

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 113,515 (2012)	1-Jan-2012

$Q(\beta^-)=7.78\times 10^3$ 8; $S(n)=5.02\times 10^3$ 8; $S(p)=1.113\times 10^4$ 8; $Q(\alpha)=-7.11\times 10^3$ 8 [2012Wa38](#)

Note: Current evaluation has used the following Q record $7.86\text{E}+3$ 7 5.02×10^3 7 11130 80-7110 70 [2011AuZZ](#).

The nucleus was first identified from spontaneous fission of ^{252}Cf . A and Z assignments are based on K x-ray and conversion electrons ([1970WiZN](#)). Now identified after mass separation ([1988Ay02](#)).

 ^{114}Rh LevelsCross Reference (XREF) Flags

A ^{114}Ru β^- decay
B ^{252}Cf SF decay

E(level) [‡]	J ^π [†]	T _{1/2}	XREF	Comments
0.0	1 ⁺	1.85 s 5	A	$\% \beta^- = 100$ J ^π : $\log ft=4.1$ from 0 ⁺ . E(level): Assumed to be g.s. on basis of mass syst (1997Au04). T _{1/2} : from 1988Ay02 . Others 1.68 s 7 (1970WiZN), 1.86 s 5 (2003Lh01) 2003Lh01 say that the half-life of the low spin could be shorter.
127.0 2	(2) ⁺		A	J ^π : M1+E2 to 1 ⁺ , J=1 is unlikely due to very weak or no β feeding from 0 ⁺ .
179.4 3	1 ⁺		A	J ^π : $\log ft=4.4$ from 0 ⁺ .
255.2 4	1 ⁺		A	J ^π : $\log ft=4.8$ +3-2 from 0 ⁺ for Q=4800 200 and I β =14%; however, the large Q and probable incomplete level scheme suggests that this branch may be an upper limit.
267.0 4	1 ⁺		A	J ^π : M1(+E2) γ to 1 ⁺ . $\log ft=5.1$ from 0 ⁺ .
0.0+x?# 3	(7 ⁻)	1.85 s 5	B	Additional information 1 . T _{1/2} : From 1988Ay02 for a level with J=(4,5), 1.86 s 5(2003Lh01) It is the same group.
211.1+x@ 8	(8 ⁻)		B	
407.0+x# 8	(9 ⁻)		B	
489.2+x& 13	(9 ⁻)		B	
671.1+x@ 10	(10 ⁻)		B	
813.7+x& 15	(10 ⁻)		B	
968.6+x# 11	(11 ⁻)		B	
1246.0+x& 15	(11 ⁻)		B	
1285.6+x@ 12	(12 ⁻)		B	
1309.0+x 18			B	
1564.2+x& 17	(12 ⁻)		B	
1706.5+x# 13	(13 ⁻)		B	
2020.3+x@ 16	(14 ⁻)		B	

[†] J without comments are from band assignments.

[‡] From least-squares fit to E γ 's.

Band(A): $\pi g_{9/2} \otimes \nu h_{11/2}, \alpha=1$.

@ Band(a): $\pi g_{9/2} \otimes \nu h_{11/2}, \alpha=0$.

& Band(B): Side-band. Feeding the yrast 8⁻ state.

Adopted Levels, Gammas (continued)

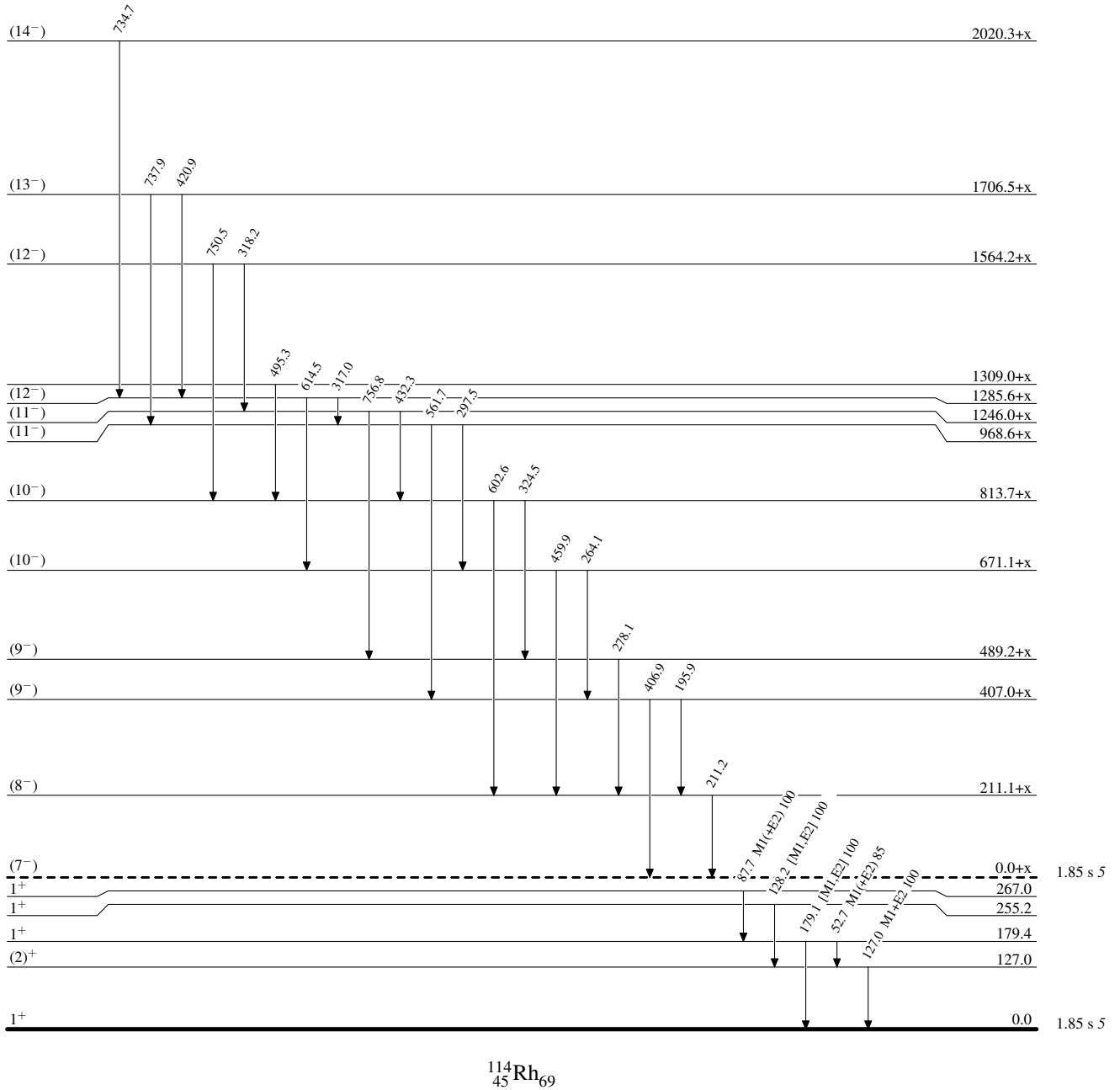
$\gamma(^{114}\text{Rh})$								
$E_i(\text{level})$	J_i^π	$E_\gamma^\dagger$	$I_\gamma^\dagger$	E_f	J_f^π	Mult.	δ	$\alpha^\ddagger$
127.0	(2) ⁺	127.0 2	100	0.0	1 ⁺	M1+E2	0.78 4	0.33 1
179.4	1 ⁺	52.7 3	85	127.0	(2) ⁺	M1(+E2)	≤0.27	2.5 4
		179.1 3	100	0.0	1 ⁺	[M1,E2]		0.12 5
255.2	1 ⁺	128.2 3	100	127.0	(2) ⁺	[M1,E2]		0.36 19
267.0	1 ⁺	87.7 3	100	179.4	1 ⁺	M1(+E2)	≤0.27	0.55 5
211.1+x	(8 ⁻)	211.2 3		0.0+x?	(7 ⁻)			
407.0+x	(9 ⁻)	195.9 3		211.1+x	(8 ⁻)			
		406.9 3		0.0+x?	(7 ⁻)			
489.2+x	(9 ⁻)	278.1 3		211.1+x	(8 ⁻)			
671.1+x	(10 ⁻)	264.1 3		407.0+x	(9 ⁻)			
		459.9 3		211.1+x	(8 ⁻)			
813.7+x	(10 ⁻)	324.5 3		489.2+x	(9 ⁻)			
		602.6 3		211.1+x	(8 ⁻)			
968.6+x	(11 ⁻)	297.5 3		671.1+x	(10 ⁻)			
		561.7 3		407.0+x	(9 ⁻)			
1246.0+x	(11 ⁻)	432.3 3		813.7+x	(10 ⁻)			
		756.8 3		489.2+x	(9 ⁻)			
1285.6+x	(12 ⁻)	317.0 3		968.6+x	(11 ⁻)			
		614.5 3		671.1+x	(10 ⁻)			
1309.0+x		495.3 3		813.7+x	(10 ⁻)			
1564.2+x	(12 ⁻)	318.2 3		1246.0+x	(11 ⁻)			
		750.5 3		813.7+x	(10 ⁻)			
1706.5+x	(13 ⁻)	420.9 3		1285.6+x	(12 ⁻)			
		737.9 3		968.6+x	(11 ⁻)			
2020.3+x	(14 ⁻)	734.7 3		1285.6+x	(12 ⁻)			

[†] From ^{114}Ru β^- decay and ^{252}Cf SF decay.

[‡] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

Adopted Levels, Gammas**Level Scheme**

Intensities: Relative photon branching from each level



Band(a): $\pi g_{9/2} \otimes v h_{11/2}$, $\alpha=0$

(14⁻) 2020.3+x

(13⁻) 1706.5+x

(11⁻) 968.6+x

(9⁻) 407.0+x

(7⁻) 0.0+x

Band(B): Side-band

(12⁻) 1564.2+x

(11⁻) 1246.0+x

(10⁻) 813.7+x

(9⁻) 489.2+x

Transitions (wavenumbers):

- (14⁻) to (13⁻): 735
- (13⁻) to (11⁻): 738
- (11⁻) to (9⁻): 562
- (9⁻) to (7⁻): 407
- (13⁻) to (12⁻): 735
- (12⁻) to (11⁻): 318
- (11⁻) to (10⁻): 757
- (10⁻) to (9⁻): 324
- (11⁻) to (9⁻): 432
- (10⁻) to (8⁻): 671.1+x
- (9⁻) to (8⁻): 460
- (8⁻) to (7⁻): 211.1+x
- (12⁻) to (10⁻): 750
- (10⁻) to (9⁻): 324
- (9⁻) to (8⁻): 460
- (8⁻) to (7⁻): 211.1+x

 $^{114}_{45}\text{Rh}_{69}$