^{94}Ag 2p decay 2006Mu03

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 113, 2187 (2012)	15-Sep-2012

Parent: ^{94}Ag: E=6.4×10^3 *5*; J$^\pi$=(21$^+$); T$_{1/2}$=0.39 s *4*; Q(2p)=3.99×10^3 *SY*; %2p decay=5×10^1 *3*

^{94}Ag-Q from 2011AuZZ; uncertainty is 640 keV. 2008Ka30 estimated 4910 *360*.

^{94}Ag-E: Poorly established. E=6.4 MeV *5* from E(p)=790 *20* to ^{93}Pd(4996), E(p)=1010 *30* to ^{93}Pd(4753) and S(p)(^{94}Ag)=570 *500* (2011AuZZ; systematics). 2008Ka30 measured mass excesses for ^{92}Rh and ^{94}Pd and deduced Q+ for ^{94}Ag(g.s.) ε decay based on extrapolation of Coulomb displacement energies for nearby N=Z nuclides; combining the implied ^{94}Ag S(2p)=4910 *360* with 2006Mu03's observed E(2p)=1900 *100* to ^{92}Rh(1549 level), they deduce E(^{94}Ag isomer)=8360 *370* (At variance with 6960 *400* which they obtained from their mass data and single-proton decay E(p) to ^{93}Pd). see 2007Pe14, 2008Ka30, 2008Ka19, 2011Fa10 for further discussion of this issue. 2008Ka30's estimated S(2p)=4910 *360* is compatible with S(2p)(^{94}Ag)=3990 *640* from systematics proposed In 2011AuZZ. a mass measurement for the g.s. of ^{93}Pd or ^{94}Ag could Be especially beneficial (2011Fa10).

Others: 2006Ro08, 2007Pe14, 2007Ro16, 2008Ka30, 2008Mu20, 2009Ce04, 2009Je05, 2011Fa10.

2006Mu03: ^{94}Ag source produced in ^{58}Ni(^{40}Ca,p3n) reaction and subsequently ionized in the FEBIAD-E or FEBIAD-B2C ion source; reaction products mass-separated; detector array of three large-area Si multistrip detectors and 17 Ge crystals (total photopeak efficiency 3.2% at 1.33 MeV); measured Eγ, E(2p), p-p correlations, p-p-γ-γ coin. See also 2005Mu30, 2006Ro08, 2007Ro16, 2008Mu20.

2009Ce04: ^{94}Ag source produced from bombardment of natural Ni target by a 197-MeV ^{40}Ca beam; reaction products recoil In He plus ethylene glycol, are deposited within 0.20 s *5* on slowly rotating catcher wheel to remove long-lived β emitters, and collection spot viewed in low background area by an array of 24 ΔE1(gas)-ΔE2(gas)-E(Si) detector telescopes which can identify protons with E>400 keV; measured E(p), P-P coin. search for 2p decay unsuccessful, but one of the two known single-proton decay groups from ^{94}Ag(21$^+$) to ^{93}Pd was confirmed.

Although correlated protons with a summed energy of 1900 *100* appear to deexcite the ^{94}Ag(21$^+$) isomer and appear In coincidence with 5 γ-rays known In ^{92}Rh, these observations have generated considerable discussion and it would seem highly desirable to obtain independent confirmation of this decay to clear up remaining questions. So far, one confirmation attempt has been unsuccessful (2009Ce04). IT is disconcerting that E(^{94}Ag isomer) estimates (2008Ka30) differ depending on whether its one-proton or its two-proton decay data are used. shell-model calculations (2008Ka19) for ^{94}Ag can explain a 21$^+$ isomer As due to an inversion of 19$^+$ and 21$^+$ states resulting from core excitations across the N=Z=50 shell gap, but do not support the large prolate deformation picture of the isomer proposed by 2006Mu03. Also, the sensitivity of the proton detector to other charged particles (e.g., electrons) might create data interpretation difficulties (2009Je05). A mass measurement for the g.s. of ^{93}Pd or ^{94}Ag would be especially useful (2011Fa10).

^{92}Rh Levels

E(level)[†]	J$^\pi$[‡]
0	(6$^+$)
235	(8$^+$)
599	(9$^+$)
1271	(10$^+$)
1549[#]	(11$^+$)

[†] From Eγ.

[‡] From Adopted Levels.

[#] In Adopted Levels, a stronger 949γ deexcites the same level As the 278γ, but No 949γ is evident In the γ spectrum from 2006Mu03.

^{94}Ag 2p decay 2006Mu03 (continued)

$\gamma(^{92}Rh)$

E_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Comments
235	235	(8^+)	0	(6^+)	
278	1549	(11^+)	1271	(10^+)	
^{x}307					In Adopted Levels, Gammas a 306γ deexcites a (20^-) 6691 level. unless the adopted 306γ is misplaced, it presumably differs from the 307γ reported by 2006Mu03 because the adopted cascade gammas that immediately follow the 306γ were not observed by 2006Mu03.
364	599	(9^+)	235	(8^+)	
^{x}565[‡]					
672	1271	(10^+)	599	(9^+)	
^{x}833[‡]					
1036	1271	(10^+)	235	(8^+)	

[†] From γ spectrum in fig. 1d of 2006Mu03; uncertainties unstated by 2006Mu03.

[‡] Absent In (^{58}Ni,αpnγ) study by 2007Pe14. see 2007Pe14 for discussion of three possible scenarios for placing the 565γ and 833γ, none of which is considered by those authors to be satisfactory. These γ-rays are clearly visible In the p-$\gamma(^{92}Rh)$ coincidence spectrum In fig. 1d of 2006Mu03, but known ^{94}Pd and ^{93}Rh γ-rays are also present In that spectrum; it seems desirable to obtain confirmation that these are indeed ^{92}Rh transitions.

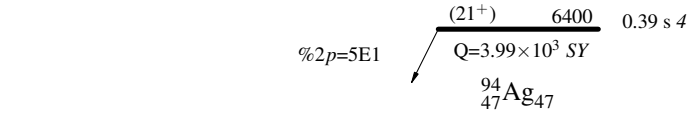
[x] γ ray not placed in level scheme.

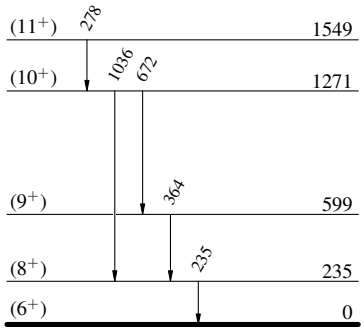
Delayed Protons (^{92}Rh)

E(p)	E(^{92}Rh)	Comments
1.9×10^3 *1*		E(p): summed energy of correlated protons emitted (2006Mu03).

^{94}Ag 2p decay 2006Mu03

Decay Scheme





$^{92}_{45}Rh_{47}$