Adopted Levels

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev	NDS 177, 509, 2021	4-Jul-2021

S(n)=8445 *18*; S(p)=1789 *11*; Q(α)=7736 *6* 2021Wa16

1996Le09: Isotope produced in ^{175}Lu(^{35}Cl,7n) reaction. E(^{35}Cl)=191-208 MeV. Maximum yield was observed at E(^{35}Cl)=199 MeV. Pulsed beam with a repetition rate of 25 hz and a duty factor of 25%. A typical beam intensity of (4-6)*10^{11} particles/s. Target: natural Lu with a thickness of 320 μg/cm^2; Detectors: gas-filled recoil mass separator, position sensitive silicon detector. A typical energy resolution of 30-35 keV (FWHM). Measured: Eα, $T_{1/2}$, Eα-Eα correlations.

2005Uu02: Isotope produced in ^{141}Pr(^{65}Cu,3n) and ^{170}Yb(^{36}Ar,3n) reactions. E(^{65}Cu)=283-293 MeV and E(^{36}Ar)=160-185 MeV. Typical beam intensities of 10-50 pnA (^{65}Cu) and 30-60 pnA (^{36}Ar). Targets: rolled praseodymium with thickness of about 1 mg/cm^2 and enriched to 70% in ^{170}Yb metallic target with thickness of about 0.5 mg/cm^2; Detectors: gas-filled recoil mass separator, two multi-wire proportional counters, position sensitive silicon detector (300 um thick). A typical energy resolution of 30 keV (FWHM) at Eα=7000 keV. Measured: Eα, $T_{1/2}$, Eα-Eα correlations.

2014Ka23: Isotope produced in ^{149}Sm(^{56}Fe,2n) reaction at GSI. E(^{56}Fe)=244-275 MeV. Target=370 μg/cm^2 thick, enriched to 96.9% in ^{149}Sm, and backed with 40 μg/cm^2 thick carbon layer and covered with a 10 μg/cm^2 layer of carbon. Evaporation residues were separated using the SHIP (GSI) separator. Detectors: 16-strip position sensitive Si detectors (PSSD), six Si strip detectors to detect escaping α particles, and three time-of-flight detectors in front of PSSDs. Measured: Eα, $T_{1/2}$, Eα-Eα correlations.

^{203}Ra Levels

E(level)	J$^\pi$	$T_{1/2}$[†]	Comments
0	3/2$^-$	31 ms *+17−9*	%α≈100 J$^\pi$: Favored α decay to ^{199}Rn (J^π=3/2$^-$,2021Ko07), subsequent favored α decay to ^{195}Po (J^π=3/2$^-$,2014Se07,2017Al34), subsequent favored α decay to ^{191}Pb (J^π=3/2$^-$,2021Ko07) and subsequent favored α decay to ^{187}Hg (J^π=3/2$^-$,1971Bo31). $T_{1/2}$: Others: 1.0 ms *+50−5* (1996Le09) 50 ms *+40−15* (2014Ka23). 2005Uu02: Eα1=7589 keV *8* correlated with Eα2=6989 keV *6*, $T_{1/2}$=1.1 s *+9−4* (^{199}Rn) and Eα3=6617 keV *6*, $T_{1/2}$=3.9 s *+3.2−1.2* (^{195}Po); 1996Le09: Eα1=7577 keV *20*, correlated with Eα2=6969 keV *15*, $T_{1/2}$=1.5 s (^{199}Rn) and Eα3=6614 keV *14*, $T_{1/2}$=2.2 s (^{195}Po). 2014Ka23: Eα1=7575 keV *10*, correlated with Eα2=6978 keV *10*, $T_{1/2}$=340 ms *+280−100* (^{199}Rn). configuration: $\nu(p^{-1}_{3/2})$.
246 *14*	13/2$^+$	24 ms *+6−4*	%α≈100 E(level): From 2021Ko07. J$^\pi$: Favored α decay to ^{199m}Rn (J^π=13/2$^+$,2021Ko07), subsequent favored α decay to ^{195m}Po (J^π=13/2$^+$,2014Se07,2017Al34) and subsequent favored α decay to ^{191m}Pb (J^π=13/2$^+$,1991Du07). $T_{1/2}$: Others: 33 ms *+22−10* (1996Le09) and 37 ms *+37−12* (2014Ka23). 2005Uu02: Eα1=7612 keV *8*, correlated with Eα2=7060 keV *6*, $T_{1/2}$=260 ms *+80−50* (^{199}Rn) and Eα3=6700 keV *6*, $T_{1/2}$=2.8 s *+10−6* (^{195}Po). 1996Le09: Eα1=7615 keV *20*, correlated with Eα2=7060 keV *15*, $T_{1/2}$=0.9 s *+9−3* (^{199}Rn) and Eα3=6712 keV *10*, $T_{1/2}$=1.0 s *+9−3* (^{195}Po). 2014Ka23: Eα1=7607 keV *8*, correlated with Eα2=7050 keV *10*, $T_{1/2}$=120 ms *+120−40* (^{199m}Rn). configuration: $\nu(i^{-1}_{13/2})$.

[†] From Eα(t) in 2005Uu02.