^{81}Zn β^- decay (300 ms) 2020Pa26,2010Pa33,2007Ib01

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. Shamsuzzoha Basunia	NDS 199,271 (2025)	1-Sep-2024

Parent: ^{81}Zn: E=0.0; J^π=(1/2$^+$,5/2$^+$); $T_{1/2}$=300 ms *4*; Q(β^-)=11428 *6*; %β^- decay=100

Others references: 2007Ve08, 2007VeZZ, 2006VeZZ, 2004Ve14 – from the same research group of 2007Ib01.

2020Pa26: ^{81}Zn isotopes were collected on an Al stopper following the separation and acceleration of fission products from ≈2000°C UC_2/graphite target by fast neutrons converted from proton pulses, E=1.4–GeV, from the PS-Booster at CERN in intervals of 1.2 s; Detectors: two HPGe, two $LaBr_3$(Ce) detectors, and an NE111A plastic scintillator (3-mm-thick); measured Eγ, Iγ, $\beta\gamma$, $\gamma\gamma$ coin, γ gated time difference spectra; deduced level scheme, half-life of 1st and 2nd excited states of ^{81}Ga, $T_{1/2}$ and delayed %β-n branching of ^{81}Zn, etc. Contamination of ^{81}Rb ($T_{1/2}$=4.57 h) was present but activity was lower during the data taking.

2010Pa33: ^{81}Zn ions were produced by proton fission of uranium (UC_x target) at HRIBF at Oak Ridge National Laboratory using the isotope separation online (ISOL) technique and sent to the Low_energy Radioactive Ion Beam Spectroscopy Station (LeRIBSS) for radiation measurements; Detectors: High purity Ge clovers for γ ray and two plastic β scintillators for β ray measurements; measured Eγ, Iγ, $\gamma\gamma$ coin, $\beta\gamma$ coin. Deduced levels, J^π, branching ratios, $T_{1/2}$.

2007Ve08, 2007Ib01, 2007VeZZ, 2006VeZZ, 2004Ve14: ^{81}Zn source from n-induced fission in ≈2000° C UC_x target at the PARRNe ISOL facility; γ rays detected by two coaxial HPGe detectors of the EUROGAM phase I type; β rays were detected by plastic scintillators. Measured Eγ, $\gamma\gamma$ coin, $\beta\gamma$ coin, parent $T_{1/2}$.

In 2004Ve14, a tentative 1621.6γ from 1621.6 keV level was proposed. In 2010Pa33 this γ was not confirmed for ^{81}Zn and note that the energy region was contaminated by the 1620.5 -keV line from ^{212}Bi decay. Also not reported in 2020Pa26.

^{81}Ga Levels

E(level)†	J^π‡	$T_{1/2}$	Comments
0	5/2$^{(-)}$	1.219 s *5*	
351.00 *7*	(3/2$^-$)	60# ps *10*	Configuration: $\pi f_{7/2}$ (2007Ve08).
802.51 *8*	(3/2$^-$)	23# ps *16*	Configuration: $\pi(p_{3/2})^2$ (2007Ve08). $T_{1/2}$: measured by the absolute comparison using parallel transitions, also see the footnote.
1266.7 *4*			
1341.00 *10*	(9/2$^-$)		
1400.73 *10*	(7/2$^-$)		
1435.44 *12*			
1458.36 *15*	(5/2$^-$,3/2$^-$)		
1506.33 *9*			
1636.31 *12*			
1936.48 *10*	(5/2$^-$,3/2$^-$)	≤21 ps	
1952.39 *13*	(11/2$^-$)		
2198.2 *4*			
2285.61 *12*			
2416.5 *3*			
2686.41 *21*			
2788.5 *3*			
2830.8 *3*			
3158.1 *3*			
3189.3 *7*			
3725.8 *6*			
3753.8 *4*			
3909.6 *5*			
3949.3 *5*			
4114.7 *7*			
4209.3 *4*			

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^{81}Zn β^- decay (300 ms) 2020Pa26,2010Pa33,2007Ib01 (continued)

^{81}Ga Levels (continued)

E(level)[†]	J$^\pi$[‡]	Comments
4294.95 *15*	(3/2$^+$,5/2$^+$,7/2$^+$)	
4301.6 *4*		
4369.2 *4*		
4601.6 *5*		
4814.3 *6*		
4880.6 *4*	(3/2$^+$,5/2$^+$,7/2$^+$)	
4921.1 *4*		
5113.6 *6*		
5131.5 *6*		
5178.0 *3*		
5191.0 *7*		
5375.2 *5*		
5422.09 *25*		
5475.7 *5*		
5485.3 *5*		
5658.4 *4*		
5695.0 *7*		
5727.1 *4*		
5831.2 *5*		
5863.7 *3*		
5904.1 *8*		
5936.3 *6*		
5969.4 *7*		
6150.8 *7*		
6213.1 *4*		
6236.4 *5*		
6295.6 *5*		
6405.5 *5*		
6434.9 *4*		
6476+x		E(level): from S(n)=6476 *4* (^{81}Ga) and x<4952 *7* [from Q(β^-) (^{81}Zn=11428 *6*)-S(n)(^{81}Ga) (2021Wa16)].

[†] From a least-squares fitting to the Eγ.
[‡] From Adopted Levels.
[#] From 2020Pa26, from the Advanced Time-Delayed $\beta\gamma\gamma$(t) fast-timing method.

β^- radiations

β^- av Eβ: Additional information 1.

E(decay)	E(level)	Iβ^-[†‡]	Log *ft*	Comments
(2.5×10^3[#] *25*)	6476+x	23 *4*	4.1	av Eβ=2215.7 Iβ^-: From %β^-n=23 *4* in ^{81}Zn g.s. Adopted Levels.
(4993 *6*)	6434.9	0.034 *12*	6.99 *15*	av Eβ=2235.5 *29*
(5023 *6*)	6405.5	0.10 *2*	6.53 *9*	av Eβ=2250.0 *29*
(5132 *6*)	6295.6	0.10 *2*	6.57 *9*	av Eβ=2302.7 *29*
(5192 *6*)	6236.4	0.09 *2*	6.64 *10*	av Eβ=2331.7 *29*
(5215 *6*)	6213.1	0.11 *2*	6.56 *8*	av Eβ=2342.9 *29*
(5277 *6*)	6150.8	0.67 *12*	5.80 *8*	av Eβ=2372.9 *29*
(5459 *6*)	5969.4	0.86 *13*	5.76 *7*	av Eβ=2461.0 *29*
(5492 *6*)	5936.3	0.15 *4*	6.53 *12*	av Eβ=2477.0 *29*
(5524 *6*)	5904.1	0.75 *12*	5.84 *7*	av Eβ=2492.5 *29*

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^{81}Zn β^- decay (300 ms) 2020Pa26,2010Pa33,2007Ib01 (continued)

β^- radiations (continued)

E(decay)	E(level)	Iβ^-[†‡]	Log *ft*	Comments
(5564 *6*)	5863.7	0.22 *4*	6.39 *8*	av Eβ=2511.8 *29*
(5597 *6*)	5831.2	1.65 *25*	5.53 *7*	av Eβ=2527.8 *29*
(5701 *6*)	5727.1	0.22 *4*	6.44 *8*	av Eβ=2578.2 *29*
(5733 *6*)	5695.0	0.26 *8*	6.38 *13*	av Eβ=2593.7 *29*
(5770 *6*)	5658.4	1.27 *16*	5.70 *6*	av Eβ=2611.6 *29*
(5943 *6*)	5485.3	1.72 *25*	5.63 *6*	av Eβ=2695.5 *29*
(5952 *6*)	5475.7	0.94 *16*	5.89 *7*	av Eβ=2699.8 *29*
(6006 *6*)	5422.09	1.35 *18*	5.75 *6*	av Eβ=2726.0 *29*
(6053 *6*)	5375.2	0.19 *4*	6.62 *9*	av Eβ=2748.8 *29*
(6237 *6*)	5191.0	1.08 *17*	5.93 *7*	av Eβ=2838.0 *29*
(6250 *6*)	5178.0	3.1 *4*	5.47 *6*	av Eβ=2844.3 *29*
(6297 *6*)	5131.5	0.37 *12*	6.41 *14*	av Eβ=2867.1 *29*
(6314 *6*)	5113.6	1.20 *18*	5.91 *7*	av Eβ=2875.4 *29*
(6507 *6*)	4921.1	2.5 *4*	5.65 *7*	av Eβ=2969.0 *29*
(6547 *6*)	4880.6	2.7 *4*	5.63 *6*	av Eβ=2988.4 *29*
(6614 *6*)	4814.3	0.71 *12*	6.23 *7*	av Eβ=3020.9 *29*
(6826 *6*)	4601.6	0.19 *8*	6.86 *18*	av Eβ=3123.7 *29*
(7059 *6*)	4369.2	2.7 *4*	5.78 *6*	av Eβ=3236.8 *29*
(7126 *6*)	4301.6	1.05 *16*	6.21 *7*	av Eβ=3269.3 *29*
(7133 *6*)	4294.95	8.4 *7*	5.30 *4*	av Eβ=3272.7 *29*
(7219 *6*)	4209.3	1.9 *3*	5.97 *7*	av Eβ=3314.4 *29*
(7313 *6*)	4114.7	0.52 *12*	6.56 *10*	av Eβ=3360.0 *29*
(7479 *6*)	3949.3	0.79 *12*	6.43 *7*	av Eβ=3440.6 *29*
(7518 *6*)	3909.6	0.94 *15*	6.36 *7*	av Eβ=3459.5 *29*
(7674 *6*)	3753.8	0.79 *12*	6.48 *7*	av Eβ=3535.2 *29*
(7702 *6*)	3725.8	0.90 *13*	6.43 *6*	av Eβ=3548.8 *29*
(8239 *6*)	3189.3	0.37 *5*	6.95 *6*	av Eβ=3809.4 *29*
(8270 *6*)	3158.1	0.37 *5*	6.96 *6*	av Eβ=3824.4 *29*
(8597 *6*)	2830.8	0.56 *9*	6.86 *7*	av Eβ=3983.1 *29*
(8640 *6*)	2788.5	0.67 *9*	6.79 *6*	av Eβ=4004.0 *29*
(8742 *6*)	2686.41	0.89 *10*	6.69 *5*	av Eβ=4053.5 *29*
(9012 *6*)	2416.5	0.21 *4*	7.38 *8*	av Eβ=4184.5 *29*
(9142 *6*)	2285.61	0.74 *15*	6.86 *9*	av Eβ=4247.6 *29*
(9230 *6*)	2198.2	0.34 *5*	7.22 *6*	av Eβ=4290.3 *29*
(9476 *6*)	1952.39	0.37 *5*	7.23 *6*	av Eβ=4409.6 *29*
(9492 *6*)	1936.48	1.6 *4*	6.60 *11*	av Eβ=4417.4 *29*
(9792 *6*)	1636.31	1.0 *1*	6.87 *4*	av Eβ=4562.9 *29*
(9922 *6*)	1506.33	3.4 *3*	6.36 *4*	av Eβ=4626.0 *29*
(9970 *6*)	1458.36	4.0 *3*	6.30 *3*	av Eβ=4649.2 *29*
(9993 *6*)	1435.44	1.24 *11*	6.82 *4*	av Eβ=4660.4 *29*
(10027 *6*)	1400.73	3.8 *3*	6.34 *4*	av Eβ=4676.9 *29*
(10087 *6*)	1341.00	2.8 *3*	6.48 *5*	av Eβ=4706.0 *29*
(10161 *6*)	1266.7	1.42 *12*	6.79 *4*	av Eβ=4741.9 *29*
(10626 *6*)	802.51	6.5 *5*	6.22 *3*	av Eβ=4966.8 *29*
(11077 *6*)	351.00	5.1 *17*	6.41 *14*	av Eβ=5185.9 *29*
(11428 *6*)	0	<2.4	>6.8	av Eβ=5356.0 *29*

Iβ^-: deduced in 2020Pa26 using measured gamma intensities in ^{81}Ga, ^{81}Ge, and assumed β feeding via first-forbidden unique transitions to the ground state ($9/2^+$) and isomeric state ($1/2^+$) at 679.14 keV in ^{81}Ge.

† From γ-transition intensity balance at each level, except where otherwise noted.

‡ Absolute intensity per 100 decays.

Estimated for a range of levels.

^{81}Zn β^- decay (300 ms) 2020Pa26,2010Pa33,2007Ib01 (continued)

$\gamma(^{81}Ga)$

Iγ normalization: From ΣIγ to g.s. = 75.8 *40* [100 − (23 *4* (^{81}Zn β−n) + 1.2 *12* (from the β feeding upper limit of ≤2.4 to the g.s. of ^{81}Ga)) without considering the conversion coefficients].

E_γ [†]	I_γ [†#]	E_i(level)	J_i^π	E_f	J_f^π	Comments
333.3 *2*	0.80 *4*	2285.61		1952.39	(11/2$^-$)	%Iγ=0.299 *23*
351.1 *1*	100 *4*	351.00	(3/2$^-$)	0	5/2$^{(-)}$	%Iγ=37.4 *22* E$_\gamma$: weighted average of 350.9 *3* (2010Pa33) and 351.1 *1* (2020Pa26). I$_\gamma$: same value in 2010Pa33 and 2020Pa26.
451.6 *1*	20.1 *7*	802.51	(3/2$^-$)	351.00	(3/2$^-$)	%Iγ=7.5 *5* E$_\gamma$: weighted average of 451.6 *4* (2010Pa33) and 451.6 *1* (2020Pa26). I$_\gamma$: other: 19 *3* (2010Pa33).
478.2[‡@] *2*	0.35 *3*	1936.48	(5/2$^-$,3/2$^-$)	1458.36	(5/2$^-$,3/2$^-$)	%Iγ=0.131 *13*
611.4 *1*	1.8 *1*	1952.39	(11/2$^-$)	1341.00	(9/2$^-$)	%Iγ=0.67 *5*
632.9 *1*	0.90 *7*	1435.44		802.51	(3/2$^-$)	%Iγ=0.336 *33*
655.8[‡@] *2*	0.59 *6*	1458.36	(5/2$^-$,3/2$^-$)	802.51	(3/2$^-$)	%Iγ=0.221 *26* E$_\gamma$: in coincidence with 351γ.
802.4 *1*	4.9 *2*	802.51	(3/2$^-$)	0	5/2$^{(-)}$	%Iγ=1.83 *13* E$_\gamma$: weighted average of 802.2 *7* (2010Pa33) and 802.4 *1* (2020Pa26). I$_\gamma$: other: 6 *3* (2010Pa33).
884.8 *2*	0.95 *8*	2285.61		1400.73	(7/2$^-$)	%Iγ=0.36 *4*
894.1[‡@] *1*	0.84 *7*	2830.8		1936.48	(5/2$^-$,3/2$^-$)	%Iγ=0.314 *32*
915.6 *4*	3.0 *2*	1266.7		351.00	(3/2$^-$)	%Iγ=1.12 *10* E$_\gamma$: weighted average of 916.2 *8* (2010Pa33) and 915.5 *4* (2020Pa26). I$_\gamma$: other: 5 *3* (2010Pa33).
944.4 *4*	1.33 *8*	2285.61		1341.00	(9/2$^-$)	%Iγ=0.50 *4*
1084.7 *5*	3.0 *2*	1435.44		351.00	(3/2$^-$)	%Iγ=1.12 *10*
1107.4 *2*	5.7 *3*	1458.36	(5/2$^-$,3/2$^-$)	351.00	(3/2$^-$)	%Iγ=2.13 *17* E$_\gamma$: weighted average of 1107.6 *9* (2010Pa33) and 1107.4 *2* (2020Pa26). I$_\gamma$: other: 4 *3* (2010Pa33).
1155.0 *2*	0.68 *8*	1506.33		351.00	(3/2$^-$)	%Iγ=0.254 *33*
1185.2[‡@] *2*	0.8 *1*	5485.3		4301.6		%Iγ=0.30 *4* E$_\gamma$: In coincidence with 351γ.
1250.9 *2*	0.58 *7*	2686.41		1435.44		%Iγ=0.217 *29*
1266.9 *6*	0.79 *8*	1266.7		0	5/2$^{(-)}$	%Iγ=0.295 *34*
1285.3 *1*	2.7 *2*	1636.31		351.00	(3/2$^-$)	%Iγ=1.01 *9*
1341.0 *1*	10.5 *6*	1341.00	(9/2$^-$)	0	5/2$^{(-)}$	%Iγ=3.93 *31*
1400.7 *1*	11.0 *6*	1400.73	(7/2$^-$)	0	5/2$^{(-)}$	%Iγ=4.11 *32*
1458.3 *2*	5.0 *3*	1458.36	(5/2$^-$,3/2$^-$)	0	5/2$^{(-)}$	%Iγ=1.87 *15* E$_\gamma$: weighted average of 1458.3 *12* (2010Pa33) and 1458.3 *2* (2020Pa26). I$_\gamma$: other: 4 *2* (2010Pa33).
1506.4 *1*	8.5 *5*	1506.33		0	5/2$^{(-)}$	%Iγ=3.18 *26*
1585.5 *1*	7.0 *4*	1936.48	(5/2$^-$,3/2$^-$)	351.00	(3/2$^-$)	%Iγ=2.62 *21* E$_\gamma$: weighted average of 1585.4 *13* (2010Pa33) and 1585.5 *1* (2020Pa26). I$_\gamma$: other: 9 *5* (2010Pa33).
1847.2 *4*	0.9 *1*	2198.2		351.00	(3/2$^-$)	%Iγ=0.34 *4*
1936.3 *2*	8.1 *5*	1936.48	(5/2$^-$,3/2$^-$)	0	5/2$^{(-)}$	%Iγ=3.03 *25*

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^{81}Zn β^- decay (300 ms) 2020Pa26,2010Pa33,2007Ib01 (continued)

$\gamma(^{81}Ga)$ (continued)

E_γ †	I_γ †#	E_i(level)	J_i^π	E_f	J_f^π	Comments
						E_γ: weighted average of 1936.3 *17* (2010Pa33) and 1936.3 *2* (2020Pa26). I_γ: other: 10 *6* (2010Pa33).
2009.2 *2*	4.8 *3*	4294.95	$(3/2^+,5/2^+,7/2^+)$	2285.61		%Iγ=1.79 *15*
2065.5 *3*	0.57 *8*	2416.5		351.00	$(3/2^-)$	%Iγ=0.213 *32*
2285.5 *2*	3.7 *2*	2285.61		0	$5/2^{(-)}$	%Iγ=1.38 *11*
2358.4 *2*	10.9 *7*	4294.95	$(3/2^+,5/2^+,7/2^+)$	1936.48	$(5/2^-,3/2^-)$	%Iγ=4.08 *35* E_γ: weighted average of 2358.4 *20* (2010Pa33) and 2358.4 *2* (2020Pa26). I_γ: other: 17 *7* (2010Pa33).
2686.6 *4*	1.8 *2*	2686.41		0	$5/2^{(-)}$	%Iγ=0.67 *8*
2788.4 *3*	1.8 *2*	2788.5		0	$5/2^{(-)}$	%Iγ=0.67 *8*
2807.0 *3*	1.0 *1*	3158.1		351.00	$(3/2^-)$	%Iγ=0.37 *4*
2830.7 *3*	1.5 *2*	2830.8		0	$5/2^{(-)}$	%Iγ=0.56 *8*
2838.2 *7*	1.0 *1*	3189.3		351.00	$(3/2^-)$	%Iγ=0.37 *4*
3374.7 *6*	2.4 *3*	3725.8		351.00	$(3/2^-)$	%Iγ=0.90 *12*
3402.7 *4*	2.1 *3*	3753.8		351.00	$(3/2^-)$	%Iγ=0.79 *12*
3558.5 *5*	1.5 *2*	3909.6		351.00	$(3/2^-)$	%Iγ=0.56 *8*
3598.2 *5*	2.1 *3*	3949.3		351.00	$(3/2^-)$	%Iγ=0.79 *12*
3763.6 *7*	1.4 *3*	4114.7		351.00	$(3/2^-)$	%Iγ=0.52 *12*
3858.5 *4*	4.1 *6*	4209.3		351.00	$(3/2^-)$	%Iγ=1.53 *24*
3909.7 *8*	1.0 *3*	3909.6		0	$5/2^{(-)}$	%Iγ=0.37 *11*
3943.9 *5*	2.2 *4*	4294.95	$(3/2^+,5/2^+,7/2^+)$	351.00	$(3/2^-)$	%Iγ=0.82 *16*
3950.5 *4*	2.8 *4*	4301.6		351.00	$(3/2^-)$	%Iγ=1.05 *16*
4017.8 *5*	4.2 *6*	4369.2		351.00	$(3/2^-)$	%Iγ=1.57 *24*
4208.5 *6*	1.1 *2*	4209.3		0	$5/2^{(-)}$	%Iγ=0.41 *8*
4250.5 *5*	0.5 *2*	4601.6		351.00	$(3/2^-)$	%Iγ=0.19 *8*
4295.4 *4*	4.6 *6*	4294.95	$(3/2^+,5/2^+,7/2^+)$	0	$5/2^{(-)}$	%Iγ=1.72 *24* E_γ: weighted average of 4294 *4* (2010Pa33) and 4295.4 *4* (2020Pa26). I_γ: other: 13 *4* (2010Pa33).
4328.9 *6*	1.0 *3*	5131.5		802.51	$(3/2^-)$	%Iγ=0.37 *11*
4369.2 *4*	2.9 *6*	4369.2		0	$5/2^{(-)}$	%Iγ=1.08 *23*
4374.6 *7*	1.3 *3*	5178.0		802.51	$(3/2^-)$	%Iγ=0.49 *12*
4463.2 *6*	1.9 *3*	4814.3		351.00	$(3/2^-)$	%Iγ=0.71 *12*
4570.0 *4*	6.8 *8*	4921.1		351.00	$(3/2^-)$	%Iγ=2.54 *33*
4618.9 *7*	1.7 *3*	5422.09		802.51	$(3/2^-)$	%Iγ=0.64 *12*
4761.9 *10*	1.9 *3*	5113.6		351.00	$(3/2^-)$	%Iγ=0.71 *12*
4826.9 *4*	2.4 *3*	5178.0		351.00	$(3/2^-)$	%Iγ=0.90 *12*
4839.8 *7*	2.9 *4*	5191.0		351.00	$(3/2^-)$	%Iγ=1.08 *16*
4856.6 *5*	2.7 *3*	5658.4		802.51	$(3/2^-)$	%Iγ=1.01 *13*
4880.4 *4*	7.2 *9*	4880.6	$(3/2^+,5/2^+,7/2^+)$	0	$5/2^{(-)}$	%Iγ=2.7 *4* E_γ: weighted average of 4880 *4* (2010Pa33) and 4880.4 *4* (2020Pa26). I_γ: other: 19 *5* (2010Pa33).
5024.0 *5*	0.5 *1*	5375.2		351.00	$(3/2^-)$	%Iγ=0.19 *4*
5072.0 *5*	1.1 *2*	5422.09		351.00	$(3/2^-)$	%Iγ=0.41 *8*
5113.6 *6*	1.3 *3*	5113.6		0	$5/2^{(-)}$	%Iγ=0.49 *11*
5178.2 *5*	4.5 *6*	5178.0		0	$5/2^{(-)}$	%Iγ=1.68 *24*
5421.6 *3*	0.8 *2*	5422.09		0	$5/2^{(-)}$	%Iγ=0.30 *8*
5475.5 *5*	2.5 *4*	5475.7		0	$5/2^{(-)}$	%Iγ=0.93 *16*
5485.1 *5*	4.6 *6*	5485.3		0	$5/2^{(-)}$	%Iγ=1.72 *24*
5657.4 *5*	0.7 *2*	5658.4		0	$5/2^{(-)}$	%Iγ=0.26 *8*
5694.8 *7*	0.7 *2*	5695.0		0	$5/2^{(-)}$	%Iγ=0.26 *8*

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^{81}Zn β^- decay (300 ms) 2020Pa26,2010Pa33,2007Ib01 (continued)

$\gamma(^{81}Ga)$ (continued)

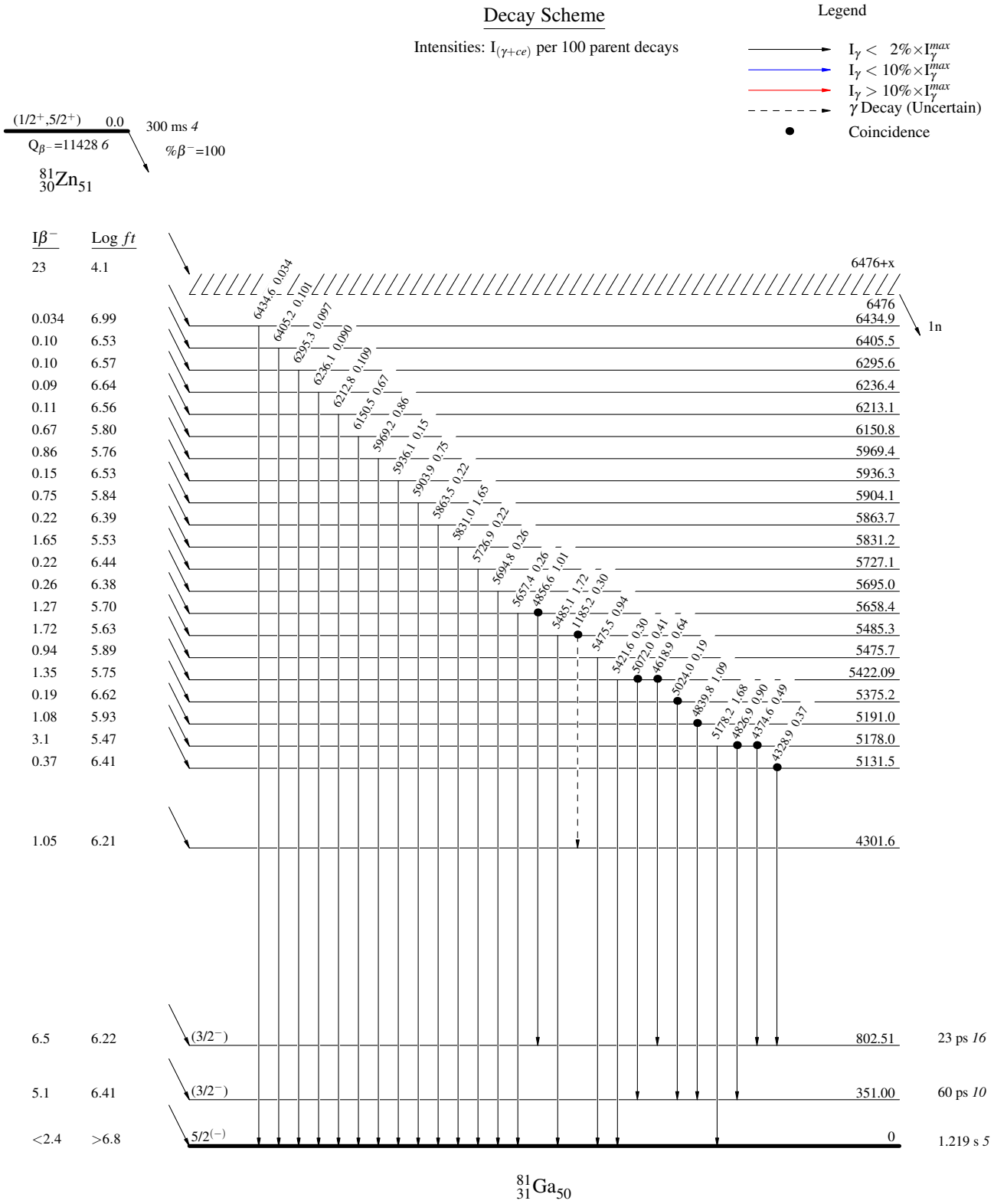
E_γ [†]	I_γ [†#]	E_i(level)	J_i^π	E_f	J_f^π	Comments
5726.9 *4*	0.6 *1*	5727.1		0	$5/2^{(-)}$	%Iγ=0.22 *4*
5831.0 *5*	4.4 *6*	5831.2		0	$5/2^{(-)}$	%Iγ=1.65 *24*
5863.5 *3*	0.6 *1*	5863.7		0	$5/2^{(-)}$	%Iγ=0.22 *4*
5903.9 *8*	2.0 *3*	5904.1		0	$5/2^{(-)}$	%Iγ=0.75 *12*
5936.1 *6*	0.4 *1*	5936.3		0	$5/2^{(-)}$	%Iγ=0.15 *4*
5969.2 *7*	2.3 *3*	5969.4		0	$5/2^{(-)}$	%Iγ=0.86 *12*
6150.5 *7*	1.8 *3*	6150.8		0	$5/2^{(-)}$	%Iγ=0.67 *12*
6212.8 *4*	0.29 *6*	6213.1		0	$5/2^{(-)}$	%Iγ=0.108 *23*
6236.1 *5*	0.24 *6*	6236.4		0	$5/2^{(-)}$	%Iγ=0.090 *23*
6295.3 *5*	0.26 *6*	6295.6		0	$5/2^{(-)}$	%Iγ=0.097 *23*
6405.2 *5*	0.27 *6*	6405.5		0	$5/2^{(-)}$	%Iγ=0.101 *23*
6434.6 *4*	0.09 *3*	6434.9		0	$5/2^{(-)}$	%Iγ=0.034 *11*

† From 2020Pa26, except where otherwise noted.
‡ Weak transition, tentatively placed in 2020Pa26 based on the fit between the existing energy levels.
# For absolute intensity per 100 decays, multiply by 0.374 *21*.
@ Placement of transition in the level scheme is uncertain.

^{81}Zn β^- decay (300 ms) 2020Pa26,2010Pa33,2007Ib01

Decay Scheme

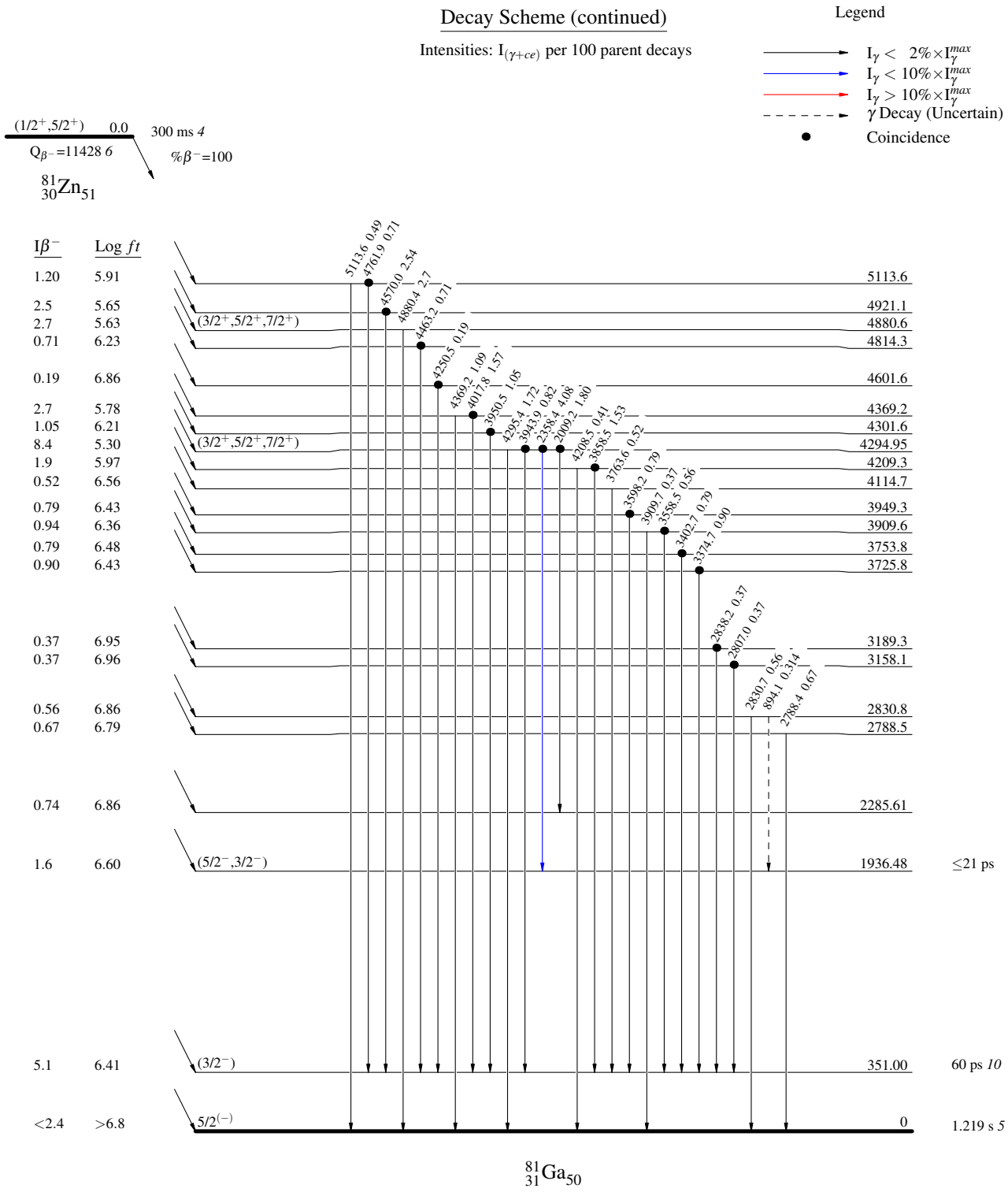
Intensities: $I_{(\gamma+ce)}$ per 100 parent decays



^{81}Zn β^- decay (300 ms) 2020Pa26,2010Pa33,2007Ib01

Decay Scheme (continued)

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



^{81}Zn β^- decay (300 ms) 2020Pa26,2010Pa33,2007Ib01

Decay Scheme (continued)

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