
@ [1976Ku08].

**Table 10**
direct $\alpha$ emission from $^{234}$Pu*, $J^{\pi} = 0^+$, $T_{1/2}$ = 8.7(1) h***, $BR_{\alpha} = \approx 6\%$

| $E_{\alpha}$(c.m.) | $E_{\alpha}$(lab) | $I_{\alpha}$(rel) | $I_{\alpha}$(abs) | $J_f^{\pi}$*** | $E_{daughter}$($^{230}$U)*** | coincident $\gamma$-rays*** | $R_0$ (fm) | HF |
|---|---|---|---|---|---|---|---|---|
| 6.130 | 6.025 | 0.6% | $\approx 0.024$% | $4^+$ | 0.1693 | 0.0517, 0.1693 | 1.518(27) | $\approx 25$ |
| 6.252 | 6.145 | 47% | $\approx 1.9$% | $2^+$ | 0.0517 | 0.0517 | 1.518(27) | $\approx 1.1$ |
| 6.304 | 6.196 | 100% | $\approx 4.1$% | $0^+$ | 0.0 | —— | 1.518(27) | $\approx 0.9$ |

* All values from [1964Hy02] p. 799 (based on unpublished results from R. W. Hoff, F. Asaro, I. Perlman [1960Ho18]), except where noted.
** Weighted average of 8.8(1) h [1973Ja06] and 8.5(1) h [1949Pe04].
*** [2012Br12].

**Table 11**
direct $\alpha$ emission from $^{238}$Cm*, $J^\pi = 0^+$, $T_{1/2}$ = 2.2(4) h, $BR_\alpha$ = obs**

| $E_\alpha$(c.m.) | $E_\alpha$(lab) | $I_\alpha$(rel) | $I_\alpha$(abs) | $J_f^\pi$ | $E_{daughter}$($^{234}$Pu) | coincident $\gamma$-rays*** | $R_0$ (fm) | HF |
|---|---|---|---|---|---|---|---|---|
| 6.614(10) | 6.503(11) | 30(8)% | | | 0.056(7) | | 1.4805(90) | |
| 6.670(10) | 6.558(10) | 100(8)% | | $0^+$ | 0.0 | —— | 1.4805(90) | |

* All values from [2006As03], except where noted.
** [1952Hi63] report an $\varepsilon$/6.520 MeV $\alpha$ =240(50). This produces an $BR_\alpha$ = 0.54(10)% with a corresponding HF = 6.4 for the $0^+$ to $0^+$ transition. Using an $BR_\alpha$ = 3.5% produces a HF = 1.0.

**Table 12**
direct $\alpha$ emission from $^{242}$Cf, $J^\pi = 0^+$, $T_{1/2}$ = 3.49(10) m*, $BR_\alpha$ = 61(3)%**.

| $E_\alpha$(c.m.) | $E_\alpha$(lab) | $I_\alpha$(rel) | $I_\alpha$(abs) | $J_f^\pi$ | $E_{daughter}$($^{238}$Cm) | coincident $\gamma$-rays | $R_0$ (fm) | HF |
|---|---|---|---|---|---|---|---|---|
| 7.482(6) | 7.358(6) | $\approx$ 20% | $\approx$ 10% | | 0.035(7) | | 1.4986(78) | $\approx$ 3.5 |
| 7.516(4) | 7.392(4) | $\approx$ 100% | $\approx$ 51% | $0^+$ | 0.0 | —— | 1.4986(78) | $\approx$ 0.9 |

* Weighted average of 3.68(44) m [1970Si19], 3.4(2) m [1967Si07], 3.7(3) m [1967Il01] and 3.2(5) m [1967Fi04].
** [2011Ve03].

**Table 13**
direct $\alpha$ emission from $^{246}$Fm, $J^\pi = 0^+$, $T_{1/2}$ = 1.54(4) s*, $BR_\alpha$ = 93.6(4)%**.

| $E_\alpha$(c.m.) | $E_\alpha$(lab) | $I_\alpha$(abs) | $J_f^\pi$ | $E_{daughter}$($^{242}$Cf) | coincident $\gamma$-rays | $R_0$ (fm) | HF |
|---|---|---|---|---|---|---|---|
| 8.380(7) | 8.244(7)*** | 93.6(4)%** | $0^+$ | 0.0 | —— | 1.506(12) | 0.820(22) |

* [2011Ve03].
** Weighted average of 93.2(6)% [2011Ve03] and 93.9(5)% [2022Is05].
*** [2012Pi05].

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