

⁷¹Zn β⁻ decay (4.126 h) [1970Zo01](#),[1970Ta07](#),[1969Co20](#)

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Khalifeh Abusaleem, Balraj Singh		NDS 112, 133 (2011)	30-Nov-2010

Parent: ⁷¹Zn: E=155.62 6; J^π=9/2⁺; T_{1/2}=4.126 h 12; Q(β⁻)=2810.3 28; %β⁻ decay=100.0

⁷¹Zn-E: From ⁷⁰Zn(n,γ) ([2015BaZY](#)).

⁷¹Zn-J^π,T_{1/2}: From Adopted Levels of ⁷¹Zn.

⁷¹Zn-Q(β⁻): From [2012Wa38](#). Value of Q(β⁻) may get adjusted to 2813.1 keV 22 as a result of S(n)=5832.60 keV 4 from [2015BaZY](#).

In May 19, 2016 modification following changes made: half-life of ⁷¹Zn isomer adopted from data in [2012Re05](#); energy of the isomer adopted from [2015BaZY](#); intensity of 1759.6-keV gamma from 2247.1-keV level corrected for a misprint in [1970Zo01](#); intensity of 1493.8-keV gamma from 2600.8-keV level corrected to 0.054 6; 1190.6-keV gamma from a 1702-keV level in [1970Zo01](#) now classified as an unplaced gamma ray, thus dropping the 1702 level; beta feedings and log ft values were recalculated; and some comments added.

[1970Zo01](#): measured Eγ, Iγ, γγ, βγ coincidences; NaI and Ge(Li) detectors.

[1970Ta07](#): measured Eγ, Iγ, γγ coincidences; NaI and Ge(Li) detectors.

[1969Co20](#): measured Eγ, Iγ, γγ, γγ(t). Total of 17 γ rays reported.

[1978Kr06](#): measured γγ(θ).

[1967Li01](#): measured Eγ, Iγ, γγ, βγ(t), γγ(t). Total of 14 γ rays reported.

Other measurements:

γ: [1969SiZT](#), [1964Ta08](#), [1964So01](#), [1962Gh01](#), [1955Le03](#).

β: [1964So01](#), [1961Th04](#).

γγ coin: [1964Ta08](#), [1964So01](#), [1962Gh01](#).

βγ coin: [1964So01](#), [1955Le03](#).

γγ(θ): [1976Sa39](#), [1975BeYD](#) (data for four cascades using NaI(Tl) and Ge detectors), [1969Kh10](#), [1962Gh01](#).

γγ(θ,H): [1975BeYD](#).

γγ(t), βγ(t): [1969Kh10](#).

[1962Ma24](#): T_{1/2}, yield.

The decay scheme given here is from [1970Zo01](#) and [1970Ta07](#), enhanced based on earlier decay schemes of [1969Co20](#) and [1967Li01](#).

⁷¹Ga Levels

Note that a 1702-keV, 1/2⁺ level proposed by [1970Zo01](#) is omitted here due to disagreement of energy and branching ratio of 1190.6-keV γ with data from a 1700-keV, 1/2⁺ level populated in (n,n'γ), as pointed out by Prof. K. Krane on April 29, 2016.

E(level) [†]	J ^π [‡]	T _{1/2} [#]	Comments
0.0	3/2 ⁻	stable	
389.93 5	1/2 ⁻		
487.30 4	5/2 ⁻	<0.1 ns	Additional information 1.
511.51 4	3/2 ⁻	<0.1 ns	Additional information 2.
			μ=0.95 5 (1975BeYD), but no details are provided.
909.91 14	3/2 ⁻		
964.76 5	5/2 ⁻		
1107.46 5	7/2 ⁻	<0.1 ns	Additional information 3.
1395.27 12	7/2 ⁻		
1475.93 7	5/2 ⁻		
1493.76 6	9/2 ⁺	154 ps 15	μ=2.1 3 (1975BeYD), but no details are provided.
1498.60 13	(7/2 ⁻ ,9/2 ⁻)		
1719.6 4	(5/2) ⁻		
2247.15 8	7/2 ⁺		
2450.64 13	7/2 ⁺		
2488.22 19	7/2 ⁺ ,9/2 ⁺		

Continued on next page (footnotes at end of table)

${}^{71}\text{Zn}$ β^- decay (4.126 h) 1970Zo01,1970Ta07,1969Co20 (continued) ${}^{71}\text{Ga}$ Levels (continued)

<u>E(level)[†]</u>	<u>Jπ[‡]</u>
2600.8 10	(7/2 ⁺ ,9/2 ⁺ ,11/2 ⁺)
2720.0 4	7/2,9/2
2805.17 15	7/2 ⁺ ,9/2 ⁺
2815.82 17	7/2 ⁺

[†] From a least-squares fit to E γ data.

[‡] From Adopted Levels.

From $\beta\gamma$ (t) and/or $\gamma\gamma$ (t) (1967Li01).

 β^- radiations

The γ -ray intensity balance gives $I\beta^- = -0.3\%$ 4 for 389.9, 1/2⁻ level; 2.3% 18 for 511.5, 3/2⁻ level; and 0.07% 4 for 909.9, 3/2⁻ level, but none is expected from $\Delta J=3,4$; $\Delta\pi=\text{yes}$ involved in such β transitions.

<u>E(decay)</u>	<u>E(level)</u>	<u>$I\beta^-$[†]</u>	<u>Log f_t</u>	<u>Comments</u>
(150 3)	2815.82	0.33 3	4.94 5	av $E\beta^- = 41.11$ 84
(161 3)	2805.17	0.33 2	5.04 4	av $E\beta^- = 44.30$ 85
(246 3)	2720.0	0.092 10	6.19 5	av $E\beta^- = 71.00$ 92
(365 3)	2600.8	0.7 4	5.9 3	av $E\beta^- = 111.3$ 11
(478 3)	2488.22	0.38 4	6.54 5	av $E\beta^- = 151.8$ 11
(515 3)	2450.64	0.65 5	6.42 4	av $E\beta^- = 165.8$ 11
(719 3)	2247.15	5.6 3	6.01 3	av $E\beta^- = 244.9$ 12
(1246 3)	1719.6	0.085 11	9.45 ^{1u} 6	av $E\beta^- = 489.3$ 13
(1467 3)	1498.60	0.59 7	8.16 6	av $E\beta^- = 565.8$ 13
(1472 3)	1493.76	87.8 21	6.00 1	av $E\beta^- = 568.0$ 13
E(decay): measured endpoint=1460 40, average of values from 1964So01 and 1961Th04.				
(1490 [‡] 3)	1475.93	<0.3	>9.3 ^{1u}	av $E\beta^- = 595.6$ 13
(1571 [‡] 3)	1395.27	<0.023	>9.7	av $E\beta^- = 612.3$ 13
(1858 [‡] 3)	1107.46	<1.2	>8.3	av $E\beta^- = 743.8$ 13
(2001 [‡] 3)	964.76	<0.4	>10.0 ^{1u}	av $E\beta^- = 825.2$ 13
(2479 [‡] 3)	487.30	3 3	>9.3 ^{1u}	av $E\beta^- = 1045.1$ 13

[†] Absolute intensity per 100 decays.

[‡] Existence of this branch is questionable.

γ(⁷¹Ga)

I_γ normalization: Deduced from summed I(γ+ce) to g.s.=100%. %IT≤0.05 (1970Zo01), from an upper limit on I_γ(158γ).
A₂ and A₄ coefficients are from γγ(θ) data of 1978Kr06, unless otherwise stated.

E _γ [†]	I _γ ^{‡c}	E _i (level)	J _i ^π	E _f	J _f ^π	Mult.#	δ [#]	α ^b	Comments
98.5 ^{&1}	0.067 7	1493.76	9/2 ⁺	1395.27	7/2 ⁻	[E1]		0.0672	α(K)=0.0601 9; α(L)=0.00614 9; α(M)=0.000891 13; α(N)=4.53×10 ⁻⁵ 7
121.47 7	2.9 3	511.51	3/2 ⁻	389.93	1/2 ⁻	(M1(+E2))	-0.01 +13-16	0.041 9	α(K)=0.037 8; α(L)=0.0039 9; α(M)=0.00057 13; α(N)=3.0×10 ⁻⁵ 6 δ: -0.01 +13-16 or -1.7 +5-6 from γγ(θ) (1978Kr06), but intensity balance at 389 level is in agreement with the lower value.
142.61 5	5.9 5	1107.46	7/2 ⁻	964.76	5/2 ⁻	M1(+E2)	-0.05 4	0.0275 10	α(K)=0.0245 9; α(L)=0.00258 10; α(M)=0.000377 14; α(N)=2.01×10 ⁻⁵ 7 (143γ)(965γ)(θ): A ₂ =-0.17 4, A ₄ =-0.03 5; A ₂ =-0.18 4 if A ₄ =0. δ: -0.05 4 (1978Kr06) is the average of +0.01 6 and -0.11 6 from two different cascades. δ=-4.9 +12-22 or >12 are also possible solutions but the lower values are in better agreement.
386.28 5	100	1493.76	9/2 ⁺	1107.46	7/2 ⁻	[E1] [@]		1.25×10 ⁻³	α(K)=0.001122 16; α(L)=0.0001135 16; α(M)=1.656×10 ⁻⁵ 24; α(N)=8.82×10 ⁻⁷ 13 (386γ)[143γ](965γ)(θ): A ₂ =-0.079 12, A ₄ =+0.016 15; A ₂ =-0.072 11 if A ₄ =0. Additional information 8. (386γ)[596γ](512γ)(θ): A ₂ =+0.026 12, A ₄ =+0.008 18; A ₂ =+0.028 10 if A ₄ =0. (386γ)[596γ](122γ)(θ): A ₂ =+0.004 20, A ₄ =-0.003 24; A ₂ =+0.002 17 if A ₄ =0. (386γ)[620γ](487γ)(θ): A ₂ =+0.029 7, A ₄ =+0.020 12; A ₂ =+0.037 6 if A ₄ =0. (386γ)(1107γ)+(1107γ)(386γ)(θ): A ₂ =-0.016 10, A ₄ =-0.003 13; A ₂ =-0.020 8 if A ₄ =0. (386γ)(143γ)(θ): A ₂ =+0.047 18, A ₄ =-0.014 27; A ₂ =+0.042 16 if A ₄ =0. (386γ)(596γ)(θ): A ₂ =-0.066 7, A ₄ =-0.003 11; A ₂ =-0.069 6 if A ₄ =0. (386γ)(620γ)(θ): A ₂ =-0.108 7, A ₄ =+0.024 10; A ₂ =-0.098 6 if A ₄ =0.
389.87 5	2.8 3	389.93	1/2 ⁻	0.0	3/2 ⁻	(M1+E2)	0.0046 33	0.0021 3	α(K)=0.00198 3; α(L)=0.000202 3; α(M)=2.96×10 ⁻⁵ 5; α(N)=1.597×10 ⁻⁶ 23
453.09 7	1.3 2	964.76	5/2 ⁻	511.51	3/2 ⁻				
487.34 5	67 2	487.30	5/2 ⁻	0.0	3/2 ⁻	(M1+E2)	-0.024 13	1.32×10 ⁻³	α(K)=0.001181 17; α(L)=0.0001203 17;

⁷¹Zn β⁻ decay (4.126 h) 1970Zo01,1970Ta07,1969Co20 (continued)

γ(⁷¹Ga) (continued)

<u>E_γ[†]</u>	<u>I_γ^{‡c}</u>	<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult.#</u>	<u>δ[#]</u>	<u>α^b</u>	<u>Comments</u>
									α(M)=1.760×10 ⁻⁵ 25; α(N)=9.52×10 ⁻⁷ 14 I _γ /100 decays of ⁷¹ Zn=61.1 11 using GABS code. δ: -0.024 13 or -3.1 2 from γγ(θ) (1978Kr06); <0.12 deduced (1978Kr06) from known level lifetime and measured B(E2). Additional information 4.
511.54 5	31.4 13	511.51	3/2 ⁻	0.0	3/2 ⁻	M1+E2	-0.37 6	0.00128 4	α(K)=0.00115 3; α(L)=0.000117 4; α(M)=1.71×10 ⁻⁵ 5; α(N)=9.21×10 ⁻⁷ 25 I _γ /100 decays of ⁷¹ Zn=28.7 10 using GABS code. δ: -0.37 6 or -10 +3-10 from γγ(θ) (1978Kr06); 0.09 3 deduced (1978Kr06) from known level lifetime and measured B(E2); thus a preference for a lower δ value. Other: 0.28 1 (1975BeYD) with δ(M3/E2)=0.45 5 for 512γ, which seems unrealistic.
520& 1	≤0.02	909.91	3/2 ⁻	389.93	1/2 ⁻				
528.7 3	0.06 2	1493.76	9/2 ⁺	964.76	5/2 ⁻	[M2]		0.00343 5	α(K)=0.00306 5; α(L)=0.000320 5; α(M)=4.69×10 ⁻⁵ 7; α(N)=2.52×10 ⁻⁶ 4
566.1 2	0.21 2	1475.93	5/2 ⁻	909.91	3/2 ⁻				
574.9 2	0.12 2	964.76	5/2 ⁻	389.93	1/2 ⁻				
588.6& 2	0.054 5	1498.60	(7/2 ⁻ ,9/2 ⁻)	909.91	3/2 ⁻				
596.05 7	30.1 13	1107.46	7/2 ⁻	511.51	3/2 ⁻	[E2]@		1.27×10 ⁻³	α(K)=0.001137 16; α(L)=0.0001171 17; α(M)=1.710×10 ⁻⁵ 24; α(N)=9.04×10 ⁻⁷ 13 (596γ)(122γ)(θ): A ₂ =-0.11 5, A ₄ =+0.02 6; A ₂ =-0.11 4 if A ₄ =0. (596γ)(512γ)(θ): A ₂ =-0.018 14, A ₄ =+0.012 23; A ₂ =-0.012 13 if A ₄ =0. Additional information 5.
620.19 5	61 2	1107.46	7/2 ⁻	487.30	5/2 ⁻	M1+E2	+0.72 +8-6	8.93×10 ⁻⁴ 22	α(K)=0.000799 20; α(L)=8.15×10 ⁻⁵ 21; α(M)=1.19×10 ⁻⁵ 3; α(N)=6.39×10 ⁻⁷ 16 (620γ)(487γ)(θ): A ₂ =-0.192 10, A ₄ =+0.020 16; A ₂ =-0.187 8 if A ₄ =0. Additional information 6. δ: +0.72 +8-6 or +2.3 3 (1978Kr06). The smaller value is preferred from comparison of δ values deduced from different γγ cascades. Other: 0.07 2 (1975BeYD).
753.34 10	3.4 2	2247.15	7/2 ⁺	1493.76	9/2 ⁺	M1+E2	-0.085 15	5.05×10 ⁻⁴	α(K)=0.000452 7; α(L)=4.57×10 ⁻⁵ 7; α(M)=6.69×10 ⁻⁶ 10; α(N)=3.63×10 ⁻⁷ 5 δ: -0.085 15 or +12 2 (1978Kr06). The lower value is preferred based on the systematics of hindrance of M1 transitions in this mass region.

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⁷¹Zn β⁻ decay (4.126 h) [1970Zo01](#),[1970Ta07](#),[1969Co20](#) (continued)

γ(⁷¹Ga) (continued)

<u>E_γ[†]</u>	<u>I_γ^{‡c}</u>	<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult.#</u>	<u>δ[#]</u>	<u>α^b</u>	<u>Comments</u>
771.24 7	2.1 2	2247.15	7/2 ⁺	1475.93	5/2 ⁻				(753γ)(386γ)(θ): A ₂ =+0.043 9, A ₄ =-0.003 12; A ₂ =+0.041 7 if A ₄ =0. Additional information 9 .
909.8 3	0.33 3	909.91	3/2 ⁻	0.0	3/2 ⁻	M1+E2	0.08 3	3.39×10 ⁻⁴	α(K)=0.000304 5; α(L)=3.06×10 ⁻⁵ 5; α(M)=4.48×10 ⁻⁶ 7; α(N)=2.43×10 ⁻⁷ 4
951.8& 3	0.011 1	2450.64	7/2 ⁺	1498.60	(7/2 ⁻ ,9/2 ⁻)				
956.8 2	0.22 2	2450.64	7/2 ⁺	1493.76	9/2 ⁺				
964.6& 3	0.5 3	1475.93	5/2 ⁻	511.51	3/2 ⁻				(965γ)(512γ)(θ): A ₂ =+0.020 15, A ₄ =-0.07 3; A ₂ =+0.018 14 if A ₄ =0.
964.7 1	4.7 5	964.76	5/2 ⁻	0.0	3/2 ⁻	M1+E2	1.3 3	3.33×10 ⁻⁴ 9	α(K)=0.000298 8; α(L)=3.02×10 ⁻⁵ 8; α(M)=4.41×10 ⁻⁶ 11; α(N)=2.38×10 ⁻⁷ 6 δ: +4.2 +14-10 or +0.58 +9-8 from 1978Kr06 . From lifetime arguments for 965 level given by 1978Kr06 , larger value is somewhat preferred.
974.7 2	0.38 4	2450.64	7/2 ⁺	1475.93	5/2 ⁻				
988.6 1	1.1 1	1475.93	5/2 ⁻	487.30	5/2 ⁻	M1+E2	+0.20 3		δ: +0.20 3 or -2.8 2 (1978Kr06) for J(1476 level)=5/2. Additional information 7 .
994.2 6	0.032 6	2488.22	7/2 ⁺ ,9/2 ⁺	1493.76	9/2 ⁺				(989γ)(487γ)(θ): A ₂ =-0.085 14, A ₄ =+0.030 16; A ₂ =-0.073 13 if A ₄ =0.
1006.5 1	0.8 2	1493.76	9/2 ⁺	487.30	5/2 ⁻				
1011.4 2	0.72 7	1498.60	(7/2 ⁻ ,9/2 ⁻)	487.30	5/2 ⁻				
1086.2 ^e 8	0.045 8	1475.93	5/2 ⁻	389.93	1/2 ⁻				
1107& 1	0.8 4	2600.8	(7/2 ⁺ ,9/2 ⁺ ,11/2 ⁺)	1493.76	9/2 ⁺				δ: +3 +10-1 for J(2601)=9/2; +0.08 7 or +4.3 +18-10 for J(2601)=11/2 (1978Kr06).
1107.3 2	2.4 3	1107.46	7/2 ⁻	0.0	3/2 ⁻				
1139.8 3	0.22 3	2247.15	7/2 ⁺	1107.46	7/2 ⁻				
^x 1190.6& 8	0.012 3								This γ was placed by 1970Zo01 from a 1702.1, 1/2 ⁺ level based on a comparison with decay of a 1700-keV level in (n,n'γ) reported by 1969Ve03 where a strong 1188γ and a weaker 1700γ from this level were reported. As noted in an e-mail communication of April 29, 2016 from Prof. K. Krane (Oregon State), later (n,n'γ) data from 1984Ar09 (also 1977SmZI) are inconsistent with those in 1969Ve03 , reporting a gamma rays of 1188.2 and 1699.2 keV with a larger intensity for the latter. K. Krane noted that both the energy and intensity of the 1190.6 γ ray in ⁷¹ Zn β ⁻ decay are

⁷¹Zn β⁻ decay (4.126 h) [1970Zo01](#),[1970Ta07](#),[1969Co20](#) (continued)

γ(⁷¹Ga) (continued)

<u>E_γ[†]</u>	<u>I_γ^{‡c}</u>	<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult.#</u>	<u>δ[#]</u>	<u>α^b</u>	<u>Comments</u>	
1208.0 ^{&a} 5	0.023 4	1719.6	(5/2) ⁻	511.51	3/2 ⁻				inconsistent with improved (n,n'γ) data from 1984Ar09 (also 1977SmZI). For this reason 1190.6γ is kept as an unplaced γ ray here.	
1226.5 ^{&a} 6	0.020 3	2720.0	7/2,9/2	1493.76	9/2 ⁺					
1232.8 ^{&a} 6	0.030 4	1719.6	(5/2) ⁻	487.30	5/2 ⁻					
1244.2 ^{&} 8	0.066 9	2720.0	7/2,9/2	1475.93	5/2 ⁻					
1282.7 3	0.28 3	2247.15	7/2 ⁺	964.76	5/2 ⁻					
1306.7 2	0.12 1	2805.17	7/2 ⁺ ,9/2 ⁺	1498.60	(7/2 ⁻ ,9/2 ⁻)					
1311.4 2	0.11 1	2805.17	7/2 ⁺ ,9/2 ⁺	1493.76	9/2 ⁺					
1322.2 2	0.25 3	2815.82	7/2 ⁺	1493.76	9/2 ⁺					
1339.7 ^{&} 4	0.011 2	2815.82	7/2 ⁺	1475.93	5/2 ⁻					
1343.7 ^{&} 4	0.049 6	2450.64	7/2 ⁺	1107.46	7/2 ⁻					
1380.7 2	0.37 4	2488.22	7/2 ⁺ ,9/2 ⁺	1107.46	7/2 ⁻					
1395.4 5	0.09 1	1395.27	7/2 ⁻	0.0	3/2 ⁻	E2		2.06×10 ⁻⁴		
1409.1 ^{&} 10	0.007 2	2805.17	7/2 ⁺ ,9/2 ⁺	1395.27	7/2 ⁻					α(K)=0.0001381 20; α(L)=1.390×10 ⁻⁵ 20; α(M)=2.03×10 ⁻⁶ 3 α(N)=1.099×10 ⁻⁷ 16; α(IPF)=5.20×10 ⁻⁵ 8
1476.0 2	0.62 6	1475.93	5/2 ⁻	0.0	3/2 ⁻					
1485.9 4	0.050 5	2450.64	7/2 ⁺	964.76	5/2 ⁻					
1493.8 ^{de} 4	0.054 ^d 6	1493.76	9/2 ⁺	0.0	3/2 ⁻	[E3]				
1493.8 ^{de} 4	0.054 ^d 6	2600.8	(7/2 ⁺ ,9/2 ⁺ ,11/2 ⁺)	1107.46	7/2 ⁻					
^x 1503.8 ^{&} 5	0.013 3									
1612.2 ^{&} 5	0.013 3	2720.0	7/2,9/2	1107.46	7/2 ⁻					
1697.6 ^{&} 7	0.005 1	2805.17	7/2 ⁺ ,9/2 ⁺	1107.46	7/2 ⁻					
1708.0 5	0.09 1	2815.82	7/2 ⁺	1107.46	7/2 ⁻					
1719.2 7	0.04 1	1719.6	(5/2) ⁻	0.0	3/2 ⁻	M1+E2	+1.4 5	2.67×10 ⁻⁴ 10	α(K)=8.97×10 ⁻⁵ 15; α(L)=9.00×10 ⁻⁶ 16; α(M)=1.316×10 ⁻⁶ 23 α(N)=7.14×10 ⁻⁸ 12; α(IPF)=0.000167 8 E _γ ,I _γ : from 1970Zo01 . Value of 1.0 1 in Table 1 of 1970Zo01 is a misprint as pointed out by Prof. K. Krane (Oregon State University) in an e-mail communication of April 29, 2016 to the evaluator, the value should be 0.10 1, also confirmed by Prof. W.B. Walters (University of Maryland, co-author of 1970Zo01) in an e-mail reply of May 6, 2016. E _γ also reported in 1969Co20 .	
1759.6 2	0.10 1	2247.15	7/2 ⁺	487.30	5/2 ⁻					
1840.0 ^{&} 4	0.050 5	2805.17	7/2 ⁺ ,9/2 ⁺	964.76	5/2 ⁻					
1905.2 ^{&} 7	0.0048 6	2815.82	7/2 ⁺	909.91	3/2 ⁻	[M2]			E _γ : this γ to 3/2 ⁻ seems too strong with	

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⁷¹Zn β⁻ decay (4.126 h) [1970Zo01](#), [1970Ta07](#), [1969Co20](#) (continued)

γ(⁷¹Ga) (continued)

<u>E_γ[†]</u>	<u>I_γ^{‡c}</u>	<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>	<u>Mult.[#]</u>	<u>Comments</u>	
							B(M2)(W.u.)>RUL (see Adopted Levels, Gammas dataset).	
1963.8 ^{&}	7	0.006	1	2450.64	7/2 ⁺	487.30	5/2 ⁻	
2000.9 ^{&}	8	0.004	1	2488.22	7/2 ⁺ , 9/2 ⁺	487.30	5/2 ⁻	E _γ : this γ to 5/2 ⁻ could possibly be a sum line (1380.7γ+620.19γ).
2317.7 ^{&}	6	0.07	1	2805.17	7/2 ⁺ , 9/2 ⁺	487.30	5/2 ⁻	
2489.4 ^{&e}	8	0.005	1	2488.22	7/2 ⁺ , 9/2 ⁺	0.0	3/2 ⁻	[M2,E3] E _γ : this γ to 3/2 ⁻ could possibly be a sum line (1380.7γ+620.19γ+487.34γ); treated as uncertain by the evaluator.

[†] Weighted averages of values from [1970Zo01](#) and [1970Ta07](#). For very weak (<0.1 or so) and higher energy (>1500 keV) transitions, values are from [1970Zo01](#) only.

[‡] Weighted averages of values from [1970Zo01](#), [1970Ta07](#), [1969Co20](#) and [1967Li01](#).

[#] From Adopted Gammas. Values of mixing ratios from [1978Kr06](#) are given under comments.

[@] [1978Kr06](#) assumed E1 for 386γ and E2 for 596γ in the analysis of their γγ(θ) data. Measured A₂=-0.071 for 386-596 cascade supports these assumptions.

[&] From [1970Zo01](#) only.

^a Uncertainties of 0.05 and 0.06 in table 1 of [1970Zo01](#) seem unreasonable. The evaluators have increased these by a factor of 10.

^b Theoretical values from BrIcc v2.3b code (16-Dec-2014) with "Frozen Orbitals" approximation ([2008Ki07](#)).

^c For absolute intensity per 100 decays, multiply by 0.914 21.

^d Multiply placed with undivided intensity.

^e Placement of transition in the level scheme is uncertain.

^x γ ray not placed in level scheme.

⁷¹Zn β⁻ decay (4.126 h) ^{1970Zn01,1970Tn07,1969Co20}

Decay Scheme

Intensities: I_{γ+e⁺} per 100 parent decays
& Multiply placed: undivided intensity given

- Legend
- I_γ < 2% × I_{max}
 - I_γ < 10% × I_{max}
 - I_γ > 10% × I_{max}
 - γ Decay (Uncertain)
 - Coincidence

