^{103}Rh IT decay (56.114 min)

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne	NDS 110, 2081 (2009)	1-Mar-2009

Parent: ^{103}Rh: E=39.754 *6*; $J^\pi=7/2^+$; $T_{1/2}$=56.114 min *20*; %IT decay=100.0

1981Va11: radioactivity ^{57}Co, ^{103}Ru, ^{103m}Rh, ^{103}Pd, ^{109}Cd; measured $T_{1/2}$ Photon counting method, NaI(Tl), Si(Li) detectors.

1969Ra18: ^{103}Ru [from ^{102}Ru(n,γ)]; measured Eγ, Iγ, $\gamma\gamma$-coin. ^{103}Rh deduced levels. Enriched target, curved-crystal, Ge(Li) spectrometers.

1975Cz03: radioactivity ^{103m}Rh; measured I(ce), Iγ; deduced α.

1981Va22: radioactivity ^{103m}Rh; measured K x-ray emission probability. Calibrated Si(Li) detectors.

There is a problem with the level scheme in the sense that if the value for the relative intensity of the 39.755 γ is correct and the bricc value is correct, the absolute intensity of the 39.755 γ does not yield 100% but 96%. There might be a problem with bricc for such high conversion.

^{103}Rh Levels

E(level)	J^π[†]	$T_{1/2}$	Comments
0.0	$1/2^-$	stable	
39.754 *6*	$7/2^+$	56.114 min *20*	$T_{1/2}$: from γ(t) (1981Va11). $T_{1/2}$: see also 1944Fl01, 1945Wi03, 1947Fl03, 1950Me26, 1957Jo19, 1967VuZZ, 1969KoZW, 1972Pa10, 1973Gu06, 1974Sa15, 1978La21. %IT=100.

[†] From Adopted Levels.

γ(^{103}Rh)

Iγ normalization: from I(γ+ce)(39.7γ,E3)=100 with α(39.7γ)=1462. In the total uncertainty, an uncertainty of 3% in the theoretical value of α was assumed.

E_γ[†]	I_γ[‡#]	E_i(level)	J_i^π	E_f	J_f^π	Mult.	α[@]	Comments
39.755 *12*	0.0684 *35*	39.754	$7/2^+$	0.0	$1/2^-$	E3	1403 *20*	α(K)= 135.2 *19*; α(L)= 1028 *15*; α(M)= 209 *3* α(K)exp=127 *6* (1975Cz03); α(K)exp=148 *18* (1979VaZE) Others: 1972Pa10, 1970NiZV, 1969Le17. α: 1531 *30* (1975Cz03); 1430 *89* (1979VaZE). L1:L2:L3=2.83 *6*:70.2 *14*:100 (1975Ma32), 0.92 *21*:71.0 *15*:100 (1972Br02), 1.63 *25*:69.5 *6*:100 (1970Pe04), 1.45 *45*:68.2 11:100 (1969Gr13), 1.26 *5*:69.7 *5*:100 (1968DiZZ). Deviation of very weak L1-subshell intensity data from E3 theory is attributed might be due to exp analysis (1975Ma32). K/(L+M+N+O)=0.0914 *43* (1975Cz03), 0.0986 *50* (1967Br04).

[†] From 1969Ra18.

[‡] I(K x ray)/100 ^{103}Rh IT decays=6.76 *5* (1975Cz03), 6.97 *28* (1974Sa15), 7.03 *44* (1973In07), 7.00 *35* (1967Br04), 8.43 *13* (1981Va22); others: 1954De35, 1967VuZZ; predicted I(K x ray)=7.7 *2* (1977KoYM).

[#] For absolute intensity per 100 decays, multiply by 1.00 *6*.

[@] 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.

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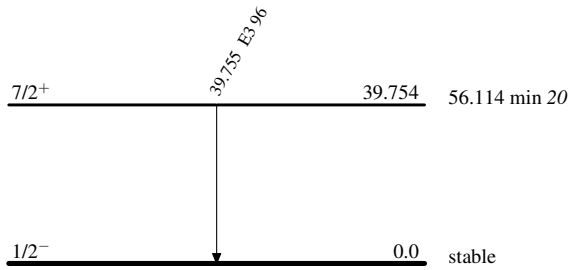
Decay Scheme

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

%IT=100.0



$^{103}_{45}Rh_{58}$