^{76}Ge(^{14}N,4nγ),^{86}Sr(d,2nγ) 1984Bu26,2000Io02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Alexandru Negret, Balraj Singh	NDS 124, 1 (2015)	30-Nov-2014

Includes ^{73}Ge(^{16}O,p2nγ) from 1984Bu26; ^{86}Sr(p,nγ) and ^{85}Rb(^{3}He,2nγ) from 2000Io02; and ^{62}Ni(^{27}Al,2pnγ) from 1985Li11.

1984Bu26: ^{73}Ge(^{16}O,p2nγ), E=48 MeV to 60 MeV. ^{76}Ge(^{14}N,4nγ), E=38 MeV to 56 MeV. Enriched targets. Measured Eγ, Iγ, $\gamma\gamma$, excitation functions, $\gamma(\theta)$.

2000Io02: ^{86}Sr(d,2nγ) E=13.5 MeV; ^{86}Sr(p,nγ) E=14 MeV and ^{85}Rb(^{3}He,2nγ) E=30 MeV. Measured lifetime, decay mode and g-factor by TDPAD method in external magnetic field. Data for g factors reanalyzed by 2010Ru07.

Other:

1985Li11: ^{62}Ni(^{27}Al,2pnγ) E=85 MeV. Measured particle-γ coin to verify the level schemes proposed by 1984Bu26 and 1984Da06 through an independent reaction.

^{86}Y Levels

E(level)[†]	J$^{\pi}$[‡]	T$_{1/2}$[#]	Comments
0	4$^-$		
208.1 *10*	(5)$^-$		μ=−0.415 *15* (2010Ru07)
218.3 *13*	(8$^+$)	47.4 min *4*	T$_{1/2}$: from Adopted Levels.
302.2 *13*	(6$^+$)	125 ns *6*	J$^{\pi}$: 7$^-$ was suggested in 2000Io02. g=−0.083 *3* (2000Io02), but reanalyzed by some of the same authors, with revised g=+0.63 *2*, μ=+3.78 *12* (2010Ru07). Additional information 1.
886.3 *17*	(9$^+$)		
1325.4 *13*	(10$^+$)	<0.5 ns	
2258.4 *17*			J$^{\pi}$: 1984Bu26 propose J=11. However, J$^{\pi}$=(12$^+$) is more likely from A$_2$ and A$_4$ values of 933$\gamma(\theta)$, and from a statement by the the authors that excitation function and $\gamma(\theta)$ of 933γ are similar to those of 1107γ from 1325, (10$^+$) level.
2521.3 *14*	(12$^+$)	<0.5 ns	
3189.3 *17*			J$^{\pi}$: 1984Bu26 propose J=14, but there does not seem any experimental evidence for this assignment.
3877.7 *20*	(14$^+$)		E(level),J$^{\pi}$: from 2000BuZW.
4190.7 *22*	(15$^+$)		J$^{\pi}$: 1984Bu26 propose J=15.

[†] From Eγ data, assuming ΔEγ=1 keV when not stated.
[‡] From Adopted Levels.
[#] From recoil-distance method (1984Bu26).

γ(^{86}Y)

A$_2$ and A$_4$ are from 1984Bu26, unless otherwise stated.

E$_\gamma$	E$_i$(level)	J$_i^{\pi}$	E$_f$	J$_f^{\pi}$	Mult.[‡]	α[e]	Comments
(10.2[#])	218.3	(8$^+$)	208.1	(5)$^-$	[E3]		
83.9	302.2	(6$^+$)	218.3	(8$^+$)	[E2]	2.02 *4*	
94.1	302.2	(6$^+$)	208.1	(5)$^-$	(E1)	0.1285 *22*	α(K)=0.1134 *20*; α(L)=0.01271 *22*; α(M)=0.00215 *4* α(N)=0.000283 *5*; α(O)=1.78×10^{-5} *3* Delayed measured Iγ(83.9)/Iγ(94.1)=0.176 *6* leads to Ti(94.1)/Ti(83.9)=91.8 *3*/8.2 *3* (2000Io02). α(exp)=1.38 *5* from Ti(94.1)/Ti(208.1)=0.441 *46* and α(208γ)=0.052 *5* (2000Io02). A$_2$=+0.103 *11* (2000Io02).

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^{76}Ge(^{14}N,4nγ),^{86}Sr(d,2nγ) 1984Bu26,2000Io02 (continued)

$\gamma(^{86}Y)$ (continued)

E_γ	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	α[e]	Comments
208.1	130 *4*	208.1	$(5)^-$	0	4^-			E_γ: from 2000Io02. A_2=+0.159 *7* (2000Io02).
x216[d]	22.3[@] *5*							A_2=−0.19 *4*, A_4=0.
313	7.0 *5*	4190.7	(15^+)	3877.7	(14^+)	(D)		Placement based on 314-688-667 cascade in 2000BuZW. Earlier placement was above 3189 level. A_2=−0.34 *11*, A_4=−0.09 *14*.
x365[&]	18.1 *8*							A_2=−0.32 *8*, A_4=+0.07 *9*.
x389	9.4[@] *13*							A_2=−0.41 *3*, A_4=+0.02 *4*.
x438[&]	3							
x562[b]	6.7 *25*							
x585[bc]								
x662	16.3 *5*							A_2=−0.76 *5*, A_4=+0.16 *5*.
668[f]	24.6[f] *20*	886.3	(9^+)	218.3	(8^+)			A_2=−0.44 *10*, A_4=+0.12 *11* for doublet.
668[f]	12[f] *2*	3189.3		2521.3	(12^+)			
688.4		3877.7	(14^+)	3189.3				E_γ: from 2000BuZW.
x739	13.3 *5*							A_2=−0.43 *5*, A_4=+0.06 *4*.
x771[d]	3.7 *12*							
x853[bc]								
933	11.7 *5*	2258.4		1325.4	(10^+)	(Q)		A_2=+0.42 *9*, A_4=−0.05 *10*.
1107.08[a] *15*	100.0 *15*	1325.4	(10^+)	218.3	(8^+)	(E2)	4.96×10^{-4}	A_2=+0.29 *2*, A_4=−0.07 *3*.
1195.88[a] *17*	39.3 *17*	2521.3	(12^+)	1325.4	(10^+)	(E2)	4.26×10^{-4}	A_2=+0.27 *2*, A_4=−0.09 *10*.

[†] From ^{76}Ge(^{14}N,4nγ) at 50 MeV (1984Bu26). Intensities from ^{73}Ge(^{16}O,p2nγ) are also given by 1984Bu26.
[‡] From $\gamma(\theta)$ and RUL.
[#] From Adopted Gammas.
[@] Corrected for contamination activity.
[&] Possibly doublet.
[a] From ^{62}Ni(^{27}Al,2pnγ) (1985Li11).
[b] γ in coin with 389γ.
[c] From level-scheme figure of 1984Bu26.
[d] γ in coin with a 562-389 cascade.
[e] 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.
[f] Multiply placed with intensity suitably divided.
[x] γ ray not placed in level scheme.

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Level Scheme

Intensities: Relative I_γ

@ Multiply placed: intensity suitably divided

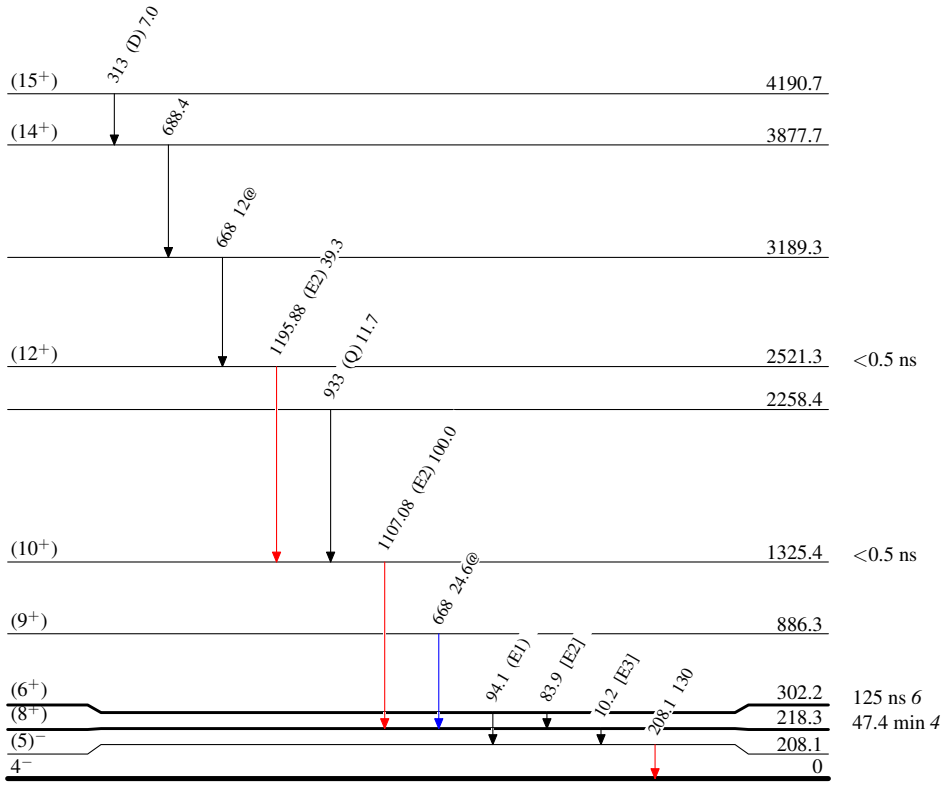
Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$

γ Decay (Uncertain)



$^{86}_{39}Y_{47}$