

Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	M. J. Martin	NDS 108,1583 (2007)	1-Jun-2007

Q(β⁻)=-9.04×10³ 6; S(n)=9.90×10³ 6; S(p)=2730 24; Q(α)=7273 5 [2012Wa38](#)

Note: Current evaluation has used the following Q record -9046 589895 58 2737 53 7273 5 [2003Au03](#).

All data for the excited levels are from ¹⁷²Yb(⁴⁰Ar,4nγ).

²⁰⁸Ra Levels

Cross Reference (XREF) Flags

- A ²⁰⁸Ra IT decay
- B ²¹²Th α decay

E(level)	J ^π †	T _{1/2}	XREF	Comments
0.0	0 ⁺	1.3 s 2	AB	%α=95 syst; %ε+%β ⁺ =5 syst T _{1/2} : weighted average of data of 1967Va22 (1.2 2) and 1968Lo15 (1.8 5). %ε based on (ε+β ⁺) strength function estimate (1973Ta30) note that, based on log ft>5.9, I(ε+β ⁺)<0.5% to any single level in ²⁰⁸ Fr with E<1 MeV. 1988Ah02 measured the isotope shift and deduced the mean square charge radius d(r ²)-d(r ² ²¹⁴ Ra)=-0.257 27 fm ² .
520.2 2	(2 ⁺)		A	
1093.6 3	(4 ⁺)		A	
1468.4 3	(4 ⁺)		A	
1755.4 3	(6 ⁺)		A	
2017.0 3	(6 ⁺)		A	
2147.4 4	(8 ⁺)	270 ns 21	A	T _{1/2} : from ²⁰⁸ Ra IT decay.

† From systematics of even-even nuclei and analogy with ^{212,214}Ra.

γ(²⁰⁸Ra)

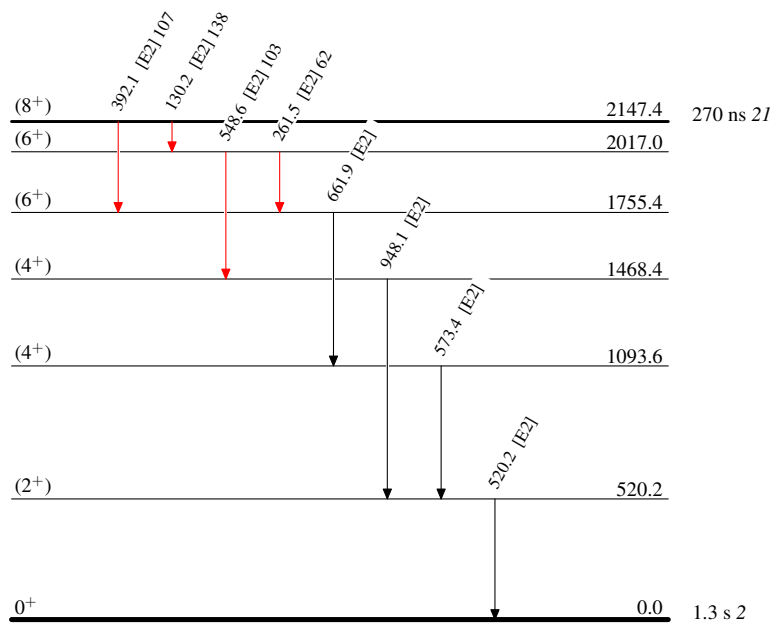
E _i (level)	J _i ^π	E _γ	I _γ	E _f	J _f ^π	Mult.	α [†]	Comments
520.2	(2 ⁺)	520.2 2		0.0	0 ⁺	[E2]	0.0356	
1093.6	(4 ⁺)	573.4 2		520.2	(2 ⁺)	[E2]	0.0284	
1468.4	(4 ⁺)	948.1 2		520.2	(2 ⁺)	[E2]	0.0101	
1755.4	(6 ⁺)	661.9 2		1093.6	(4 ⁺)	[E2]	0.0208	
2017.0	(6 ⁺)	261.5 2	50 7	1755.4	(6 ⁺)	[E2]	0.237	Mult.: the intensity imbalance at the 2017 level [I(γ+ce)(in)=65, I(γ+ce)(out)=40], suggests that the (6 ⁺) to (6 ⁺) 261.5γ may have an E0 component. One gets α(261γ)=2.3 7 compared with α(E2)=0.237 and α(M1)=1.09.
2147.4	(8 ⁺)	548.6 2	100	1468.4	(4 ⁺)	[E2]	0.0314	
		130.2 2	33 5	2017.0	(6 ⁺)	[E2]	3.19	B(E2)(W.u.)=0.102 12
		392.1 2	100	1755.4	(6 ⁺)	[E2]	0.0723	B(E2)(W.u.)=0.00222 21

† 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 $I_{(\gamma+ce)}$

Legend

- ▶ $I_{\gamma} < 2\% \times I_{\gamma}^{\max}$
- ▶ $I_{\gamma} < 10\% \times I_{\gamma}^{\max}$
- ▶ $I_{\gamma} > 10\% \times I_{\gamma}^{\max}$

 $^{208}_{88}\text{Ra}_{120}$