



**Table 1**

Observed and predicted  $\beta$ -delayed particle emission from the even- $Z$ ,  $T_z = +26$  nuclei. Unless otherwise stated, all  $Q$ -values are taken from [2021Wa16] or deduced from values therein.

| Nuclide             | Ex.       | $J^\pi$ | $T_{1/2}$                   | $Q_\epsilon$ | $Q_{\beta^-}$    | $Q_{\beta^- \alpha}$  | Experimental                   |
|---------------------|-----------|---------|-----------------------------|--------------|------------------|-----------------------|--------------------------------|
| $^{212}\text{Hg}^*$ |           | $0^+$   | obs                         |              | 4.57(36)#        | 6.69(42)#             | [2017Ca12]                     |
| $^{216}\text{Pb}^*$ |           | $0^+$   | 99.4(117) s                 | -7.36(36)#   | 1.64(20)#        | 6.82(28)#             | [2017Ca12]                     |
| $^{220}\text{Po}^*$ |           | $0^+$   | obs                         | -5.70(30)#   | 0.888(23)        | 7.144(21)             | [1998Pf02]                     |
| $^{224}\text{Rn}^*$ |           | $0^+$   | 108(3) m**                  | -5.266(24)   | 0.696(15)        | 5.824(17)             | [1964Ba02, 1973AfZY]           |
| $^{228}\text{Ra}^*$ |           | $0^+$   | 5.75(3) y                   | -4.444(7)    | 0.046(1)         | 4.946(11)             | [1962Ma58]                     |
|                     |           |         |                             |              | $Q_{\epsilon p}$ | $Q_{\epsilon \alpha}$ |                                |
| $^{232}\text{Th}$   |           | $0^+$   | $1.401(7) \times 10^{10}$ y | -3.708(13)   | —                | —                     | [1963Le17]                     |
| $^{236}\text{U}$    |           | $0^+$   | $2.3415(14) \times 10^7$ y  | -2.889       | —                | —                     | [1972Fl03]                     |
| $^{236m}\text{U}$   | 2.750(10) |         | 115(4) ns***                | -0.139       | —                | —                     | [1989Sc30, 1978Gu02, 1975Ch09] |
| $^{240}\text{Pu}$   |           | $0^+$   | 6564(11) y                  | -2.191(17)   | —                | —                     | [1984St05]                     |
| $^{240m}\text{Pu}$  | x         |         | 3.8(3) ns                   | -2.191(17)+x | —                | —                     | [1970Bu02]                     |
| $^{244}\text{Cm}$   |           |         | 18.099(15) y                | -1.427(1)    | —                | —                     | [1968Be26]                     |
| $^{244m}\text{Cm}$  | 3.0(4)    | $0^+$   | > 100 ns                    | 1.6(4)       | -3.5(4)          | 6.7(4)                | [1973Br38]                     |
| $^{248}\text{Cf}$   |           | $0^+$   | 333.5(28) d                 | -0.890(50)   | —                | —                     | [1973Hu01]                     |
| $^{252}\text{Fm}$   |           | $0^+$   | 25.39(4) h                  | -0.480(50)   | —                | —                     | [1984Ah02]                     |
| $^{256}\text{No}$   |           | $0^+$   | 2.91(5) s                   | 0.37(12)#    | -3.266(8)#       | 8.104(51)#            | [1990Ho03]                     |
| $^{260}\text{Rf}$   |           | $0^+$   | 20.2(7) ms@                 | 0.87(24)#    | -2.22(20)#       | 9.267(24)#            | [1985So03]                     |
| $^{264}\text{Sg}$   |           | $0^+$   | $37^{+27}_{-11}$ ms         | 1.52(37)#    | -1.26(32)#       | 10.081(31)#           | [2006Gr24]                     |
| $^{268}\text{Hs}$   |           | $0^+$   | $0.38^{+1.8}_{-0.17}$ s     | 2.26(49)#    | -0.13(40)#       | 11.28(38)#            | [2010Ni14]                     |
| $^{272}\text{Ds}$   |           |         |                             | 2.60(65)#    | 1.10(51)#        | 12.95(57)#            |                                |
| $^{276}\text{Cn}$   |           |         |                             | 2.97(80)#    | 1.41(61)#        | 14.45(70)#            |                                |

\* 100%  $\beta^-$  emitter.

\*\* Weighted average of 114(6) m [1964Ba02] and 107(3) m [1973AfZY].

\*\*\* Weighted average of 115(5) ns [1978Gu02] and 116(7) ns [1975Ch09].

@ Weighted average of 20.0(12) ms, 21.0(11) ms and 19.0(14) ms [1985So03].

**Table 2**

Particle separation, Q-values, and measured values for direct particle emission of the even-Z,  $T_z = +26$  nuclei. Unless otherwise stated, all S and Q-values are taken from [2021Wa16] or deduced from values therein.

| Nuclide            | $S_p$      | $Q_\alpha$  | $BR_\alpha$ | $BR_{SF}$                            | Experimental   |
|--------------------|------------|-------------|-------------|--------------------------------------|--|
| $^{212}\text{Hg}$  |            | 1.10(50)#   |             |                                      |  |
| $^{216}\text{Pb}$  | 9.81(36)#  | 2.07(36)#   |             |                                      |  |
| $^{220}\text{Po}$  | 8.35(20)#  | 5.33(20)#   |             |                                      |  |
| $^{224}\text{Rn}$  | 8.272(17)  | 4.757(20)   |             |                                      |  |
| $^{228}\text{Ra}$  | 8.031(6)   | 4.070(10)   |             |                                      |  |
| $^{232}\text{Th}$  | 7.605(13)  | 4.082(1)    | 100%        | $1.15(41) \times 10^{-9}\%$ *        | [1995Bo18, 1989Sa01, 1997MiZP, 1996Bo08, 1995Si05, 1983Mi30, 1983Ro23, 1982Sa36, 1975Em03, 1973HaZR, 1967Sp12, 1963Le21, 1962Ko12, 1961Ko11, 1960Fa07, 1959Ko58, 1958Fl44, 1957Ha08, 1956Ma43, 1956Pi42, 1956Se17, 1955Po45, 1953We52, 1952Se67, 1939Li16, 1938Ko01]   |
| $^{236}\text{U}$   | 7.133(14)  | 4.573(1)    | 100%        | $9.64(52) \times 10^{-8}\%$          | [2014Ma14, 2002Ge02, 1981Vo02, 1961Ko11, 1960Ko04, 1994Tr12, 1990BaZH, 1989Ho24, 1988TrZU, 1983Be66, 1982BeYI, 1972Fl03, 1971Co35, 1952Fl20, 1949JaZZ]   |
| $^{236m}\text{U}$  | 4.383(17)  | 7.323(10)   |             | 11(4)%                               | [1989Sc30, 1978Gu02, 1975Ch09, 1977Bo09, 1976An11, 1972Br04, 1972ClZY, 1972DeZR, 1972Pe01, 1972PiZR, 1971Be62, 1971Bo61, 1971Br38, 1971Br39, 1971Fe09, 1970El03, 1970Re05, 1970Vi05, 1970Wo06, 1969La14]   |
| $^{240}\text{Pu}$  | 6.475(1)   | 5.2558(1)   | 100%        | $5.796(39) \times 10^{-6}\%$         | [2018Be29, 2010Si30, 1977Ba69, 2016Ob01, 2013Sa65, 2007Ah05, 2007Bu19, 1997De11, 1992Bl13, 1991Iv01, 1990An33, 1989Au01, 1989Dy01, 1989Wa29, 1988SeZY, 1984Ah06, 1984An25, 1984Be19, 1984Ru04, 1984St06, 1979BuZC, 1978Ja11, 1972Go33, 1972Sc01, 1971Cl03, 1971To07, 1969Le05, 1968Ba25, 1968Oe02, 1967Fi13, 1963Ma50, 1963Le17, 1962Le11, 1962Wa13, 1959Do64, 1956Ko67, 1954Ba14, 1954Ch74, 1954Fa11, 1954Se94, 1953AsZZ, 1953Ki72, 1952As28, 1951We21, 1951In03, 1945RoZZ]                     |
| $^{240m}\text{Pu}$ | 6.475(1)-x | 5.2558(1)+x |             | obs                                  | [1970Bu02, 1986De04, 1978Go10, 1974We03, 1973Na03, 1971Br39, 1971BrZK, 1970El03, 1970Vi05, 1969La14, 1969Me11, 1969VaZX]   |
| $^{244}\text{Cm}$  | 6.012(1)   | 5.90160(3)  | 100%        | $1.37(4) \times 10^{-4}\%$           | [2002Da21, 1998Ga19, 1971Gr17, 1972Ha80, 1970Ba11, 1966Ba07, 1965Me02, 2023Na03, 2008Ve05, 2004Na01, 2004Na44, 1999Pe03, 1998Ya17, 1997Ka59, 1996Sa24, 1993Pa29, 1983Ca02, 1983Sc06, 1983Sc07, 1981Zh06, 1974Al26, 1973Da34, 1973Go46, 1972Al07, 1972AIYR, 1972AIYX, 1972FIZS, 1972Ke29, 1971Bb10, 1970Al07, 1969Ba57, 1969ScZZ, 1968Be26, 1967Ar09, 1965Ak02, 1965Ar09, 1963Bj03, 1963Dz07, 1963Ma56, 1963Ma56, 1962Iv01, 1962No09, 1961Ca01, 1956Hu96, 1955Hi68, 1954Fr19, 1953AsZZ, 1952Gh27] |
| $^{244m}\text{Cm}$ | 3.0(4)     | 8.9(4)      |             | obs                                  | [1973Br38, 1971Br39, 1969MeZX, 1971BrKG]   |
| $^{248}\text{Cf}$  | 5.541(7)   | 6.361(5)    | 100%        | $2.86(25) \times 10^{-3}\%$          | [1984Ah02, 1973Hu01, 1996IvZZ, 1973HuYZ, 1968Sk01, 1963Fr15, 1954Gh12]   |
| $^{252}\text{Fm}$  | 4.984(7)   | 7.154(1)    | 100%        | $2.3(2) \times 10^{-3}\%$            | [1984Ah02, 1977Be36, 1967Ch17, 1962Dr02, 1956Fr07]   |
| $^{256}\text{No}$  | 4.308(9)   | 8.582(5)    | 100%        | $5.3_{-0.3}^{+0.6} \times 10^{-3}\%$ | [2016AsZX, 1990Ho03, 2021Ke10, 1967Dr02, 1967Fl05, 1967Gh01, 1966Ku15, 1964Do10, 1963Do12]   |
| $^{260}\text{Rf}$  | 3.99(21)#  | 8.90(20)#   |             | 100%                                 | [2008Ga08, 1985So03, 2009GoZT, 1987HuZW, 1986Hu01, 1985TeZX, 1983SoZZ, 1977Dr10, 1977DrZU, 1976Dr06, 1970Og05, 1964Fl04]   |
| $^{264}\text{Sg}$  | 3.62(33)#  | 9.21(20)#   | < 36%       | $\approx 100\%$                      | [2006Gr24, 2006Ni10, 2010Ni14, 1998Ik02, 1998IkZZ]   |
| $^{268}\text{Hs}$  | 3.09(40)#  | 9.76(10)#   | obs         |                                      | [2010Ni14, 2009Dv01]   |
| $^{272}\text{Ds}$  | 2.31(54)#  | 10.69(30)#  |             |                                      |  |
| $^{276}\text{Cn}$  | 2.32(67)#  | 11.85(66)#  |             |                                      |  |

\* [1995Bo01].

**Table 3**direct  $\alpha$  emission from  $^{232}\text{Th}^*$ ,  $J^\pi = 0^+$ ,  $T_{1/2} = 1.401(7) \times 19^{10}$  y,  $BR_\alpha = 100\%$ .

| $E_\alpha$ (c.m.) | $E_\alpha$ (lab) | $I_\alpha$ (rel) | $I_\alpha$ (abs) | $J_f^\pi$      | $E_{daughter}(^{228}\text{Ra})$ | coincident $\gamma$ -rays (keV) | $R_0$ (fm) | HF                             |
|-------------------|------------------|------------------|------------------|----------------|---------------------------------|---------------------------------|------------|--------------------------------|
| 3.874(2)          | 3.807(2)***      | 0.060(12)%       | 0.046(9)%        | 4 <sup>+</sup> | 0.2047                          | 140.8                           | 1.5370(14) | 24 <sup>+6</sup> <sub>-4</sub> |
| 4.0164(20)        | 3.9472(20)       | 30(3)%           | 23(2)%           | 2 <sup>+</sup> | 0.0638                          | 63.8                            | 1.5370(14) | 0.95(8)                        |
| 4.0827(14)        | 4.0123(14)       | 100%             | 77(3)%           | 0 <sup>+</sup> | 0.0                             | —                               | 1.5370(14) | 1.04(4)                        |

\* All values from [1989Sa01], except where noted.

\*\* [1963Le17].

\*\*\*  $E_\alpha$  deduced from  $\gamma$  energies coincident with  $\alpha$ 's.**Table 4**direct  $\alpha$  emission from  $^{236}\text{U}$ ,  $J^\pi = 0^+$ ,  $T_{1/2} = 2.3415(14) \times 10^7$  y\*,  $BR_\alpha = 100\%$ .

| $E_\alpha$ (c.m.) | $E_\alpha$ (lab) | $I_\alpha$ (rel) | $I_\alpha$ (abs)         | $J_f^\pi$      | $E_{daughter}(^{232}\text{Th})^\oplus$ | coincident $\gamma$ -rays (keV) <sup>⊕</sup> | $R_0$ (fm)  | HF                                  |
|-------------------|------------------|------------------|--------------------------|----------------|--|--|-------------|-------------------------------------|
| 4.237(2)          | 4.166(2)**       | 0.00027(8)%      | 0.00020(6)% <sup>⊕</sup> | 6 <sup>+</sup> | 0.3335                                 | 171.2(2)                                     | 1.52595(66) | 780 <sup>+340</sup> <sub>-190</sub> |
| 4.409(2)          | 4.334(2)**       | 0.166(7)%        | 0.123(5)% <sup>⊕⊕</sup>  | 4 <sup>+</sup> | 0.1623                                 | 112.8(1)                                     | 1.52595(66) | 32.3(18)                            |
| 4.521(2)          | 4.445(2)**       | 34.61(10)%       | 25.68(5)% <sup>⊕⊕</sup>  | 2 <sup>+</sup> | 0.0495                                 | 49.5(1)                                      | 1.52595(66) | 1.18(4)                             |
| 4.5710(21)        | 4.4935(21)***    | 100%             | 74.20(15)% <sup>⊕⊕</sup> | 0 <sup>+</sup> | 0.0                                    | —  | 1.52595(66) | 0.9675(21)                          |

\* [1972Fl03].

\*\* Value deduced from  $Q_\alpha$  and  $\gamma$  energies from [2002Ge02].

\*\*\* Value taken from [1991Ry01], based on adjusted values from [1960Ko04] (4.888(3) keV adjusted to 4.495(3) keV) and [1961Ko11] (4.888(3) keV adjusted to 4.492(3) keV).

⊕ [2002Ge02].

⊕⊕ [2014Ma14].

**Table 5**direct  $\alpha$  emission from  $^{240}\text{Pu}$ ,  $J^\pi = 0^+$ ,  $T_{1/2} = 6564(11)$  y\*,  $BR_\alpha = 100\%$ .

| $E_\alpha$ (c.m.) | $E_\alpha$ (lab) | $I_\alpha$ (rel)           | $I_\alpha$ (abs)***        | $J_f^\pi$      | $E_{daughter}(^{236}\text{U})^\oplus$ | coincident $\gamma$ -rays (keV) <sup>⊕</sup> | $R_0$ (fm)  | HF                             |
|-------------------|------------------|----------------------------|----------------------------|----------------|---------------------------------------|--|-------------|--------------------------------|
| 4.568(1)          | 4.492(1)         | 4.4(7) $\times 10^{-5}$ %  | 3.2(5) $\times 10^{-5}$ %  | 1 <sup>-</sup> | 0.688                                 | 45.2, 104.2, 538.1                           | 1.51631(11) | 39 <sup>+7</sup> <sub>-5</sub> |
| 4.734(1)          | 4.655(1)         | 2.4(10) $\times 10^{-6}$ % | 1.72(7) $\times 10^{-6}$ % | 8 <sup>+</sup> | 0.522                                 | 45.2, 104.2, 160.3, 212.5                    | 1.51631(11) | 1.29(5) $\times 10^4$          |
| 4.9458(5)         | 4.8634(5)**      | 1.3(1) $\times 10^{-3}$ %  | 9.7(9) $\times 10^{-4}$ %  | 6 <sup>+</sup> | 0.310                                 | 45.2, 104.2, 160.3                           | 1.51631(11) | 720(70)                        |
| 5.1064(5)         | 5.0213(5)**      | 0.117(6)%                  | 0.085(44)%                 | 4 <sup>+</sup> | 0.149                                 | 45.2, 104.2                                  | 1.51631(11) | 97(5)                          |
| 5.21036(25)       | 5.12352(25)**    | 37.43(10)%                 | 27.21(7)%                  | 2 <sup>+</sup> | 0.045                                 | 45.2   | 1.51631(11) | 1.296(4)                       |
| 5.25573(15)       | 5.16813(15)**    | 100%                       | 72.70(7)%                  | 0 <sup>+</sup> | 0.0                                   | —  | 1.51631(11) | 1.0023(20)                     |

\* Value taken from the evaluation of [1984St05].

\*\* Values from [1977Ba69] adjusted by -0.17 keV as recommended in [1991Ry01].

\*\*\* [2010Si30].

⊕ [2022Zh25].

**Table 6**  
direct  $\alpha$  emission from  $^{244}\text{Cm}$ ,  $J^\pi = 0^+$ ,  $T_{1/2} = 18.099(15)$  y\*,  $BR_\alpha = 100\%$ .

| $E_\alpha$ (c.m.) | $E_\alpha$ (lab)         | $I_\alpha$ (rel)          | $I_\alpha$ (abs)***           | $J_f^\pi$ | $E_{daughter}(^{240}\text{Pu})^{@@}$ | coincident $\gamma$ -rays (keV) <sup>@@</sup>                            | $R_0$ (fm)   | HF         |
|-------------------|--------------------------|---------------------------|-------------------------------|-----------|--------------------------------------|--|--------------|------------|
| 5.002             | 4.920**                  | $1.7 \times 10^{-4}\%$    | $1.3 \times 10^{-4}\%$ **     | 2+        | 0.900                                | 42.8, 98.9, 251.7, 303.0,<br>507.2, 554.6, 606.1, 758.6,<br>857.5, 900.4 | 1.498180(88) | 2.2        |
| 5.043             | 4.960**                  | $3.9 \times 10^{-4}\%$    | $3.0 \times 10^{-4}\%$ **     | 0+        | 0.860                                | 42.8, 263.4, 554.6   | 1.498180(88) | 1.8        |
| 5.302             | 5.215**                  | $1.3 \times 10^{-4}\%$    | $1.0 \times 10^{-4}\%$ **     | 1-        | 0.597                                | 42.8, 554.6  | 1.498180(88) | 280        |
| 5.607(3)          | 5.515(3)***              | $4.9(6) \times 10^{-3}\%$ | $3.8(5) \times 10^{-3}\%$ *** | 6+        | 0.294                                | 42.8, 98.9, 152.6  | 1.498180(88) | 480(70)    |
| 5.758(2)          | 5.664(2)***              | 0.026(1)%                 | 0.020(1)% <sup>@</sup>        | 4+        | 0.142                                | 42.8, 98.9   | 1.498180(88) | 654(33)    |
| 5.85820(3)        | 5.76216(3) <sup>@@</sup> | 29.55(8)%                 | 22.80(5)% <sup>@</sup>        | 2+        | 0.0428                               | 42.8   | 1.498180(88) | 1.989(5)   |
| 5.90152(5)        | 5.80477(5) <sup>@@</sup> | 100.0(2)%                 | 77.16(11)% <sup>@</sup>       | 0+        | 0.0                                  | —  | 1.498180(88) | 0.9952(17) |

\* [1968Be26].

\*\* [1966Ba07].

\*\*\* [1998Ga19].

@ [2002Da21].

@@ Value taken from [1971Gr17], modifies by -0.17 keV as recommended in [1991Ry01].

@@ [2008Si25].

**Table 7**  
direct  $\alpha$  emission from  $^{248}\text{Cf}^*$ ,  $J^\pi = 0^+$ ,  $T_{1/2} = 333.5(28)$  d\*\*,  $BR_\alpha = 100\%$ .

| $E_\alpha$ (c.m.) | $E_\alpha$ (lab) | $I_\alpha$ (rel) | $I_\alpha$ (abs)*** | $J_f^\pi$ | $E_{daughter}(^{236}\text{U})^{@}$ | coincident $\gamma$ -rays (keV) <sup>@</sup> | $R_0$ (fm) | HF               |
|-------------------|------------------|------------------|---------------------|-----------|------------------------------------|--|------------|------------------|
| 6.218(7)          | 6.118(7)         | 0.5(3)%          | 0.4(2)%             | 4+        | 0.142                              | 43.0, 99.3                                   | 1.4851(24) | $40^{+40}_{-10}$ |
| 6.319(5)          | 6.217(5)         | 24.5(13)%        | 19.6(10)%           | 2+        | 0.043                              | 43.0   | 1.4851(24) | 2.52(13)         |
| 6.361(5)          | 6.258(5)         | 100%             | 80(1)%              | 0+        | 0.0                                | —  | 1.4851(24) | 1.001(15)        |

\* All values from [1984Ah02], except where noted.

\*\* [1973Hu01].

**Table 8**  
direct  $\alpha$  emission from  $^{252}\text{Fm}$ ,  $J^\pi = 0^+$ ,  $T_{1/2} = 25.39(4)$  h,  $BR_\alpha = 100\%$ .

| $E_\alpha$ (c.m.) | $E_\alpha$ (lab) | $I_\alpha$ (rel) | $I_\alpha$ (abs) | $J_f^\pi$ | $E_{daughter}(^{248}\text{Cf})$ | coincident $\gamma$ -rays (keV) | $R_0$ (fm)  | HF                |
|-------------------|------------------|------------------|------------------|-----------|---------------------------------|---------------------------------|-------------|-------------------|
| 6.868(3)          | 6.759(3)         | 0.027(6)%        | 0.023(5)%        | 6+        | 0.285                           | —                               | 1.46703(81) | $230^{+60}_{-40}$ |
| 7.015(2)          | 6.904(2)         | 1.15(5)%         | 0.97(4)%         | 4+        | 0.137                           | 98.3(1)                         | 1.46703(81) | 23.3(10)          |
| 7.111(2)          | 6.998(2)         | 17.9(3)%         | 15.0(2)%         | 2+        | 0.042                           | 41.5(1)                         | 1.46703(81) | 3.78(9)           |
| 7.153(2)          | 7.039(2)         | 100.0(8)%        | 84.0(5)%         | 0+        | 0.0                             | —                               | 1.46703(81) | 1.003(6)          |

\* All values from [1984Ah02].

**Table 9**  
direct  $\alpha$  emission from  $^{256}\text{No}$ ,  $J^\pi = 0^+$ ,  $T_{1/2} = 2.91(5)$  s\*,  $BR_\alpha = 100\%$ .

| $E_\alpha$ (c.m.) | $E_\alpha$ (lab) | $I_\alpha$ (rel) | $I_\alpha$ (abs)   | $J_f^\pi$ | $E_{daughter}(^{252}\text{Fm})$ | coincident $\gamma$ -rays (keV) | $R_0$ (fm) | HF                     |
|-------------------|------------------|------------------|--------------------|-----------|---------------------------------|---------------------------------|------------|------------------------|
| 8.535(6)          | 8.402(6)**       | $\approx 11\%$   | $\approx 10\%$ *** | 2+        | 0.0421(13)                      | 42.1(13)                        | 1.4762(10) | $6.4^{+0.9}_{-0.7}$    |
| 8.582(6)          | 8.448(6)         | 100%             | $\approx 90\%$ *** | 0+        | 0.0                             | —                               | 1.4762(10) | $0.96^{+0.14}_{-0.11}$ |

\* All values from [1990Ho03], except where noted.

\*\* [2016AsZX] report a fine structure peak in coincidence with a 42.1(13) keV  $\gamma$ .

\*\*\* Estimated by the evaluator based on Fig. 2 of [2016AsZX].

**Table 10**  
direct  $\alpha$  emission from  $^{268}\text{Hs}$ ,  $J^\pi = 0^+$ ,  $T_{1/2} = 0.38^{+1.8} - 0.17$  s,  $BR_\alpha = \text{obs}^*$ .

| $E_\alpha$ (c.m.) | $E_\alpha$ (lab) | $I_\alpha$ (abs) | $J_f^\pi$ | $E_{daughter}(^{264}\text{Sg})$ | coincident $\gamma$ -rays (keV) | $R_0$ (fm) | HF**                |
|-------------------|------------------|------------------|-----------|---------------------------------|---------------------------------|------------|---------------------|
| 9.622(16)         | 9.479(16)        | —                | 0+        | 0.0                             | —                               | 1.458(48)  | $1.0^{+5.0}_{-0.5}$ |

\* All values from [2010Ni14].

\*\* Only  $\alpha$  decay observed. 100% branching is used to calculate HF.

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