Adopted Levels

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh, M. S. Basunia, Jun Chen et al. ,	NDS 192,315 (2023)	25-Sep-2023

Q(β^-)=1530 *40*; S(n)=5360 *40*; S(p)=9000 *syst*; Q(α)=4430 *syst* 2021Wa16
Estimated uncertainties (2021Wa16): 300 for S(p) and Q(α).
S(2n)=8920 *40*, S(2p)=16220 *400* (syst) (2021Wa16).
2010Ch19, 2012Ch19 (also 2008ChZI thesis): ^{222}Po produced and identified in ^{9}Be(^{238}U,X), E=670 MeV/nucleon fragmentation reaction, followed by separation of fragments using the Fragment Recoil Separator at GSI facility. Measured mass excess and half-life of ^{222}Po decay by time-resolved Schottky Mass spectrometry technique.
2010Al24: measurements of isotopic cross-section at GSI using ^{9}Be(^{238}U,X),E=1 GeV/nucleon reaction.
Theoretical structure calculations:
2022El03: calculated potential energy surface, binding energy, triaxial shape evolution of even-even polonium isotopic chain using Relativistic Hartree-Bogoliubov (RHB) mean-field model, and a Covariant Density Functional Theory (CDFT).
2018Li28: calculated binding energy, charge rms radius, charge form factor, the slope parameter of symmetry energy using the modified Skyrme-like and the local density approximation models.
2017Se19: calculated difference between the proton or neutron skin thickness, Q(α) using Hartree-Fock-Bogoliubov (HFB) method based on the Skyrme-like effective interactions.
2016Ag06: calculated equilibrium deformation parameters β_2 and β_3, and potential energy surface for the ground state using CEDF DD-PC1 theory within the relativistic Hartree-Bogoliubov approach.
2012Zh46: calculated binding energy, rotational correction energies, β_2 using covariant density functional theory with the point-coupling interaction PC-PK1.
Theoretical calculations for decay characteristics:
2022Ya09: calculated half-life of ^{222}Po α decay using Gamow-like model (GLM), Coulomb and proximity potential model (CPPM) including temperature-dependent proximity potential.
2018Sa08: calculated Q-value and $T_{1/2}$ for normal and hypernucleus.

^{222}Po Levels

E(level)	J^π	$T_{1/2}$	Comments
0	0^+	2 min *+12−1*	%β^-=100 Theoretical β-decay half-life of 36 s and 10^{12} s for α decay in 2019Mo01 suggest dominant β decay mode, based on which 100 β^- decay is assigned by inference, although no decay mode has yet been observed experimentally. $T_{1/2}$: 145 s *+694−66* or 2.4 min *+116−11* (2010Ch19, time-resolved Schottky Mass spectrometry) for bare $^{222}Po^{84+}$ ion. Measured mass excess=22486 keV *40* (2012Ch19).