^{95}Pd ε decay (13.3 s) 1982No06,1982Ku15

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	S. K. Basu, G. Mukherjee, A. A. Sonzogni	NDS 111, 2555 (2010)	30-Jun-2009

Parent: ^{95}Pd: E=1875.3 *4*; J^π=(21/2$^+$); $T_{1/2}$=13.3 s *3*; Q(ε)=8189 *SY*; %ε+%β^+ decay=89 *3*

1982Ku15: ^{58}Ni(^{40}Ca,n2p) E=4 MeV/A; measured $T_{1/2}$, Eγ, Iγ, β^-delayed E(p), ip, $\beta\gamma$-, P(x-ray)-coin.

All data are from 1982Ku15, except as noted. The decay scheme is from 1982Ku15 and is an extension of that proposed by 1982No06.

Published data on the ^{95}Pd(g.s.) $\varepsilon+\beta^+$ Decay is not available, only data on the decay of the ^{95}Pd isomer is found.

α: Additional information 1.

^{95}Rh Levels

E(level)†	J^π‡	$T_{1/2}$‡	Comments
0.0	9/2$^+$	5.02 min *10*	
1351.07 *12*	(13/2$^+$)		$I_{\varepsilon+\beta+}$≈20% from the intensity balance. However, this value is much larger than the systematic values for ΔJ=4 and no parity change (4th forbidden non-unique). Such transitions typically have log *ft*>20 (1973Ra10) which translates into $I_{\varepsilon+\beta+}<1\times10^{-13}$. The reason for this is a large number of unplaced gamma rays.
2067.62 *15*	(17/2$^+$)		
2236.42 *18*	(17/2$^-$)		
2264.32 *15*	(17/2$^+$)		$I_{\varepsilon+\beta+}$=5.7% *7* from the intensity balance. However, this value is much larger than systematic values for ΔJ=2 and no parity change (2nd forbidden non-unique). Such transitions typically have log *ft*>11 (1973Ra10) which translates into $I_{\varepsilon+\beta+}<1\times10^{-4}$. The reason for this is a large number of unplaced gamma rays.
2449.37 *16*	(21/2$^+$)		
2973.38 *19*	(21/2$^+$,23/2$^+$)		
3095.98 *22*			
3129.68 *19*			
3241.5 *3*	(21/2$^-$)		
3837.3 *3*			
4135.2 *5*			
4163.4 *5*			

† From least-squares fit to Eγ's.

‡ From the Adopted Levels, except as noted.

ε,β^+ radiations

E(decay)	E(level)	Iβ^+ ‡	Iε‡	Log *ft*†	I($\varepsilon+\beta^+$)†‡	Comments
(5900 *SY*)	4163.4	0.44 *14*	0.014 *6*	6.82 *23*	0.40 *14*	av Eβ=2.25×10^3; εK=0.027 *9*; εL=0.0033 *10*
(5929 *SY*)	4135.2	2.42 *20*	0.077 *24*	6.09 *19*	2.47 *23*	av Eβ=2.27×10^3; εK=0.027 *8*; εL=0.0033 *10*
(6227 *SY*)	3837.3	5.9 *3*	0.16 *5*	5.82 *18*	6.0 *4*	av Eβ=2.41×10^3; εK=0.023 *7*; εL=0.0028 *8*
(6822 *SY*)	3241.5	3.74 *20*	0.073 *18*	6.23 *16*	3.8 *3*	av Eβ=2.70×10^3; εK=0.017 *4*; εL=0.0020 *5*
(6934 *SY*)	3129.68	7.95 *20*	0.15 *4*	5.95 *15*	8.0 *5*	av Eβ=2.75×10^3; εK=0.016 *4*; εL=0.0019 *5*
(6968 *SY*)	3095.98	3.10 *21*	0.056 *14*	6.37 *16*	3.1 *3*	av Eβ=2.77×10^3; εK=0.015 *4*; εL=0.0019 *5*
(7090 *SY*)	2973.38	10.4 *3*	0.18 *4*	5.88 *15*	10.5 *6*	av Eβ=2.83×10^3; εK=0.015 *4*; εL=0.0018 *5*
(7614 *SY*)	2449.37	36.9 *15*	0.49 *11*	5.50 *14*	37 *3*	av Eβ=3.08×10^3; εK=0.0114 *25*; εL=0.0014 *3*

† Approximate values due to the large number of unplaced gammas.

‡ For absolute intensity per 100 decays, multiply by 0.89 *3*.

^{95}Pd ε decay (13.3 s) 1982No06,1982Ku15 (continued)

γ(^{95}Rh)

Iγ normalization: From ΣIγ(to g.s.)=88, since %ε+%$β^+$ =89 *3* and %εp=0.93 *15* in ^{95}Pd.

E_γ	I_γ[#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[†]	α	Comments
168.8[‡] *1*	12.4 *9*	2236.42	(17/2$^-$)	2067.62	(17/2$^+$)	(E1)	0.0325	α(K)=0.0284 *4*; α(L)=0.00333 *5*; α(M)=0.000615 *9*; α(N)=0.0001008 *15*; α(O)=4.72×10^{-6} *7* α(N+..)=0.0001055 *15*
185.0 *1*	6.2 *2*	2449.37	(21/2$^+$)	2264.32	(17/2$^+$)	(E2)	0.1496	α(K)=0.1254 *18*; α(L)=0.0199 *3*; α(M)=0.00374 *6*; α(N)=0.000593 *9*; α(O)=2.00×10^{-5} *3* α(N+..)=0.000613 *9*
x347.6 *1*	1.10 *4*							
381.8 *1*	48.3 *14*	2449.37	(21/2$^+$)	2067.62	(17/2$^+$)	(E2)	0.01286	α(K)=0.01110 *16*; α(L)=0.001448 *21*; α(M)=0.000270 *4*; α(N)=4.39×10^{-5} *7*; α(O)=1.91×10^{-6} *3* α(N+..)=4.59×10^{-5} *7*
524.0 *1*	10.6 *3*	2973.38	(21/2$^+$,23/2$^+$)	2449.37	(21/2$^+$)			
x640.6 *3*	0.47 *11*							
680.3 *1*	8.1 *2*	3129.68		2449.37	(21/2$^+$)			
716.6 *1*	67.1 *2*	2067.62	(17/2$^+$)	1351.07	(13/2$^+$)			
x731.9 *3*	0.59 *12*							
x788.2 *1*	1.26 *13*							
x794.7 *3*	0.32 *12*							
x839.8 *3*	0.31 *2*							
859.9 *3*	0.44 *13*	3095.98		2236.42	(17/2$^-$)			
913.2 *1*	12.9 *4*	2264.32	(17/2$^+$)	1351.07	(13/2$^+$)			
x935.7 *3*	0.52 *13*							
x957.1 *2*	1.21 *15*							
1005.1 *2*	3.81 *20*	3241.5	(21/2$^-$)	2236.42	(17/2$^-$)			
1028.2 *2*	2.72 *16*	3095.98		2067.62	(17/2$^+$)			
x1111.0 *2*	1.37 *18*							
x1144.3 *3*	1.00 *18*							
x1213.0 *4*	0.44 *16*							
x1240.8 *5*	0.77 *16*							
x1275.1 *3*	2.45 *18*							
1351.06[‡] *12*	100 *3*	1351.07	(13/2$^+$)	0.0	9/2$^+$			
x1363.5 *5*	0.52 *15*							
x1408.0 *5*	0.64 *15*							
x1424.8 *3*	2.50 *20*							
x1443.8 *5*	0.60 *15*							
1600.6 *3*	5.18 *22*	3837.3		2236.42	(17/2$^-$)			
x1745.9 *5*	0.40 *15*							
x1764.5 *5*	0.64 *15*							
1770.5 *5*	0.88 *16*	3837.3		2067.62	(17/2$^+$)			
x1793.2 *5*	1.22 *16*							
1898.8 *5*	2.50 *20*	4135.2		2236.42	(17/2$^-$)			
1927.0 *5*	0.40 *14*	4163.4		2236.42	(17/2$^-$)			

[†] From the adopted gammas.

[‡] Unweighted average of 168.8 *1* (1982Ku15) and 169.0 *3* (1982No06) and 1351.1 *1* (1982Ku15) and 1350.7 *3* (1982No06),

Continued on next page (footnotes at end of table)

^{95}Pd ε decay (13.3 s) 1982No06,1982Ku15 (continued)

γ(^{95}Rh) (continued)

respectively.

[#] For absolute intensity per 100 decays, multiply by 0.88 *3*.

[x] γ ray not placed in level scheme.

^{95}Pd ε decay (13.3 s) 1982No06,1982Ku15

Decay Scheme

Intensities: $I_{(\gamma+ce)}$ per 100 parent decays