^{118}Rh β^- decay (286 ms) 2006Wa10,2000Jo18

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	14-Jan-2022

Parent: ^{118}Rh: E=0; $T_{1/2}$=286 ms *10*; Q(β^-)=10502 *24*; %β^- decay=100.0

^{118}Rh-E: Most likely a mixture of two activities.

^{118}Rh-$T_{1/2}$: From ^{118}Rh Adopted Levels.

^{118}Rh-Q(β^-): From 2021Wa16.

^{118}Rh-%β^- decay: %β^-n=2.1 *9* (2021Ha19).

Most likely the decays of two activities of ^{118}Rh are involved: a low-spin g.s. and a high-spin isomer, as for the other odd-odd Rh isotopes.

2006Wa10: Measured Eγ, Iγ, $\gamma\gamma$-coin, $\beta\gamma$-coin.

2000Jo18: from the same group as 2006Wa10. Measured Eγ, Iγ, $\gamma\gamma$-coin, $\beta\gamma$-coin, half-life of decay of ^{118}Rh.

2006Wa10 and 2000Jo18 are from the same experimental group and laboratory (University of Jyvaskyla).

The decay scheme is incomplete, thus γ-ray intensities cannot be normalized to per 100 decays, consequently no β feedings or log *ft* can be deduced.

^{118}Pd Levels

E(level)[†]	J$^\pi$[‡]	Comments
0.0[#]	0^+	
378.6[#] *1*	(2^+)	J$^\pi$: 2^+ (2006Wa10).
812.6[@] *1*	(2^+)	J$^\pi$: 2^+ (2006Wa10).
953.2[#] *2*	(4^+)	
1020.3 *5*	(0^+)	
1182.6[@] *2*	(3^+)	J$^\pi$: 3^+ (2006Wa10).
1461.6[@] *3*	(4^+)	
1671.4[#] *2*	(6^+)	J$^\pi$: 6^+ (2006Wa10).
1824.0 *4*		J$^\pi$: 2006Wa10 suggest this level as possible 5^+ member of γ band, but according to 2006StZW and 2003WuZZ, the 5^+ member is most likely the 1856 level decaying by a 672.9γ.
1871.1 *4*	(4^-)	
1989.7 *2*	(5^-)	J$^\pi$: (4) (2000Jo18).
2542.7 *4*	(6^-)	

[†] From least-squares fit to Eγ data.

[‡] From the Adopted Levels, based on assignments by 2006Wa10, from comparison with level structures of ^{114}Pd and ^{116}Pd.

[#] Band(A): g.s. Band.

[@] Band(B): γ band.

γ(^{118}Pd)

$\gamma\gamma$-coin information is from 2000Jo18.

E$_\gamma$[†]	I$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Comments
370.0 *2*	3.6 *4*	1182.6	(3^+)	812.6	(2^+)	Additional information 1.
378.6 *1*	100	378.6	(2^+)	0.0	0^+	Eγ=379.0 *1*, Iγ=100 (2000Jo18).
434.0 *1*	10.0 *4*	812.6	(2^+)	378.6	(2^+)	Eγ=433.6 *1*, Iγ=15 *2* (2000Jo18).
508.5 *5*		1461.6	(4^+)	953.2	(4^+)	
528.0 *5*		1989.7	(5^-)	1461.6	(4^+)	
553.0 *5*		2542.7	(6^-)	1989.7	(5^-)	

Continued on next page (footnotes at end of table)

^{118}Rh β^- decay (286 ms) 2006Wa10,2000Jo18 (continued)

$\gamma(^{118}Pd)$ (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π	Comments
574.6 *1*	21.4 *12*	953.2	(4^+)	378.6	(2^+)	Eγ=574.6 *1*, Iγ=42 *5* (2000Jo18).
641.7 *4*	1.3 *4*	1020.3	(0^+)	378.6	(2^+)	
649.0 *3*	1.8 *3*	1461.6	(4^+)	812.6	(2^+)	
671.5 *4*		2542.7	(6^-)	1871.1	(4^-)	Eγ=617.5 in Fig. 2 of 2006Wa10 is a misprint.
688.5 *4*		1871.1	(4^-)	1182.6	(3^+)	
718.2 *1*	13.0 *9*	1671.4	(6^+)	953.2	(4^+)	Eγ=717.5 *2*, Iγ=18 *3* (2000Jo18).
804.0 *1*	3.2 *4*	1182.6	(3^+)	378.6	(2^+)	Eγ803.6 *2*, Iγ=12 *2* (2000Jo18).
812.5 *4*		812.6	(2^+)	0.0	0^+	Iγ(812.5)/Iγ(434.0)=0.6 *2*. Eγ=812.6 *2*, Iγ=9 *3* (2000Jo18).
870.8 *3*	2.1 *3*	1824.0		953.2	(4^+)	
1036.5 *1*	11.4 *9*	1989.7	(5^-)	953.2	(4^+)	Eγ=1036.5 *2*, Iγ=6 *3* (2000Jo18).

[†] From 2006Wa10.

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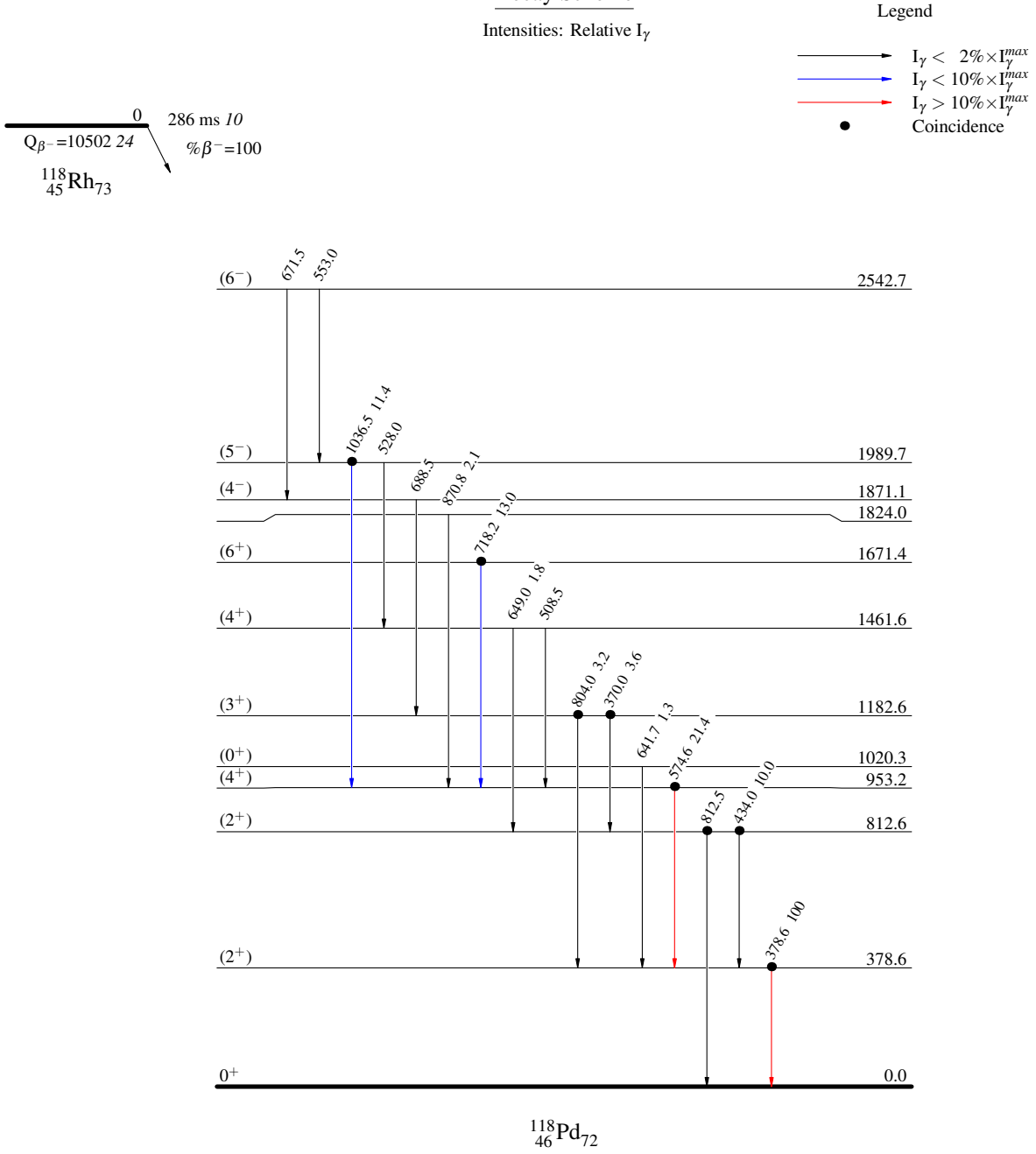
Decay Scheme

Intensities: Relative I_γ



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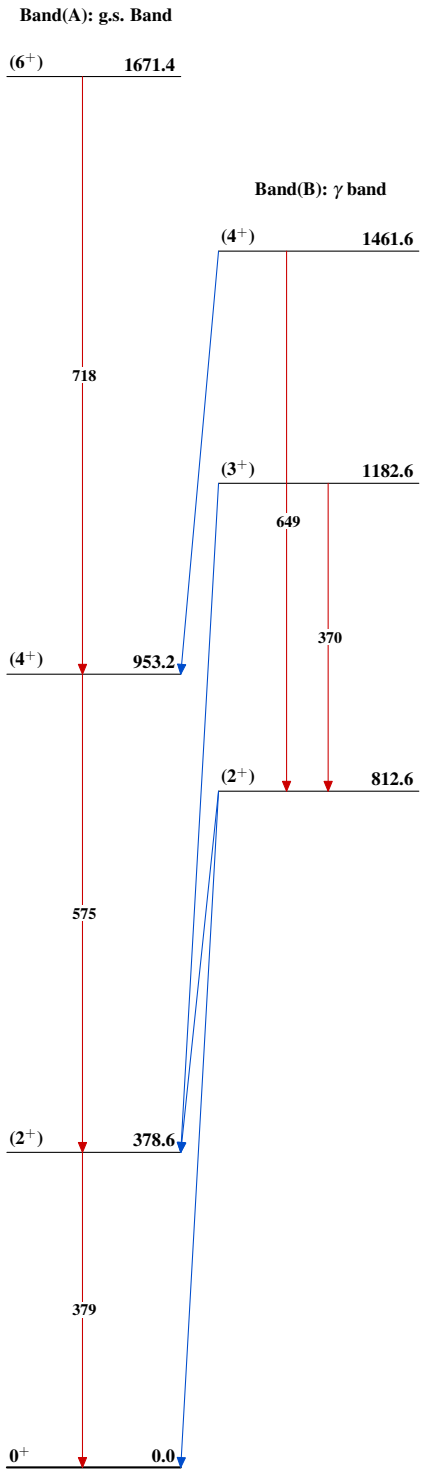

$^{118}_{46}Pd_{72}$