^{86}Sr(α,2nγ) 1979Nu02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	E. A. Mccutchan and A. A. Sonzogni	NDS 115, 135 (2014)	1-Nov-2013

1979Nu02: Eα=28 MeV. Measured Eγ, Iγ, $\gamma\gamma$, and $\gamma(\theta)$ using two Ge(Li) detectors.
1978Ki06: E=16.7 MeV, 28.4 MeV, 35.3 MeV. Measured Eγ, Iγ, $\gamma\gamma$, and $\gamma(\theta)$ using two Ge(Li) detectors.
Other: ^{88}Sr(α,4nγ), E=52 MeV (1965La02).

^{88}Zr Levels

E(level)‡	Jπ†	E(level)‡	Jπ†	E(level)‡	Jπ†	E(level)‡	Jπ†
0	0^+	2605.3 *10*	4^+	3616.8 *6*	(7^-)	5164.5? *22*	(10,11,12)
1057.01 *20*	2^+	2801.1 *4*	5^-	4412.5 *5*	10^+	5229.5 *11*	12^+
1818.3 *11*	2^+	2810.7 *4*	6^+	4486.0 *8*	(9^-)	5583.1? *13*	12^-
2139.4 *3*	4^+	2887.3 *4*	8^+	4612.6 *7*	9^+	5665.8 *15*	12^+
2456.0 *15*	3^-	3390.1 *5*	8^+	4713.1 *7*	10^-	5951.0 *15*	$(13)^+$
2538.7 *4*	5^-	3482.9 *7*	(7^-)	4797.7 *7*	11^-		

† From the Adopted Levels.
‡ From a least-squares fit to Eγ by evaluators.

$\gamma(^{88}Zr)$

Eγ†	Iγ‡	Ei(level)	J_i^π	E_f	J_f^π	Mult.#	δ#	Comments
76.7 *2*	23.1	2887.3	8^+	2810.7	6^+			Mult.: A_2=+0.082 *19*, A_4=−0.09 *3* (1979Nu02).
84.6 *2*	7.0	4797.7	11^-	4713.1	10^-			Mult.: A_2=−0.21 *8* (1978Ki06), A_2=+0.22 *2*, A_4=−0.08 *3* (1979Nu02).
100.5 *2*	7.1	4713.1	10^-	4612.6	9^+	D		Mult.: A_2=−0.19 *8* (1978Ki06), A_2=−0.19 *6*, A_4=−0.04 *9* (1979Nu02).
205.8[a] *20*		2810.7	6^+	2605.3	4^+			
227.7 *10*	1.6	4713.1	10^-	4486.0	(9^-)			A_2=−0.34 *3*, A_4=−0.35 *5* (1979Nu02).
262.4 *2*	5.3	2801.1	5^-	2538.7	5^-	D(+Q)	+0.3 *6*	Mult.: A_2=+0.24 *10* (1978Ki06), A_2=+0.29 *3*, A_4=−0.01 *5* (1979Nu02).
272.1 *2*	23.4	2810.7	6^+	2538.7	5^-			A_2=−0.03 *8* (1978Ki06), A_2=+0.009 *8*, A_4=−0.039 *11* (1979Nu02).
287.4 *20*	0.4	5951.0	$(13)^+$	5665.8	12^+			A_2=−0.69 *24*, A_4=+0.3 *3* (1979Nu02).
300.7 *20*	0.6	4713.1	10^-	4412.5	10^+			A_2=+0.14 *3*, A_4=+0.07 *5* (1979Nu02).
366.8[a] *20*	1.1	5164.5?	(10,11,12)	4797.7	11^-			
384.9 *20*	0.8	4797.7	11^-	4412.5	10^+			
399.4 *2*	35.4	2538.7	5^-	2139.4	4^+	D		Mult.: A_2=−0.11 *6* (1978Ki06), A_2=−0.141 *11*, A_4=−0.011 *16* (1979Nu02).
436.9 *10*	1.2	5665.8	12^+	5229.5	12^+			A_2=+0.72 *9*, A_4=+0.28 *12* (1979Nu02).
466.0 *10*	2.6	2605.3	4^+	2139.4	4^+			A_2=+0.15 *7*, A_4=0.00 *11* (1979Nu02).
502.8 *2*	26.0	3390.1	8^+	2887.3	8^+	D(+Q)	−0.06 *9*	Mult.: A_2=+0.43 *10*, A_4=+0.07 *10* (1978Ki06), A_2=+0.431 *7*, A_4=−0.015 *10* (1979Nu02).
637.7[@] *10*	2.4	2456.0	3^-	1818.3	2^+			
662.2 *10*	1.6	2801.1	5^-	2139.4	4^+	D		Mult.: A_2=−0.42 *7*, A_4=−0.08 *10* (1979Nu02).
671.1[&] *2*	38.5[&]	2810.7	6^+	2139.4	4^+	Q		Mult.: A_2=0.05 *7* (1978Ki06), A_2=+0.100 *12*, A_4=−0.036 *18* (1979Nu02).
671.5[&] *10*	38.5[&]	3482.9	(7^-)	2810.7	6^+			
721.0 *10*	1.2	5951.0	$(13)^+$	5229.5	12^+			
761.3 *10*	4.4	1818.3	2^+	1057.01	2^+	D(+Q)	−0.10 *13*	Mult.: A_2=+0.22 *6*, A_4=−0.04 *8* (1979Nu02).

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^{86}Sr(α,2nγ) 1979Nu02 (continued)

$\gamma(^{88}Zr)$ (continued)

E_γ[†]	I_γ[‡]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[#]	δ[#]	Comments
785.4[a] *10*	1.9	5583.1?	12^-	4797.7	11^-			A_2=−0.53 *6*, A_4=+0.14 *10* (1979Nu02).
806.3 *5*	3.2	3616.8	(7^-)	2810.7	6^+			A_2=−0.15 *6*, A_4=+0.12 *9* (1979Nu02).
815.1[&] *10*	4.2[&]	3616.8	(7^-)	2801.1	5^-			
817.0[&] *10*	4.2[&]	5229.5	12^+	4412.5	10^+			
[x]937.4 *2*	4.5							
944.7 *10*	5.8	3482.9	(7^-)	2538.7	5^-	Q		Mult.: A_2=+0.185 *10*, A_4=−0.24 *16* (1979Nu02).
1002.9 *10*	2.2	4486.0	(9^-)	3482.9	(7^-)	Q		Mult.: A_2=+0.26 *8*, A_4=+0.10 *11* (1979Nu02).
1022.3 *2*	8.1	4412.5	10^+	3390.1	8^+	Q		Mult.: A_2=+0.36 *10*, A_4=−0.13 *11* (1978Ki06), A_2=+0.40 *4*, A_4=−0.05 *6* (1979Nu02).
1057.0 *2*	100.0	1057.01	2^+	0	0^+	Q		Mult.: A_2=+0.15 *5* (1978Ki06), A_2=+0.193 *15*, A_4=−0.058 *21* (1979Nu02).
1082.4 *2*	82.8	2139.4	4^+	1057.01	2^+	Q		Mult.: A_2=+0.07 *5* (1978Ki06), A_2=+0.179 *14*, A_4=−0.056 *20* (1979Nu02).
1096.7 *10*	2.5	4486.0	(9^-)	3390.1	8^+	D		Mult.: A_2=−0.24 *11*, A_4=+0.14 *24* (1979Nu02).
1222.2 *6*	8.2	4612.6	9^+	3390.1	8^+	(D+Q)	−0.25 *7*	Mult.: A_2=−0.71 *5*, A_4=−0.02 *11* (1978Ki06), A_2=−0.66 *4*, A_4=+0.08 *5* (1979Nu02).

[†] Energies with ΔE<1 keV are from 1978Ki06, the others are from 1979Nu02. 1979Nu02 report ΔE to vary from 0.3 keV for the strongest to 2 keV for the weakest γ's. Individual uncertainties assigned by the evaluators.

[‡] Relative intensities at 125° (1979Nu02), normalized to Iγ(1057γ)=100. Authors make only a general statement that ΔI≈10% for strong lines.

[#] From $\gamma(\theta)$ in 1979Nu02.

[@] Not placed by 1978Ki06 and 1979Nu02 but placement is known from other experiments.

[&] Multiply placed with undivided intensity.

[a] Placement of transition in the level scheme is uncertain.

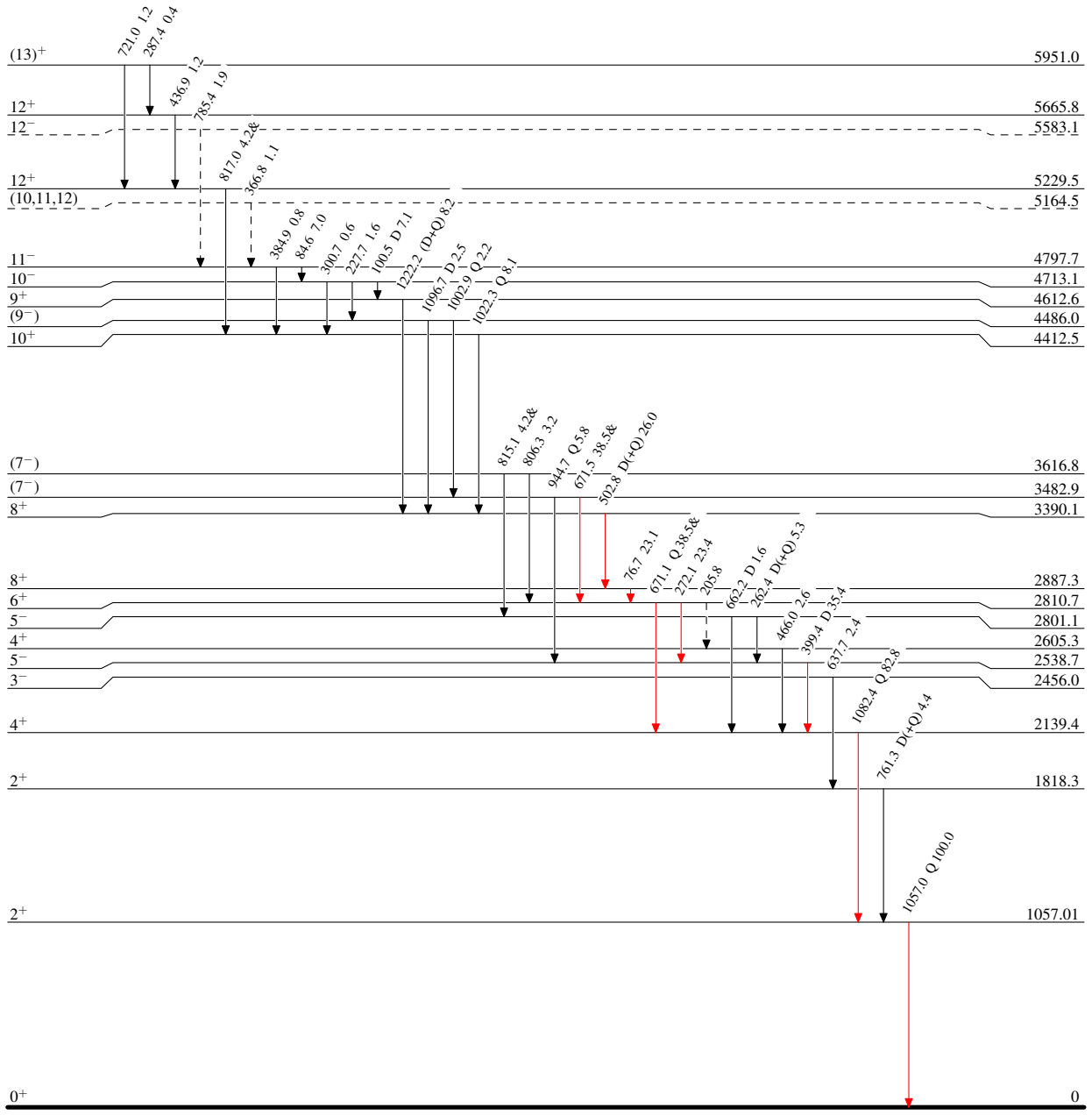
[x] γ ray not placed in level scheme.

^{86}Sr(α,2nγ) 1979Nu02

Level Scheme

Intensities: Type not specified
& Multiply placed: undivided intensity given

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)



$^{88}_{40}Zr_{48}$