Adopted Levels

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. J. Chiara and F. G. Kondev	NDS 111,141 (2010)	1-Oct-2009

Q(β^-)=4.04×10^3 *syst*; S(n)=5.58×10^3 *syst*; S(p)=8.3×10^3 *syst*; Q(α)=−1.5×10^3 *syst* 2012Wa38
Note: Current evaluation has used the following Q record 3940 syst 5678 syst 2003Au03.
ΔQ(β^-),ΔS(n) uncertainty is 200 keV on each from syst.

1984Cr01: ^{204}Au produced via ^{204}Hg(n,p) reaction, E(n)=14 MeV; 32-g natural Hg target; delayed γ's following ^{204}Au β^- decay to ^{204}Hg were measured in singles with a Ge detector, and in coin using Ge(Li) and Ge detectors. γ(t) was also measured.

1972Pa06: ^{204}Au produced via ^{204}Hg(n,p) reaction, E(n)=14-15 MeV; 1-10-g natural Hg target; delayed γ's following ^{204}Au β^- decay to ^{204}Hg were measured in singles with a Ge(Li) detector and in coin using NaI(Tl) and Ge(Li) detectors. γ(t) was also measured. β^- spectrum measured with plastic scintillator.

2009Mo17: ^{204}Au produced by bombarding a 2.5-g/cm^2 ^{9}Be target with E(^{208}Pb)=1 GeV/A beam; GSI Fragment Separator; A/Q measured using magnetic rigidity and ToF; two multi sampling ionization chambers for ΔE; fragments were implanted on an active stopper consisting of three DSSD's each with 16 horizontal and vertical strips. An array of 15 HPGe cluster detectors with 15% total efficiency at 662 keV surrounded the active stopper; measured Eγ, $\gamma\gamma$ coin and γ(t).

^{204}Au Levels

Cross Reference (XREF) Flags

A ^{204}Pt β^- decay
B ^{9}Be(^{208}Pb,Xγ)

E(level)	J$^\pi$	T$_{1/2}$	XREF	Comments
0	(2$^-$)	39.8 s *9*	AB	%β^-=100 J$^\pi$: ^{204}Au β^- decay feedings to the 1947.7-keV (J^π=2$^+$) and 2812.8-keV (J^π=3$^-$) levels in ^{204}Hg favor J=2,3. The negligible β^- decay branch to the 1128.2-keV (J^π=4$^+$) level suggest J=2. Ground-state J^π of neighboring ^{203}Au (3/2$^+$) and ^{203}Pt (tentative 1/2$^-$) nuclei support J^π=2$^-$. Configuration=((π d$_{3/2}$)$^{-1}$(ν p$_{1/2}$)$^{-1}$), based on shell model predictions in 1984Cr01 and 1972Pa06. The Nordheim rule (1950No10) favors J^π=2$^-$ assignment. T$_{1/2}$: From 436.6γ(t), 691.7γ(t), and 723.0γ(t) in 1984Cr01. This value agrees with earlier result of 40 s *3* from measurement of several intense γ's by 1972Pa06. A value of T$_{1/2}$=4.0 s 10 and β^- branch with endpoint energy of E(β^-)=4500 keV *300* was reported in 1967Wa23, but this T$_{1/2}$ was not corroborated by 1972Pa06 or 1984Cr01.
976.6+x		2.1 μs *3*	B	E(level): 839.0γ and 976.6γ were assigned firmly to ^{204}Au in 2008StZY. They follow decay of an isomer with the same lifetime. Thus, the excitation energy of this state is larger than 976.6 keV. T$_{1/2}$: From 839γ(t) and 977γ(t).