

Nuclear Wallet Cards

Nuclide			J^π	Δ (MeV)	$T_{1/2}$, Γ , or Abundance	Decay Mode		
Z	El	A						
0	n	1	1/2+	8.071	10.183 m 17	β^-		
1	H	1	1/2+	7.289	99.9885% 70			
		2	1+	13.136	0.0115% 70			
		3	1/2+	14.950	12.32 y 2	β^-		
		4	2-	24.6		n		
		5	(1/2+)	32.89	5.7 MeV 21	2n		
		6	(2-)	41.9	1.6 MeV 4	n		
		7	(1/2+)	47.9	29×10^{-23} y 7			
2	He	3	1/2+	14.931	0.000134% 3			
		4	0+	2.425	99.999866% 3			
		5	3/2-	11.23	0.60 MeV 2	α , n		
		6	0+	17.592	801 ms 10	β^-		
		7	(3/2)-	26.067	150 keV 20	n		
		8	0+	31.609	119.1 ms 12	β^- , β^- -n 16%		
		9	1/2+	39.78		n		
		10	0+	48.81	300 keV 200	n		
		3	Li	3		29s	unbound	p?
				4	2-	25.3	6.03 MeV	p
5	3/2-			11.68	≈ 1.5 MeV	p, α		
6	1+			14.087	7.59% 4			
7	3/2-			14.907	92.41% 4			
8	2+			20.945	839.9 ms 9	β^- , β^- - α		
9	3/2-			24.954	178.3 ms 4	β^- , β^- -n 50.8%		
10	(1-,2-)			33.05		n		
11	3/2-			40.728	8.75 ms 14	β^- , β^- -n 83%, β^- -2n 4.1%, β^- -n α 0.027%		
12				48.92	<10 ns	n?		
13				58.3				
4	Be			5	(1/2+)	37s		p
				6	0+	18.375	92 keV 6	p, α
		7	3/2-	15.768	53.24 d 4	ϵ		
		8	0+	4.941	5.57 eV 25	α		
		9	3/2-	11.348	100%			
		10	0+	12.607	1.387×10^6 y 12	β^-		
		11	1/2+	20.177	13.81 s 8	β^- , β^- - α 3.1%		
		12	0+	25.076	21.49 ms 3	β^- , β^- -n $\leq 1\%$		
		13	(1/2-)	33.21	2.7×10^{-21} s 18	n		
		14	0+	40.0	4.35 ms 17	β^- , β^- -n 81%, β^- -2n 5%		
		15		49.8s	<200 ns	n?		
		16	0+	57.7s	<200 ns	2n?		
		5	B	6		47s	unbound	2p?
				7	(3/2-)	27.87	1.4 MeV 2	α , p
8	2+			22.921	770 ms 3	ϵ , $\epsilon\alpha$		
9	3/2-			12.416	0.54 keV 21	p, 2 α		
10	3+			12.050	19.9% 7			
11	3/2-			8.667	80.1% 7			
12	1+			13.368	20.20 ms 2	β^- , β^- -3 α 1.58%		
13	3/2-			16.562	17.33 ms 17	β^-		
14	2-			23.66	12.5 ms 5	β^-		

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Z	El	A	(MeV)	Abundance	Decay Mode			
5	B	15	28.96	9.93 ms 7	β^- , β^-n 93.6%, β^-2n 0.4%			
		16	0-	37.12	<190 ps	n		
		17	(3/2-)	43.8	5.08 ms 5	β^- , β^-n 63%, β^-2n 11%, β^-3n 3.5%, β^-4n 0.4%		
		18	(4-)	51.9s	<26 ns	n?		
		19	(3/2-)	58.8s	2.92 ms 13	β^- , β^-n 72%, β^-2n 16%		
		20		67.1s				
		21		75.7s				
		6	C	8	0+	230 keV 50	p, α	
				9	(3/2-)	28.909	126.5 ms 9	ϵ , ϵp 61.6%, $\epsilon\alpha$ 38.4%
				10	0+	15.698	19.308 s 4	ϵ
11	3/2-			10.650	20.334 m 24	ϵ		
12	0+			0.000	98.93% 8			
13	1/2-			3.125	1.07% 8			
14	0+			3.020	5700 y 30	β^-		
15	1/2+			9.873	2.449 s 5	β^-		
16	0+			13.694	0.747 s 8	β^- , β^-n 99%		
17	3/2+			21.03	193 ms 13	β^- , β^-n 32%		
18	0+			24.92	92 ms 2	β^- , β^-n 31.5%		
19	1/2+			32.41	49 ms 4	β^- , β^-n 61%		
20	0+			37.6	14 ms +6-5	β^- , β^-n 72%		
21	(1/2+)	45.6s	<30 ns	n?				
22	0+	52.1s	6.1 ms +14-12	β^- , β^-n 61%, β^-2n <37%				
23		62.7s						
7	N	10		38.8	p			
		11	1/2+	24.30	0.83 MeV 3	p		
		12	1+	17.338	11.000 ms 16	ϵ		
		13	1/2-	5.345	9.965 m 4	ϵ		
		14	1+	2.863	99.636% 20			
		15	1/2-	0.101	0.364% 20			
		16	2-	5.683	7.13 s 2	β^- , β^-n 1.2 \times 10 ⁻³ %		
		17	1/2-	7.87	4.173 s 4	β^- , β^-n 95.1%		
		18	1-	13.11	620 ms 8	β^- , β^-n 12.2%, β^-n 7%		
		19		15.86	336 ms 3	β^- , β^-n 41.8%		
		20	2-	21.76	136 ms 3	β^- , β^-n 42.9%		
		21	(1/2-)	25.25	83 ms 8	β^- , β^-n 90.5%		
		22	(0-,1-)	32.0	20 ms 2	β^- , β^-n 33%, β^-2n 12%		
23		38.4s	14.5 ms 14	β^- , β^-n , β^-2n				
24		47.5s	<52 ns	n?				
25		56.5s						
8	O	12	0+	32.05	0.40 MeV 25	p		
		13	(3/2-)	23.114	8.58 ms 5	ϵ , ϵp		
		14	0+	8.007	70.620 s 15	ϵ		
		15	1/2-	2.855	122.24 s 16	ϵ		

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Z	El	A	(MeV)	Abundance		
8	O	16	0+	-4.737	99.757% 16	
		17	5/2+	-0.809	0.038% 1	
		18	0+	-0.783	0.205% 14	
		19	5/2+	3.333	26.88 s 5	β^-
		20	0+	3.796	13.51 s 5	β^-
		21	(5/2+)	8.06	3.42 s 10	β^-
		22	0+	9.28	2.25 s 9	β^- , $\beta^-n < 22\%$
		23	1/2+	14.62	97 ms 8	β^- , $\beta^-n 7\%$
		24	0+	18.5	65 ms 5	β^- , $\beta^-n 58\%$
		25		27.3		
		26	0+	35.1s	<40 ns	n?
		27		44.1s	<260 ns	n?
		28	0+	52.9s	<100 ns	n?
		9	F	14	(2-)	31.96
15	(1/2+)			16.81	1.0 MeV 2	p
16	0-			10.680	40 keV 20	p
17	5/2+			1.951	64.49 s 16	ϵ
18	1+			0.873	109.77 m 5	ϵ
19	1/2+			-1.487	100%	
20	2+			-0.017	11.07 s 6	β^-
21	5/2+			-0.047	4.158 s 20	β^-
22	(4+)			2.79	4.23 s 4	β^- , $\beta^-n < 11\%$
23	5/2+			3.3	2.23 s 14	β^-
24	(1,2,3)+			7.56	390 ms 70	β^- , $\beta^-n < 5.9\%$
25	5/2+			11.36	80 ms 9	β^- , $\beta^-n 23.1\%$
26	(1+)			18.67	9.7 ms 7	β^- , $\beta^-n 11\%$
27	(5/2+)			24.6	5.0 ms 2	β^- , $\beta^-n 77\%$
28		33.1s	<40 ns			
29	(5/2+)	40.0s	2.5 ms 3	β^- , β^-n		
30		48.4s		n		
31		55.9s	>250 ns	β^-n , β^-		
10	Ne	16	0+	24.00	9×10^{-21} s	2p
		17	1/2-	16.500	109.2 ms 6	ϵ , ϵp , $\epsilon \alpha$
		18	0+	5.317	1.6670 s 17	ϵ
		19	1/2+	1.752	17.22 s 2	ϵ
		20	0+	-7.042	90.48% 3	
		21	3/2+	-5.731	0.27% 1	
		22	0+	-8.024	9.25% 3	
		23	5/2+	-5.154	37.24 s 12	β^-
		24	0+	-5.951	3.38 m 2	β^-
		25	1/2+	-2.06	602 ms 8	β^-
		26	0+	0.48	197 ms 1	β^- , $\beta^-n 0.13\%$
		27	(3/2+)	7.03	31.5 ms 13	β^- , $\beta^-n 2\%$
		28	0+	11.29	18.9 ms 4	β^- , $\beta^-n 12\%$, $\beta^- 3.6\%$
		29	(3/2+)	18.40	14.8 ms 3	β^- , $\beta^-n 28\%$, $\beta^-n 4\%$
30	0+	23.0	7.3 ms 3	β^- , $\beta^-n 13\%$, $\beta^- 8.9\%$		
31		31	3.4 ms 8	β^- , β^-n		
32	0+	37.0s	3.5 ms 9	β^- , β^-n		
33		46.0s	<180 ns	n		

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Z	El	A	(MeV)	Abundance	
10	Ne	34	0+	52.8s	>60 ns β^- -n, β^-
11	Na	18	1-	25.0	1.3×10^{-21} s 4 p
		19	(5/2+)	12.93	<40 ns p
		20	2+	6.850	447.9 ms 23 ϵ , $\epsilon\alpha$ 20.05%
		21	3/2+	-2.184	22.49 s 4 ϵ
		22	3+	-5.181	2.6027 y 10 ϵ
		23	3/2+	-9.530	100%
		24	4+	-8.417	14.997 h 12 β^-
		24m	1+	-7.945	20.18 ms 10 IT 99.95%, $\beta^- \approx 0.05%$
		25	5/2+	-9.357	59.1 s 6 β^-
		26	3+	-6.860	1.07128 s 25 β^-
		27	5/2+	-5.517	301 ms 6 β^- , β^- -n 0.13%
		28	1+	-0.99	30.5 ms 4 β^- , β^- -n 0.58%
		29	3/2+	2.67	44.9 ms 12 β^- , β^- -n 21.5%
		30	2+	8.37	48 ms 2 β^- , β^- -n 30%, β^- -2n 1.15%, β^- - α $5.5 \times 10^{-5}\%$
		31	3/2(+)	12.5	17.0 ms 4 β^- , β^- -n 37%, β^- -2n 0.87%, β^- -3n < 0.05%
		32	(3-,4-)	18.8	13.2 ms 4 β^- , β^- -n 24%, β^- -2n 8%
33	(3/2+)	24.0s	8.0 ms 4 β^- , β^- -n 47%, β^- -2n 13%		
34		31.3s	5.5 ms 10 β^- , β^- -2n $\approx 50\%$, β^- -n $\approx 15\%$		
35		37.8s	1.5 ms 5 β^- , β^- -n		
36		45.9s	<180 ns n		
37		53.1s	>60 ns β^- -n, β^-		
12	Mg	19		31.83	4.0 ps 15 2p
		20	0+	17.56	90.8 ms 24 ϵ , $\epsilon p \approx 27\%$
		21	5/2+	10.91	122 ms 3 ϵ , ϵp 32.6%, $\epsilon\alpha < 0.5\%$
		22	0+	-0.399	3.8755 s 12 ϵ
		23	3/2+	-5.473	11.317 s 11 ϵ
		24	0+	-13.933	78.99% 4
		25	5/2+	-13.192	10.00% 1
		26	0+	-16.214	11.01% 3
		27	1/2+	-14.586	9.458 m 12 β^-
		28	0+	-15.018	20.915 h 9 β^-
		29	3/2+	-10.60	1.30 s 12 β^-
		30	0+	-8.89	335 ms 17 β^-
		31	1/2(+)	-3.19	232 ms 15 β^- , β^- -n 1.7%
		32	0+	-0.91	86 ms 5 β^- , β^- -n 5.5%
		33	3/2-	4.95	90.5 ms 16 β^- , β^- -n 14%
		34	0+	8.56	20 ms 10 β^- , β^- -n
		35	(7/2-)	15.6	70 ms 40 β^- , β^- -n 52%
		36	0+	20.4	3.9 ms 13 β^- , β^- -n
		37	(7/2-)	28.3s	>260 ns β^- , β^- -n
38	0+	34.1s	>260 ns β^- , β^- -n		
39		42.3s	<180 ns n		

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Z	El	A	(MeV)	Abundance			
12	Mg	40	0+	48.6s	>170 ns	β^- , β^-n	
13	Al	21	(5/2+)	27.1s	<35 ns	p	
		22	4+	18.2s	91.1 ms	5	ϵ , ϵp 54.5%, $\epsilon 2p$ 1.1%, $\epsilon \alpha$ 0.04%
		23	5/2+	6.748	446 ms	6	ϵ , ϵp 1.22%
		24	4+	-0.048	2.053 s	4	ϵ , ϵp $1.6 \times 10^{-3}\%$, $\epsilon \alpha$ 0.04%
		24m	1+	0.378	130 ms	3	IT 82.5%, ϵ 17.5%, $\epsilon \alpha$ 0.03%
		25	5/2+	-8.916	7.183 s	12	ϵ
		26	5+	-12.210	7.17×10^5 y	24	ϵ
		26m	0+	-11.982	6.3464 s	7	ϵ
		27	5/2+	-17.196	100%		
		28	3+	-16.850	2.2414 m	12	β^-
		29	5/2+	-18.215	6.56 m	6	β^-
		30	3+	-15.87	3.62 s	6	β^-
		31	(3/2,5/2)+	-14.95	644 ms	25	β^-
		32	1+	-11.06	33.0 ms	2	β^- , β^-n 0.7%
		33	(5/2)+	-8.44	41.7 ms	2	β^- , β^-n 8.5%
		34		-3.05	42 ms	6	β^- , β^-n 27%
35		-0.22	37.2 ms	8	β^- , β^-n 38%		
36		5.95	90 ms	40	β^- , β^-n <31%		
37		9.8	10.7 ms	13	β^-		
38		16.2	7.6 ms	6	β^- , β^-n		
39		21.0s	7.6 ms	16	β^- , β^-n		
40		28.0s	>260 ns		β^- , β^-n		
41		33.9s	>260 ns		β^-		
42		41.5s	>170 ns		β^- , β^-n		
43		48.4s	>170 ns		β^- , β^-n		
14	Si	22	0+	33.0s	29 ms	2	ϵ , ϵp 32%
		23	(5/2)+	23.1s	42.3 ms	4	ϵ , ϵp 71%, $\epsilon 2p$ 3.6%
		24	0+	10.75	140.5 ms	15	ϵ , ϵp 45%
		25	5/2+	3.83	220 ms	3	ϵ , ϵp 35%
		26	0+	-7.140	2.229 s	3	ϵ
		27	5/2+	-12.384	4.15 s	4	ϵ
		28	0+	-21.493	92.223%	19	
		29	1/2+	-21.895	4.685%	8	
		30	0+	-24.432	3.092%	11	
		31	3/2+	-22.949	157.3 m	3	β^-
		32	0+	-24.077	153 y	19	β^-
		33	3/2+	-20.514	6.11 s	21	β^-
		34	0+	-19.96	2.77 s	20	β^-
		35		-14.36	0.78 s	12	β^- , β^-n <5%
		36	0+	-12.42	0.45 s	6	β^- , β^-n <10%
		37	(7/2-)	-6.59	90 ms	60	β^- , β^-n 17%
38	0+	-4.17	>1 μ s		β^- , β^-n		
39		2.32	47.5 ms	20	β^- , β^-n		
40	0+	5.4	33.0 ms	10	β^- , β^-n		
41		12.1	20.0 ms	25	β^- , β^-n ?		
42	0+	16.6s	12.5 ms	35	β^- , β^-n		
43		23.1s	>60 ns		β^- , β^-n		
44	0+	28.5s	>360 ns		β^- , β^-n		

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14	Si	45		37.2s		
15	P	24	(1+)	32.8s	$\epsilon ? , p ?$	
		25	(1/2+)	19.7s	<30 ns	p
		26	(3+)	11.0s	43.7 ms	6 $\epsilon , \epsilon p$
		27	1/2+	-0.71	260 ms	80 $\epsilon , \epsilon p$ 0.07%
		28	3+	-7.149	270.3 ms	5 $\epsilon , \epsilon p$ $1.3 \times 10^{-3} \% ,$ $\epsilon \alpha$ $8.6 \times 10^{-4} \%$
		29	1/2+	-16.952	4.142 s	15 ϵ
		30	1+	-20.200	2.498 m	4 ϵ
		31	1/2+	-24.441		100%
		32	1+	-24.304	14.262 d	14 β^-
		33	1/2+	-26.337	25.35 d	11 β^-
		34	1+	-24.548	12.43 s	8 β^-
		35	1/2+	-24.857	47.3 s	7 β^-
		36	4-	-20.25	5.6 s	3 β^-
		37		-19.00	2.31 s	13 β^-
		38	(0-;4-)	-14.64	0.64 s	14 $\beta^- , \beta^- n$ 12%
		39	(1/2+)	-12.80	0.28 s	4 $\beta^- , \beta^- n$ 26%
		40	(2-,3-)	-8.1	125 ms	25 $\beta^- , \beta^- n$ 15.8%
		41	(1/2+)	-4.98	100 ms	5 $\beta^- , \beta^- n$ 30%
		42		1.0	48.5 ms	15 $\beta^- , \beta^- n$ 50%
		43	(1/2+)	4.7	36.5 ms	15 $\beta^- , \beta^- n$
44		10.4s	18.5 ms	25 $\beta^- , \beta^- n$		
45		15.3s	>200 ns	β^-		
46		22.8s	>200 ns	β^-		
47		29.2s				
16	S	26	0+	27.1s	<79 ns	2p?
		27	(5/2+)	17.0s	15.5 ms	15 $\epsilon , \epsilon p$ 2.3%, $\epsilon 2p$ 1.1%
		28	0+	4.1	125 ms	10 $\epsilon , \epsilon p$ 20.7%
		29	5/2+	-3.16	187 ms	4 $\epsilon , \epsilon p$ 47%
		30	0+	-14.062	1.178 s	5 ϵ
		31	1/2+	-19.043	2.572 s	13 ϵ
		32	0+	-26.015		94.99% 26
		33	3/2+	-26.586		0.75% 2
		34	0+	-29.931		4.25% 24
		35	3/2+	-28.846	87.37 d	4 β^-
		36	0+	-30.664		0.01% 1
		37	7/2-	-26.896	5.05 m	2 β^-
		38	0+	-26.861	170.3 m	7 β^-
		39	(7/2)-	-23.16	11.5 s	5 β^-
		40	0+	-22.9	8.8 s	22 β^-
		41	(7/2-)	-19.09	1.99 s	5 $\beta^- , \beta^- n$
		42	0+	-17.7	1.03 s	3 β^-
		43		-12.07	0.28 s	3 $\beta^- , \beta^- n$ 40%
		44	0+	-9.1	100 ms	1 $\beta^- , \beta^- n$ 18%
		45		-4.0	68 ms	2 $\beta^- , \beta^- n$ 54%
46	0+	0.0s	50 ms	8 β^-		
47		7.4s				
48	0+	12.8s	≥ 200 ns	β^-		
49		21.2s	<200 ns	n		
17	Cl	28	(1+)	27.5s	p?	

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17	Cl	29	(3/2+)	13.8s	<20 ns	p	
		30	(3+)	4.4s	<30 ns	p	
		31		-7.07	150 ms	25	ϵ , ϵp 0.7%
		32	1+	-13.335	298 ms	1	ϵ , $\epsilon\alpha$ 0.05%, ϵp 0.03%
		33	3/2+	-21.003	2.511 s	4	ϵ
		34	0+	-24.440	1.5264 s	14	ϵ
		34m	3+	-24.294	32.00 m	4	ϵ 55.4%, IT 44.6%
		35	3/2+	-29.013	75.76%	10	
		36	2+	-29.521	3.01×10^5 y	2	β^- 98.1%, ϵ 1.9%
		37	3/2+	-31.761	24.24%	10	
		38	2-	-29.798	37.24 m	5	β^-
		38m	5-	-29.127	715 ms	3	IT
		39	3/2+	-29.800	56.2 m	6	β^-
		40	2-	-27.56	1.35 m	2	β^-
		41	(1/2+)	-27.31	38.4 s	8	β^-
		42		-24.9	6.8 s	3	β^-
		43	(1/2+)	-24.4	3.13 s	9	β^-
		44	(2-)	-20.6	0.56 s	11	β^- , $\beta^- n$ <8%
		45	(1/2+)	-18.36	413 ms	25	β^- , $\beta^- n$ 24%
		46		-13.8	232 ms	2	β^- , $\beta^- n$ 60%
		47		-10.1s	101 ms	6	β^- , $\beta^- n$ >0%
48		-4.1s	≥ 200 ns		β^-		
49		1.1s	≥ 170 ns		β^-		
50		8.4s	>620 ns		β^- , $\beta^- n$		
51	(3/2+)	14.5s	>200 ns		β^-		
18	Ar	30	0+	21.5s	<20 ns	p?	
		31	5/2(+)	11.3s	14.4 ms	6	ϵ , ϵp 62%, $\epsilon 2p$ 8.5%
		32	0+	-2.200	100.5 ms	3	ϵ , ϵp 35.6%
		33	1/2+	-9.384	173.0 ms	20	ϵ , ϵp 38.7%
		34	0+	-18.377	844.5 ms	34	ϵ
		35	3/2+	-23.047	1.7756 s	10	ϵ
		36	0+	-30.231	0.3336%	21	
		37	3/2+	-30.947	35.04 d	4	ϵ
		38	0+	-34.714	0.0629%	7	
		39	7/2-	-33.242	269 y	3	β^-
		40	0+	-35.040	99.6035%	25	
		41	7/2-	-33.067	109.61 m	4	β^-
		42	0+	-34.422	32.9 y	11	β^-
		43	(5/2-)	-32.009	5.37 m	6	β^-
		44	0+	-32.673	11.87 m	5	β^-
		45	5/2-, 7/2-	-29.770	21.48 s	15	β^-
		46	0+	-29.73	8.4 s	6	β^-
		47	(3/2)-	-25.21	1.23 s	3	β^- , $\beta^- n$ <0.2%
48	0+	-22.6s	475 ms	40	β^-		
49		-16.8s	170 ms	50	β^- , $\beta^- n$ 65%		
50	0+	-12.8s	85 ms	30	β^- , $\beta^- n$ 35%		
51		-5.9s	>200 ns		β^-		
52	0+	-1.0s	>620 ns		β^- ?		
53		7.1s	>620 ns		β^- ?, $\beta^- n$?, $\beta^- 2n$?		
19	K	32		21.1s		p?	
		33		7.0s	<25 ns	p	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or	Decay Mode	
Z	El	A	(MeV)	Abundance		
19	K	34	(1+)	-1.2s	<25 ns	p
		35	3/2+	-11.172	178 ms	8 ϵ , ϵ p 0.37%
		36	2+	-17.417	342 ms	2 ϵ , ϵ p 0.05%, $\epsilon\alpha$ $3.4\times 10^{-3}\%$
		37	3/2+	-24.800	1.226 s	7 ϵ
		38	3+	-28.800	7.636 m	18 ϵ
		38m	0+	-28.670	924.3 ms	3 ϵ 99.97%, IT 0.03%
		39	3/2+	-33.807	93.2581%	44
		40	4-	-33.535	1.248×10^9 y	3 0.0117% 1 β - 89.28%, ϵ 10.72%
		41	3/2+	-35.560	6.7302%	44
		42	2-	-35.022	12.321 h	25 β -
		43	3/2+	-36.575	22.3 h	1 β -
		44	2-	-35.781	22.13 m	19 β -
		45	3/2+	-36.615	17.81 m	61 β -
		46	(2-)	-35.413	105 s	10 β -
		47	1/2+	-35.708	17.50 s	24 β -
		48	(2-)	-32.285	6.8 s	2 β -, β -n 1.14%
		49	(1/2+,3/2+)	-29.611	1.26 s	5 β -, β -n 86%
		50	(0-,1-,2-)	-25.74	472 ms	4 β -, β -n 29%
		51	(1/2+,3/2+)	-21.6s	365 ms	5 β -, β -n 47%
		52	(2-)	-16.0s	118 ms	6 β -, β -n \approx 73%
		53	(3/2+)	-11.1s	30 ms	5 β -, β -n \approx 75%, β -2n < 1%
54		-4.3s	10 ms	5 β -, β -n > 0%		
55		2s	>360 ns	β -, β -n		
56		8.7s	>620 ns	β -, β -n?, β -2n?		
20	Ca	34	0+	13.9s	<35 ns	p
		35		4.8s	25.7 ms	2 ϵ , ϵ p 95.9%, ϵ 2p 4.1%
		36	0+	-6.45	102 ms	2 ϵ , ϵ p 54.3%
		37	3/2+	-13.135	181.1 ms	10 ϵ , ϵ p 82.1%
		38	0+	-22.058	440 ms	12 ϵ
		39	3/2+	-27.282	859.6 ms	14 ϵ
		40	0+	-34.846	$>3.0\times 10^{21}$ y	2 96.94% 16 ϵ
		41	7/2-	-35.137	1.02×10^5 y	7 ϵ
		42	0+	-38.547	0.647%	23
		43	7/2-	-38.408	0.135%	10
		44	0+	-41.468	2.09%	11
		45	7/2-	-40.812	162.61 d	9 β -
		46	0+	-43.139	$>0.28\times 10^{16}$ y	2 0.004% 3 2β -
		47	7/2-	-42.345	4.536 d	3 β -
		48	0+	-44.223	$>5.8\times 10^{22}$ y	2 0.187% 21 2β - 75%
		49	3/2-	-41.298	8.718 m	6 β -
		50	0+	-39.588	13.9 s	6 β -
		51	(3/2-)	-35.87	10.0 s	8 β -, β -n
52	0+	-32.5	4.6 s	3 β -, β -n \leq 2%		
53	(3/2-,5/2-)	-27.5s	90 ms	15 β -, β -n > 30%		
54	0+	-23.0s	86 ms	7 β -		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$			
Z	El	A	J π	(MeV)	Abundance	Decay Mode	
20	Ca	55	(5/2-)	-17.0s	22 ms 2	β^- , β^-n	
		56	0+	-12.4s	11 ms 2	β^- , $\beta^-n?$	
		57		-5s	>620 ns	β^- , β^-n , β^-2n	
		58	0+	-0.3s	>620 ns	β^- , β^-n	
21	Sc	36		15.5s		p?	
		37		3.6s		p?	
		38		-4.4s		p	
		39	(7/2-)	-14.17	<300 ns		p
		40	4-	-20.523	182.3 ms 7		ϵ , ϵp 0.44%, $\epsilon\alpha$ 0.02%
		41	7/2-	-28.642	596.3 ms 17		ϵ
		42	0+	-32.121	681.3 ms 7		ϵ
		42m	(7)+	-31.505	61.7 s 4		ϵ
		43	7/2-	-36.188	3.891 h 12		ϵ
		44	2+	-37.816	3.97 h 4		ϵ
		44m	6+	-37.545	58.61 h 10		IT 98.8%, ϵ 1.2%
		45	7/2-	-41.070	100%		
		45m	3/2+	-41.058	318 ms 7		IT
		46	4+	-41.759	83.79 d 4		β^-
		46m	1-	-41.617	18.75 s 4		IT
		47	7/2-	-44.336	3.3492 d 6		β^-
		48	6+	-44.502	43.67 h 9		β^-
		49	7/2-	-46.560	57.18 m 13		β^-
		50	5+	-44.55	102.5 s 5		β^-
		50m	2+,3+	-44.29	0.35 s 4		IT>97.5%, β^- <2.5%
		51	(7/2)-	-43.23	12.4 s 1		β^-
		52	3(+)	-40.4	8.2 s 2		β^-
		53	(7/2)-	-37.5s	2.4 s 6		β^- , $\beta^-n?$
		54	(3)+	-33.7s	526 ms 15		β^-
		55	(7/2)-	-29.6	96 ms 2		β^- , β^-n 17%
		56	(1+)	-24.5s	26 ms 6		β^- , $\beta^-n?$
		56m	(5,6)+	-24.5s	75 ms 6		β^- , β^-n >14%
		57	(7/2)-	-20.1s	22 ms 2		β^- , β^-n
		58		-14.4s	12 ms 5		β^- , β^-n
		59		-9.6s	>360 ns		β^- , β^-n
		60		-3.4s	>360 ns		β^- , β^-n
61		1.6s	>360 ns		β^- , β^-n		
22	Ti	38	0+	10.6s			
		39	(3/2+)	2.2s	31 ms +6-4		ϵ , ϵp
		40	0+	-8.9	52.4 ms 3		ϵ , ϵp 97.5%
		41	3/2+	-15.1	80.4 ms 9		ϵ , ϵp
		42	0+	-25.104	199 ms 6		ϵ
		43	7/2-	-29.321	509 ms 5		ϵ
		44	0+	-37.548	60.0 y 11		ϵ
		45	7/2-	-39.008	184.8 m 5		ϵ
		46	0+	-44.127	8.25% 3		
		47	5/2-	-44.936	7.44% 2		
		48	0+	-48.491	73.72% 3		
		49	7/2-	-48.562	5.41% 2		
		50	0+	-51.430	5.18% 2		
		51	3/2-	-49.731	5.76 m 1		β^-
52	0+	-49.468	1.7 m 1		β^-		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or	Decay Mode			
Z	El	A	(MeV)	Abundance				
22	Ti	53	(3/2)-	-46.8	32.7 s 9	β^-		
		54	0+	-45.6	1.5 s 4	β^-		
		55	(1/2)-	-41.7	1.3 s 1	β^-		
		56	0+	-38.9	0.200 s 5	β^- , β^-n		
		57	(5/2-)	-33.5	98 ms 5	β^- , β^-n		
		58	0+	-30.7s	57 ms 10	β^- , β^-n		
		59	(5/2-)	-25.0s	27.5 ms 25	β^-		
		60	0+	-21.5s	22.4 ms 25	β^-		
		61	(1/2-)	-15.5s	15 ms 4	β^- , β^-n		
		62	0+	-11.8s	>620 ns	β^- , β^-n		
		63		-5.2s	>360 ns	β^- , β^-n		
		23	V	40		11.6s		p?
				41		0.0s		p?
42				-7.6s	<55 ns		p	
43				-18.0s	79.3 ms 24		ϵ	
44	(2+)			-24.1	111 ms 7		ϵ , $\epsilon\alpha$	
44m	(6+)			-24.1	150 ms 3		ϵ	
45	7/2-			-31.88	547 ms 6		ϵ	
46	0+			-37.074	422.50 ms 11		ϵ	
46m	3+			-36.272	1.02 ms 7		IT	
47	3/2-			-42.005	32.6 m 3		ϵ	
48	4+			-44.476	15.9735 d 25		ϵ	
49	7/2-			-47.960	330 d 15		ϵ	
50	6+			-49.224	>2.1×10 ¹⁷ y		ϵ >92.9%, β^- <7.1%	
					0.250% 2			
51	7/2-			-52.203	99.750% 2			
52	3+			-51.443	3.743 m 5		β^-	
53	7/2-			-51.849	1.543 m 14		β^-	
54	3+			-49.89	49.8 s 5		β^-	
55	(7/2-)			-49.2	6.54 s 15		β^-	
56	1+			-46.1	0.216 s 4		β^- , β^-n	
57	(7/2-)			-44.2	0.32 s 3		β^- , β^-n	
58	(1+)			-40.2	191 ms 10		β^- , β^-n	
59	(5/2-)			-37.1	97 ms 2		β^- , β^-n <3%	
60		-32.6	68 ms 5		β^-			
60m		-32.6	40 ms 15		β^- , β^-n			
60m		-32.6	122 ms 18		β^- , β^-n			
61	(3/2-)	-29.5s	52.6 ms 42		β^- , β^-n ≥ 6%			
62		-24.6s	33.5 ms 20		β^- , β^-n			
63	7/2-	-21.1s	19.2 ms 24		β^- , β^-n ≈ 35%			
64		-15.6s	19 ms 8		β^-			
65		-11.3s	>360 ns		β^- , β^-n			
66		-5.3s	>360 ns		β^- , β^-n			
24	Cr	42	0+	6.5s	13.3 ms 10	ϵ , ϵp 94.4%		
		43	(3/2+)	-1.9s	20.6 ms 9	ϵ , ϵp 81%, $\epsilon 2p$ 7.1%, $\epsilon 3p$ 0.08%		
		44	0+	-13.1s	42.8 ms 6	ϵ , ϵp 14%		
		45	(7/2-)	-19.4s	60.9 ms 4	ϵ , ϵp 34.4%		
		46	0+	-29.47	0.26 s 6	ϵ		
		47	3/2-	-34.56	500 ms 15	ϵ		
		48	0+	-42.821	21.56 h 3	ϵ		
		49	5/2-	-45.332	42.3 m 1	ϵ		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode	
Z	El	A	(MeV)	Abundance		
24	Cr	50	0+	-50.261	$>1.3 \times 10^{18}$ y 4.345% 13	2ϵ
		51	7/2-	-51.451	27.7025 d 24	ϵ
		52	0+	-55.418	83.789% 18	
		53	3/2-	-55.285	9.501% 17	
		54	0+	-56.933	2.365% 7	
		55	3/2-	-55.108	3.497 m 3	β^-
		56	0+	-55.281	5.94 m 10	β^-
		57	(3/2)-	-52.524	21.1 s 10	β^-
		58	0+	-51.8	7.0 s 3	β^-
		59	(1/2-)	-47.9	1.05 s 9	β^-
		60	0+	-46.5	0.49 s 1	β^-
		61	(5/2-)	-42.2	243 ms 11	β^- , β^-n
		62	0+	-40.4	206 ms 12	β^- , β^-n
		63	1/2-	-35.6s	129 ms 2	β^- , β^-n
		64	0+	-33.3s	42 ms 2	β^-
		65	(1/2-)	-27.8s	28 ms 3	β^-
		66	0+	-24.3s	23 ms 4	β^-
		67		-18.5s		$\beta^-?$
68	0+	-14.9s	>360 ns	β^- , β^-n		
25	Mn	44	(2-)	6.7s	<105 ns	ϵ , p
		45		-5.1s		
		46	(4+)	-12.0s	36.2 ms 4	ϵ , ϵp 57%
		47	(5/2-)	-22.3s	88.0 ms 13	ϵ , $\epsilon p < 1.7\%$
		48	4+	-29.3	158.1 ms 22	ϵ , ϵp 0.28%, $\epsilon\alpha < 6.0 \times 10^{-4}\%$
		49	5/2-	-37.61	382 ms 7	ϵ
		50	0+	-42.627	283.19 ms 10	ϵ
		50m	5+	-42.402	1.75 m 3	ϵ
		51	5/2-	-48.243	46.2 m 1	ϵ
		52	6+	-50.706	5.591 d 3	ϵ
		52m	2+	-50.328	21.1 m 2	ϵ 98.25%, IT 1.75%
		53	7/2-	-54.689	3.74×10^6 y 4	ϵ
		54	3+	-55.556	312.12 d 6	ϵ , $\beta^- < 2.9 \times 10^{-4}\%$
		55	5/2-	-57.711	100%	
		56	3+	-56.910	2.5789 h 1	β^-
		57	5/2-	-57.486	85.4 s 18	β^-
		58	1+	-55.827	3.0 s 1	β^-
		58m	4+	-55.755	65.4 s 5	$\beta^- \approx 90\%$, IT $\approx 10\%$
59	(5/2-)	-55.525	4.59 s 5	β^-		
60	1+	-52.967	0.28 s 2	β^-		
60m	4+	-52.695	1.77 s 2	β^- 88.5%, IT 11.5%		
61	(5/2-)	-51.742	0.67 s 4	β^-		
62m	(3+)	-48.180	671 ms 5	β^- , β^-n		
62m	(1+)	-48.180	92 ms 13	β^- , β^-n		
63	5/2-	-46.886	0.275 s 4	β^- , β^-n		
64	(1+)	-42.989	90 ms 4	β^- , β^-n 33%		
64m	(4+)	-42.814	0.50 ms 5	IT		
65	(5/2-)	-40.967	84 ms 8	β^-		
66		-36.75	65 ms 2	β^-		
67	(5/2+)	-32.8s	51 ms 4	β^- , $\beta^-n > 10\%$		
68	(>3)	-28.0s	28 ms 3	β^- , β^-n		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	J π	(MeV)	Abundance	Decay Mode
25 Mn	69		5/2-	-24.4s	18 ms 4	β^-
	70			-19.2s	>360 ns	β^- , β^-n
	71				>637 ns	β^- , β^-n , β^-2n
26 Fe	45		(3/2+)	13.8s	1.89 ms +49-21	2p 70%, $\epsilon \leq 30\%$, ϵp 19%, $\epsilon 2p$ 7.8%, $\epsilon 3p$ 3.3%
	46		0+	0.8s	13.0 ms 20	ϵ , ϵp 78.7%
	47		(7/2-)	-6.6s	21.9 ms 2	ϵ , ϵp 88.4%, $\epsilon 2p$
	48		0+	-18.16s	45.3 ms 6	ϵ , ϵp 15.9%
	49		(7/2-)	-24.8s	64.7 ms 3	ϵ , ϵp 56.7%
	50		0+	-34.49	155 ms 11	ϵ , ϵp ?
	51		5/2-	-40.22	305 ms 5	ϵ
	52		0+	-48.332	8.275 h 8	ϵ
	52m		12+	-41.374	45.9 s 6	ϵ , IT < 4.0 $\times 10^{-3}\%$
	53		7/2-	-50.946	8.51 m 2	ϵ
	53m		19/2-	-47.906	2.54 m 2	IT
	54		0+	-56.253	5.845% 35	
	55		3/2-	-57.480	2.744 y 9	ϵ
	56		0+	-60.606	91.754% 36	
	57		1/2-	-60.181	2.119% 10	
	58		0+	-62.154	0.282% 4	
	59		3/2-	-60.664	44.495 d 9	β^-
	60		0+	-61.412	2.62 $\times 10^6$ y 4	β^-
	61		3/2-, 5/2-	-58.920	5.98 m 6	β^-
	62		0+	-58.877	68 s 2	β^-
	63		(5/2-)	-55.635	6.1 s 6	β^-
	64		0+	-54.969	2.0 s 2	β^-
	65		(1/2-)	-51.221	0.81 s 5	β^-
	65m		(9/2+)	-50.819	1.12 s 15	β^-
	66		0+	-50.067	440 ms 60	β^-
	67		(1/2-)	-45.7	0.40 s 4	β^-
	68		0+	-43.1	180 ms 19	β^-
69		1/2-	-38.4s	110 ms 6	β^-	
70		0+	-36.3s	71 ms 10	β^-	
71			-31.0s	28 ms 5	β^- , β^-n	
72		0+	-28.3s	≥ 150 ns	β^- , β^-n 27.6%	
73				>633 ns	β^- , β^-n , β^-2n	
74		0+		>638 ns	β^- , β^-n , β^-2n	
27 Co	47			10.3s		
	48			1.9s		
	49			-9.6s		
	50		(6+)	-17.2s	38.8 ms 2	ϵ , ϵp 70.5%, $\epsilon 2p$
	51		(7/2-)	-27.3s	>200 ns	ϵ
	52		(6+)	-33.92s	115 ms 23	ϵ
	53		(7/2-)	-42.658	240 ms 9	ϵ
	53m		(19/2-)	-39.461	247 ms 12	$\epsilon \approx 98.5\%$, $p = 1.5\%$
	54		0+	-48.009	193.28 ms 7	ϵ
	54m		7+	-47.812	1.48 m 2	ϵ
	55		7/2-	-54.029	17.53 h 3	ϵ
56		4+	-56.039	77.236 d 26	ϵ	
57		7/2-	-59.344	271.74 d 6	ϵ	
58		2+	-59.846	70.86 d 6	ϵ	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
27	Co	58m	5+	-59.821	9.10 h 9	IT
		59	7/2-	-62.229	100%	
		60	5+	-61.649	1925.28 d 14	β^-
		60m	2+	-61.590	10.467 m 6	IT 99.76%, β^- 0.24%
		61	7/2-	-62.897	1.650 h 5	β^-
		62	2+	-61.43	1.50 m 4	β^-
		62m	5+	-61.41	13.91 m 5	$\beta^- > 99%$, IT < 1%
		63	7/2-	-61.84	27.4 s 5	β^-
		64	1+	-59.79	0.30 s 3	β^-
		65	(7/2)-	-59.185	1.16 s 3	β^-
		66	(3+)	-56.41	0.20 s 2	β^-
		67	(7/2-)	-55.321	0.425 s 20	β^-
		68	(7-)	-51.9	0.199 s 21	β^-
		68m	(3+)	-51.9	1.6 s 3	β^-
		69	7/2-	-50.0	229 ms 24	β^-
		70	(6-)	-45.6	108 ms 7	β^-
		70m	(3+)	-45.6	0.50 s 18	β^-
		71	(7/2-)	-43.9	80 ms 3	β^- , $\beta^- n \leq 6%$
		72	(6-, 7-)	-39.7s	59.9 ms 17	β^- , $\beta^- n \geq 6%$
		73		-37.2s	41 ms 4	β^-
74	0+	-32.7s	25 ms 5	β^- , $\beta^- n \approx 18%$		
75	(7/2-)	-29.4s	>150 ns	β^-		
76			>634 ns	β^- , $\beta^- 2n$, $\beta^- n$		
28	Ni	48	0+	18.0s	2.1 ms +14-6	2p \approx 70%, ϵ
		49		8.7s	7.5 ms 10	ϵ , ϵp 83%
		50	0+	-3.6s	18.5 ms 12	ϵ , ϵp 86.7%, $\epsilon 2p$
		51	(7/2-)	-11.5s	23.8 ms 2	ϵ , ϵp 87.2%
		52	0+	-22.9s	40.8 ms 2	ϵ , ϵp 31.4%
		53	(7/2-)	-29.7s	55.2 ms 7	ϵ , ϵp 23.4%
		54	0+	-39.22	104 ms 7	ϵ
		55	7/2-	-45.335	204.7 ms 37	ϵ
		56	0+	-53.906	6.075 d 10	ϵ
		57	3/2-	-56.083	35.60 h 6	ϵ
		58	0+	-60.228	68.077% 9	
		59	3/2-	-61.156	7.6 $\times 10^4$ y 5	ϵ
		60	0+	-64.472	26.223% 8	
		61	3/2-	-64.221	1.1399% 13	
		62	0+	-66.745	3.6346% 40	
		63	1/2-	-65.512	101.2 y 15	β^-
		64	0+	-67.098	0.9255% 19	
		65	5/2-	-65.125	2.5175 h 5	β^-
		66	0+	-66.006	54.6 h 3	β^-
		67	(1/2)-	-63.742	21 s 1	β^-
68	0+	-63.463	29 s 2	β^-		
68m	5-	-60.614	0.86 ms 5	IT		
69	9/2+	-59.978	11.2 s 9	β^-		
69m	1/2-	-59.657	3.5 s 9	β^-		
70	0+	-59.213	6.0 s 3	β^-		
71	(9/2+)	-55.405	2.56 s 3	β^-		
71m	(1/2-)	-54.906	2.3 s 3	β^-		
72	0+	-54.225	1.57 s 5	β^-		
73	(9/2+)	-50.107	0.84 s 3	β^-		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	J π	(MeV)	Abundance	Decay Mode
28	Ni	74	0+	-48.7s	0.68 s 18	β^- , β^-n
		75	(7/2+)	-44.1s	344 ms 25	β^- , β^-n 10%
		76	0+	-41.6s	0.238 s +15-18	β^- , β^-n
		77		-36.7s	128 ms +36-32	β^- , β^-n 30%
		78	0+	-34.1s	0.11 s +10-6	β^- , β^-n
		79			>635 ns	β^- , β^-n , β^-2n
29	Cu	52	(3+)	-1.9s		p
		53	(3/2-)	-13.5s	<300 ns	ϵ , p
		54	(3+)	-21.4s	<75 ns	p
		55	(3/2-)	-31.6s	27 ms 8	ϵ , ϵp 15%
		56	(4+)	-38.2s	93 ms 3	ϵ , ϵp 0.4%
		57	3/2-	-47.308	196.3 ms 7	ϵ
		58	1+	-51.667	3.204 s 7	ϵ
		59	3/2-	-56.357	81.5 s 5	ϵ
		60	2+	-58.344	23.7 m 4	ϵ
		61	3/2-	-61.983	3.333 h 5	ϵ
		62	1+	-62.786	9.673 m 8	ϵ
		63	3/2-	-65.579	69.15% 15	
		64	1+	-65.424	12.701 h 2	ϵ 61.5%, β^- 38.5%
		65	3/2-	-67.263	30.85% 15	
		66	1+	-66.257	5.120 m 14	β^-
		67	3/2-	-67.318	61.83 h 12	β^-
		68	1+	-65.567	30.9 s 6	β^-
		68m	(6-)	-64.845	3.75 m 5	IT 84%, β^- 16%
		69	3/2-	-65.736	2.85 m 15	β^-
		70	(6-)	-62.976	44.5 s 2	β^-
		70m	(3-)	-62.875	33 s 2	β^- 52%, IT 48%
		70m	1+	-62.733	6.6 s 2	β^- 93.2%, IT 6.8%
		71	3/2(-)	-62.711	19.4 s 16	β^-
		72	(2)	-59.782	6.63 s 3	β^-
		73	(3/2-)	-58.987	4.2 s 3	β^-
		74	(1+,3+)	-56.006	1.594 s 10	β^-
		75	(5/2-)	-54.471	1.222 s 8	β^- , β^-n 3.5%
		76	(3,4)	-50.975	637 ms 7	β^- , β^-n 7.2%
		76m		-50.975	1.27 s 30	β^-
		77	(5/2-)	-48.3	468.1 ms 20	β^- , β^-n 30.3%
78	(4-,5-,6-)	-44.5	335 ms 11	β^- , β^-n >65%		
79		-41.9s	188 ms 25	β^- , β^-n 55%		
80		-36.4s	0.17 s +11-5	β^-		
81			>632 ns	β^- , β^-2n , β^-n		
82			>636 ns	β^- , β^-n , β^-2n		
30	Zn	54	0+	-6.0s	1.59 ms +60-35	2p 92%
		55	(5/2-)	-14.4s	19.8 ms 13	ϵ , ϵp 91%
		56	0+	-25.2s	30.0 ms 17	ϵ , ϵp 86%
		57	(7/2-)	-32.5s	38 ms 4	ϵ , ϵp \geq 65%
		58	0+	-42.30	86 ms 8	ϵ , ϵp < 3%
		59	3/2-	-47.214	182.0 ms 18	ϵ , ϵp 0.1%
		60	0+	-54.173	2.38 m 5	ϵ
		61	3/2-	-56.34	89.1 s 2	ϵ
		61m	1/2-	-56.25	<430 ms	IT
		61m	3/2-	-55.92	0.14 s 7	IT
		61m	5/2-	-55.59	<0.13 s	IT

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or	Decay Mode
Z	El	A	(MeV)	Abundance	
30 Zn	62	0+	-61.167	9.186 h 13	ϵ
	63	3/2-	-62.213	38.47 m 5	ϵ
	64	0+	-66.003	$\geq 7.0 \times 10^{20}$ y	2 ϵ
				49.17% 75	
	65	5/2-	-65.911	243.93 d 9	ϵ
	66	0+	-68.899	27.73% 98	
	67	5/2-	-67.880	4.04% 16	
	68	0+	-70.006	18.45% 63	
	69	1/2-	-68.417	56.4 m 9	β^-
	69m	9/2+	-67.978	13.76 h 2	IT 99.97%, β^- 0.03%
	70	0+	-69.564	$\geq 2.3 \times 10^{17}$ y	2 β^-
				0.61% 10	
	71	1/2-	-67.328	2.45 m 10	β^-
	71m	9/2+	-67.170	3.96 h 5	β^- , IT $\leq 0.05\%$
	72	0+	-68.145	46.5 h 1	β^-
	73	(1/2)-	-65.593	23.5 s 10	β^-
	73m		-65.593	5.8 s 8	β^- , IT
	73m	(5/2+)	-65.397	13.0 ms 2	IT
	74	0+	-65.756	95.6 s 12	β^-
	75	(7/2+)	-62.558	10.2 s 2	β^-
	76	0+	-62.303	5.7 s 3	β^-
	77	(7/2+)	-58.789	2.08 s 5	β^-
	77m	(1/2-)	-58.017	1.05 s 10	IT > 50%, β^- < 50%
	78	0+	-57.483	1.47 s 15	β^-
	79	(9/2+)	-53.432	0.995 s 19	β^- , β^-n 1.3%
	80	0+	-51.648	0.54 s 2	β^- , β^-n 1%
	81	(5/2+)	-46.199	304 ms 13	β^- , β^-n 7.5%
	82	0+	-42.6s	>150 ns	β^-
	83		-36.7s	>300 ns	β^- , β^-n
	84	0+		>633 ns	β^- , β^-2n , β^-n
85			>637 ns	$\beta^-?$, $\beta^-n?$, $\beta^-2n?$	
31 Ga	56		-4.2s		p?
	57		-15.6s		p?
	58		-23.8s		p?
	59		-34.0s		p?
	60	(2+)	-39.8s	70 ms 13	ϵ 98.4%, ϵp 1.6%, $\epsilon \alpha < 0.02\%$
	61	3/2-	-47.09	167 ms 3	ϵ , $\epsilon p < 0.25\%$
	62	0+	-51.986	116.121 ms 21	ϵ , ϵp
	63	3/2-	-56.547	32.4 s 5	ϵ
	64	0+	-58.833	2.627 m 12	ϵ
	65	3/2-	-62.657	15.2 m 2	ϵ
	66	0+	-63.724	9.49 h 3	ϵ
	67	3/2-	-66.878	3.2617 d 5	ϵ
	68	1+	-67.085	67.71 m 9	ϵ
	69	3/2-	-69.327	60.108% 9	
	70	1+	-68.910	21.14 m 3	β^- 99.59%, ϵ 0.41%
	71	3/2-	-70.139	39.892% 9	
	72	3-	-68.588	14.10 h 2	β^-
	73	3/2-	-69.699	4.86 h 3	β^-
74	(3-)	-68.049	8.12 m 12	β^-	
74m	(0)	-67.989	9.5 s 10	IT 75%, β^- < 50%	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or	Decay Mode	
Z	El	A	(MeV)	Abundance		
31	Ga	75	3/2-	-68.464	126 s 2	β^-
		76	2+	-66.296	32.6 s 6	β^-
		77	3/2-	-65.992	13.2 s 2	β^-
		78	2+	-63.705	5.09 s 5	β^-
		79	3/2-	-62.547	2.847 s 3	β^- , β^-n 0.09%
		80	3	-59.223	1.676 s 14	β^- , β^-n 0.86%
		81	5/2-	-57.627	1.217 s 5	β^- , β^-n 11.9%
		82	(1,2,3)	-52.930	0.599 s 2	β^- , β^-n 19.8%
		83		-49.257	308.1 ms 10	β^- , β^-n 62.8%
		84	(0-)	-44.3s	0.085 s 10	β^- , β^-n 74%
		84m	(3-,4-)	-44.3s	<0.085 s	β^- , β^-n ?
		85	(1/2-,3/2-)	-40.2s	<100 ms	β^- , β^-n >35%
		86		-34.5s	>150 ns	β^- , β^-n
		87			>634 ns	β^- , β^-n , β^-2n
32	Ge	58	0+	-7.7s		2p?
		59		-16.5s		2p?
		60	0+	-27.6s	>110 ns	ϵp , ϵ
		61	(3/2-)	-33.7s	44 ms 6	ϵ , ϵp >58%
		62	0+	-42.2s	129 ms 35	ϵ , ϵp
		63	3/2-	-46.92	150 ms 9	ϵ
		64	0+	-54.315	63.7 s 25	ϵ
		65	3/2-	-56.480	30.9 s 5	ϵ , ϵp 0.01%
		66	0+	-61.606	2.26 h 5	ϵ
		67	1/2-	-62.657	18.9 m 3	ϵ
		68	0+	-66.978	270.95 d 16	ϵ
		69	5/2-	-67.100	39.05 h 10	ϵ
		70	0+	-70.561	20.57% 27	
		71	1/2-	-69.906	11.43 d 3	ϵ
		71m	9/2+	-69.708	20.41 ms 18	IT
		72	0+	-72.585	27.45% 32	
		73	9/2+	-71.297	7.75% 12	
		73m	1/2-	-71.230	0.499 s 11	IT
		74	0+	-73.422	36.50% 20	
		75	1/2-	-71.856	82.78 m 4	β^-
		75m	7/2+	-71.716	47.7 s 5	IT 99.97%, β^- 0.03%
		76	0+	-73.212	7.73% 12	
		77	7/2+	-71.213	11.30 h 1	β^-
		77m	1/2-	-71.053	52.9 s 6	β^- 81%, IT 19%
		78	0+	-71.862	88.0 m 10	β^-
		79	(1/2)-	-69.53	18.98 s 3	β^-
		79m	(7/2+)	-69.34	39.0 s 10	β^- 96%, IT 4%
		80	0+	-69.535	29.5 s 4	β^-
81	(9/2+)	-66.291	7.6 s 6	β^-		
81m	(1/2+)	-65.612	7.6 s 6	β^-		
82	0+	-65.415	4.56 s 26	β^-		
83	(5/2)+	-60.976	1.85 s 6	β^-		
84	0+	-58.148	0.954 s 14	β^- , β^-n 10.2%		
85	(1/2+,5/2+)	-53.123	0.56 s 5	β^- , β^-n 14%		
86	0+	-49.8s	>150 ns	β^- , β^-n		
87	(5/2+)	-44.2s	\approx 0.14 s	β^- , β^-n		
88	0+	-40.2s	\geq 300 ns	β^-		
89		-33.8s	\geq 300 ns	β^- ?		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
32	Ge	90	0+	>635 ns	β^- , β^-n , β^-2n	
33	As	60		-6.1s	p?	
		61		-17.8s	p?	
		62		-24.8s	p?	
		63	3/2-	-33.5s	<43 ns	
		64		-39.4s	18 ms +43-7	
		65		-46.94	128 ms 16	
		66	(0+)	-52.03	95.77 ms 23	
		67	(5/2-)	-56.585	42.5 s 12	
		68	3+	-58.894	151.6 s 8	
		69	5/2-	-63.09	15.2 m 2	
		70	4+	-64.34	52.6 m 3	
		71	5/2-	-67.893	65.30 h 7	
		72	2-	-68.229	26.0 h 1	
		73	3/2-	-70.952	80.30 d 6	
		74	2-	-70.859	17.77 d 2	
		75	3/2-	-73.033	100%	
	75m	9/2+	-72.729	17.62 ms 23	IT	
		76	2-	-72.290	1.0942 d 7	
		77	3/2-	-73.916	38.83 h 5	
		78	2-	-72.817	90.7 m 2	
		79	3/2-	-73.636	9.01 m 15	
		80	1+	-72.17	15.2 s 2	
		81	3/2-	-72.533	33.3 s 8	
		82	(2-)	-70.103	19.1 s 5	
	82m	(5-)	-69.956	13.6 s 4	β^-	
		83	(5/2-, 3/2-)	-69.669	13.4 s 3	β^-
		84	(3-)	-65.853	4.2 s 5	β^- , β^-n 0.18%
		85	(3/2-)	-63.189	2.021 s 10	β^- , β^-n 59.4%
		86		-58.962	0.945 s 8	β^- , β^-n 26%
		87	(3/2-)	-55.617	0.56 s 8	β^- , β^-n 15.4%
		88		-50.9s	>300 ns	β^-
		89		-46.9s	>300 ns	$\beta^-?$, $\beta^-n?$
		90		-41.3s	>300 ns	β^- , β^-n
		91		-36.9s	>150 ns	β^-
		92		-31.0s		β^-
34	Se	64	0+	-26.9s	>180 ns	ϵ
		65	(3/2-)	-32.9s	33 ms 4	ϵ , ϵp
		66	0+	-41.7s		
		67		-46.58	136 ms 12	ϵ , ϵp 0.5%
		68	0+	-54.189	35.5 s 7	ϵ
		69	(1/2-, 3/2-)	-56.30	27.4 s 2	ϵ , ϵp 0.05%
		70	0+	-61.929	41.1 m 3	ϵ
		71	(5/2-)	-63.146	4.74 m 5	ϵ
		72	0+	-67.868	8.40 d 8	ϵ
		73	9/2+	-68.227	7.15 h 8	ϵ
	73m	3/2-	-68.201	39.8 m 13	IT 72.6%, ϵ 27.4%	
		74	0+	-72.212	0.89% 4	
		75	5/2+	-72.169	119.79 d 4	ϵ
		76	0+	-75.251	9.37% 29	
		77	1/2-	-74.599	7.63% 16	
	77m	7/2+	-74.437	17.4 s 8	IT	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or	Decay Mode
Z	El	A	(MeV)	Abundance	
34 Se	78	0+	-77.025	23.77% 28	
	79	7/2+	-75.917	2.95×10^5 y 38	β^-
	79m	1/2-	-75.821	3.92 m 1	IT 99.94%, β^- 0.06%
	80	0+	-77.759	49.61% 41	
	81	1/2-	-76.389	18.45 m 12	β^-
	81m	7/2+	-76.286	57.28 m 2	IT 99.95%, β^- 0.05%
	82	0+	-77.594	8.73% 22	
	83	9/2+	-75.340	22.3 m 3	β^-
	83m	1/2-	-75.112	70.1 s 4	β^-
	84	0+	-75.947	3.26 m 10	β^-
	85	(5/2+)	-72.413	32.9 s 3	β^-
	86	0+	-70.503	14.3 s 3	β^-
	87	(5/2+)	-66.426	5.50 s 12	β^- , β^- -n 0.2%
	88	0+	-63.884	1.53 s 6	β^- , β^- -n 0.67%
	89	(5/2+)	-58.992	0.41 s 4	β^- , β^- -n 7.8%
	90	0+	-55.9s	>300 ns	β^- , β^- -n
	91		-50.3s	0.27 s 5	β^- , β^- -n 21%
	92	0+	-46.7s		β^-
	93	(1/2+)	-40.7s		β^-
	94	0+	-36.8s	>150 ns	β^-
95			>300 ns	$\beta^-?$, β^- -n?, β^- -2n?	
35 Br	67		-32.8s		p?
	68		-38.7s	<1.2 μ s	p?
	69		-46.5s	<24 ns	p?
	70	0+	-51.42	79.1 ms 8	ϵ
	70m	9+	-49.13	2.2 s 2	ϵ
	71	(5/2)-	-56.502	21.4 s 6	ϵ
	72	1+	-59.067	78.6 s 24	ϵ
	72m	(3-)	-58.966	10.6 s 3	IT, ϵ
	73	1/2-	-63.647	3.4 m 2	ϵ
	74	(0-)	-65.285	25.4 m 3	ϵ
	74m	4(+)	-65.271	46 m 2	ϵ
	75	3/2-	-69.107	96.7 m 13	ϵ
	76	1-	-70.288	16.2 h 2	ϵ
	76m	(4+)	-70.185	1.31 s 2	IT > 99.4%, ϵ < 0.6%
	77	3/2-	-73.234	57.036 h 6	ϵ
	77m	9/2+	-73.128	4.28 m 10	IT
	78	1+	-73.452	6.45 m 4	$\epsilon \geq 99.99\%$, $\beta^- \leq 0.01\%$
	79	3/2-	-76.068	50.69% 7	
	79m	9/2+	-75.860	5.1 s 4	IT
	80	1+	-75.889	17.68 m 2	β^- 91.7%, ϵ 8.3%
80m	5-	-75.803	4.4205 h 8	IT	
81	3/2-	-77.975	49.31% 7		
82	5-	-77.497	35.282 h 7	β^-	
82m	2-	-77.451	6.13 m 5	IT 97.6%, β^- 2.4%	
83	3/2-	-79.006	2.40 h 2	β^-	
84	2-	-77.79	31.76 m 8	β^-	
84m	(6)-	-77.47	6.0 m 2	β^-	
85	3/2-	-78.575	2.90 m 6	β^-	
86	(1-)	-75.632	55.1 s 4	β^-	
87	3/2-	-73.891	55.65 s 13	β^- , β^- -n 2.6%	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$			
Z	El	A	J π	(MeV)	Abundance	Decay Mode	
35 Br	88		(2-)	-70.715	16.29 s 6	β^- , β^-n 6.58%	
	89	(3/2-, 5/2-)		-68.274	4.40 s 3	β^- , β^-n 13.8%	
	90			-64.000	1.91 s 1	β^- , β^-n 25.2%	
	91			-61.107	0.541 s 5	β^- , β^-n 20%	
	92	(2-)		-56.232	0.343 s 15	β^- , β^-n 33.1%	
	93	(5/2-)		-52.9s	102 ms 10	β^- , β^-n 68%	
	94			-47.6s	70 ms 20	β^- , β^-n 68%	
	95			-43.9s	≥ 150 ns	β^- , β^-n 34%	
	96			-38.3s	≥ 150 ns	β^- , β^-n 27.6%	
	97			-34.5s	>300 ns	β^-	
	98				>634 ns	β^- , β^-n , β^-2n	
	36 Kr	69			-32.4s	32 ms 10	ϵ
		70	0+		-41.6s	52 ms 17	ϵ , $\epsilon p \leq 1.3\%$
		71	(5/2-)		-46.3	100 ms 3	ϵ , ϵp 2.1%
72		0+		-53.940	17.1 s 2	ϵ , $\epsilon p < 1.0 \times 10^{-6}\%$	
73		3/2-		-56.551	27.3 s 10	ϵ , ϵp 0.25%	
74		0+		-62.331	11.50 m 11	ϵ	
75		5/2+		-64.323	4.29 m 17	ϵ	
76		0+		-69.014	14.8 h 1	ϵ	
77		5/2+		-70.169	74.4 m 6	ϵ	
78		0+		-74.179	$\geq 1.5 \times 10^{21}$ y	2 ϵ	
					0.355% 3		
79		1/2-		-74.442	35.04 h 10	ϵ	
79m		7/2+		-74.312	50 s 3	IT	
80		0+		-77.892	2.286% 10		
81		7/2+		-77.694	2.29×10^5 y 11	ϵ	
81m		1/2-		-77.503	13.10 s 3	IT, ϵ $2.5 \times 10^{-3}\%$	
82		0+		-80.590	11.593% 31		
83		9/2+		-79.990	11.500% 19		
83m		1/2-		-79.948	1.85 h 3	IT	
84		0+		-82.439	56.987% 15		
85		9/2+		-81.480	10.752 y 25	β^-	
85m		1/2-		-81.175	4.480 h 8	β^- 78.6%, IT 21.4%	
86		0+		-83.266	17.279% 41		
87		5/2+		-80.709	76.3 m 5	β^-	
88		0+		-79.691	2.84 h 3	β^-	
89		3/2(+)		-76.535	3.15 m 4	β^-	
90		0+		-74.959	32.32 s 9	β^-	
91		5/2(+)		-70.973	8.57 s 4	β^-	
92		0+		-68.769	1.840 s 8	β^- , β^-n 0.03%	
93		1/2+		-64.135	1.286 s 10	β^- , β^-n 1.95%	
94		0+		-61.35	212 ms 5	β^- , β^-n 1.11%	
95	1/2(+)		-56.16	0.114 s 3	β^- , β^-n 2.87%		
96	0+		-53.08	80 ms 6	β^- , β^-n 3.7%		
97	(3/2+)		-47.4	63 ms 4	β^- , β^-n 6.7%		
98	0+		-44.5s	46 ms 8	β^- , β^-n 7%		
99			-38.8s	13 ms +34-6	β^- , β^-n 11%		
100	0+		-35.2s	7 ms +11-3	β^- , β^-n		
101				>635 ns	β^- , β^-n , β^-2n		
37 Rb	71			-32.3s		p?	
	72	(3+)		-38.1s	<1.2 μ s	p?	
	73			-46.1s	<30 ns	ϵ ?, p>0%	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode
Z	El	A	(MeV)	Abundance	
37 Rb	74	(0+)	-51.916	64.9 ms 5	ϵ
	75	(3/2-)	-57.218	19.0 s 12	ϵ
	76	1(-)	-60.478	36.5 s 6	$\epsilon, \epsilon\alpha 3.8\times 10^{-7}\%$
	77	3/2-	-64.830	3.77 m 4	ϵ
	78	0(+)	-66.936	17.66 m 3	ϵ
	78m	4(-)	-66.825	5.74 m 3	$\epsilon 91\%, \text{ IT } 9\%$
	79	5/2+	-70.802	22.9 m 5	ϵ
	80	1+	-72.175	33.4 s 7	ϵ
	81	3/2-	-75.456	4.572 h 4	ϵ
	81m	9/2+	-75.370	30.5 m 3	IT 97.6%, $\epsilon 2.4\%$
	82	1+	-76.187	1.2575 m 2	ϵ
	82m	5-	-76.118	6.472 h 6	$\epsilon, \text{ IT } < 0.33\%$
	83	5/2-	-79.070	86.2 d 1	ϵ
	84	2-	-79.756	32.82 d 7	$\epsilon 96.1\%, \beta- 3.9\%$
	84m	6-	-79.292	20.26 m 4	IT
	85	5/2-	-82.167	72.17% 2	
	86	2-	-82.747	18.642 d 18	$\beta- 99.99\%, \epsilon 5.2\times 10^{-3}\%$
	86m	6-	-82.191	1.017 m 3	IT, $\beta- < 0.3\%$
	87	3/2-	-84.597	4.81×10^{10} y 9	$\beta-$
				27.83% 2	
	88	2-	-82.608	17.773 m 11	$\beta-$
	89	3/2-	-81.712	15.15 m 12	$\beta-$
	90	0-	-79.364	158 s 5	$\beta-$
	90m	3-	-79.257	258 s 4	$\beta- 97.4\%, \text{ IT } 2.6\%$
	91	3/2(-)	-77.746	58.4 s 4	$\beta-$
	92	0-	-74.772	4.492 s 20	$\beta-, \beta-n 0.01\%$
	93	5/2-	-72.620	5.84 s 2	$\beta-, \beta-n 1.39\%$
94	3(-)	-68.561	2.702 s 5	$\beta-, \beta-n 10.5\%$	
95	5/2-	-65.89	377.7 ms 8	$\beta-, \beta-n 8.7\%$	
96	2(-)	-61.354	203 ms 3	$\beta-, \beta-n 13.3\%$	
97	3/2+	-58.518	169.1 ms 6	$\beta-, \beta-n 25.5\%$	
98	(0,1)	-54.03	102 ms 4	$\beta-, \beta-n 13.8\%, \beta-2n 0.05\%$	
98m	(3,4)	-53.76	96 ms 3	$\beta-$	
99	(5/2+)	-51.2	54 ms 4	$\beta-, \beta-n 15.8\%$	
100	(3+,4-)	-46.5s	51 ms 8	$\beta-, \beta-n 6\%, \beta-2n 0.16\%$	
101	(3/2+)	-43.0s	32 ms 5	$\beta-, \beta-n 28\%$	
102		-37.9s	37 ms 3	$\beta-, \beta-n 18\%$	
103			>633 ns	$\beta-, \beta-n$	
38 Sr	73		-32.0s	>25 ms	$\epsilon, \epsilon p > 0\%$
	74	0+	-40.8s	>1.2 μ s	ϵ
	75	(3/2-)	-46.6	88 ms 3	$\epsilon, \epsilon p 5.2\%$
	76	0+	-54.25	7.89 s 7	$\epsilon, \epsilon p 3.4\times 10^{-5}\%$
	77	5/2+	-57.803	9.0 s 2	$\epsilon, \epsilon p < 0.25\%$
	78	0+	-63.173	160 s 8	ϵ
	79	3/2(-)	-65.476	2.25 m 10	ϵ
	80	0+	-70.311	106.3 m 15	ϵ
	81	1/2-	-71.528	22.3 m 4	ϵ
	82	0+	-76.009	25.34 d 2	ϵ
	83	7/2+	-76.797	32.41 h 3	ϵ

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or	Decay Mode	
Z	El	A	(MeV)	Abundance		
38	Sr	83m	1/2-	-76.538	4.95 s 12	IT
		84	0+	-80.649	0.56% I	
		85	9/2+	-81.103	64.850 d 7	ϵ
		85m	1/2-	-80.864	67.63 m 4	IT 86.6%, ϵ 13.4%
		86	0+	-84.523	9.86% I	
		87	9/2+	-84.880	7.00% I	
		87m	1/2-	-84.492	2.815 h 12	IT 99.7%, ϵ 0.3%
		88	0+	-87.921	82.58% I	
		89	5/2+	-86.208	50.53 d 7	β^-
		90	0+	-85.949	28.90 y 3	β^-
		91	5/2+	-83.652	9.63 h 5	β^-
		92	0+	-82.867	2.66 h 4	β^-
		93	5/2+	-80.086	7.43 m 3	β^-
		94	0+	-78.843	75.3 s 2	β^-
		95	1/2+	-75.123	23.90 s 14	β^-
		96	0+	-72.932	1.07 s 1	β^-
		97	1/2+	-68.591	429 ms 5	β^- , $\beta^-n \leq 0.05\%$
		98	0+	-66.436	0.653 s 2	β^- , $\beta^-n 0.25\%$
		99	3/2+	-62.529	0.269 s 1	β^- , $\beta^-n 0.1\%$
		100	0+	-59.833	202 ms 3	β^- , $\beta^-n 0.78\%$
		101	(5/2-)	-55.56	118 ms 3	β^- , $\beta^-n 2.37\%$
102	0+	-52.4s	69 ms 6	β^- , $\beta^-n 5.5\%$		
103		-47.5s	68 ms +48-20	β^-		
104	0+	-43.9s	43 ms +9-7	β^-		
105		-38.6s	40 ms +36-13	β^-		
106	0+		>392 ns	β^- , β^-n , β^-2n		
107			>395 ns	β^- , β^-n , β^-2n		
39	Y	76		-38.6s	>200 ns	ϵ , p
		77	(5/2+)	-46.78s	57 ms +22-12	ϵ , ϵp , p
		78	(0+)	-52.5s	53 ms 8	ϵ , ϵp
		78m	(5+)	-52.5s	5.8 s 6	ϵ , ϵp
		79	(5/2+)	-58.4	14.8 s 6	ϵ , ϵp
		80	(4-)	-61.148	30.1 s 5	ϵ , ϵp
		80m	(1-)	-60.919	4.8 s 3	IT 81%, ϵ 19%
		81	(5/2+)	-65.713	70.4 s 10	ϵ
		82	1+	-68.064	8.30 s 20	ϵ
		83	9/2+	-72.21	7.08 m 6	ϵ
		83m	3/2-	-72.14	2.85 m 2	ϵ 60%, IT 40%
		84	(6+)	-73.894	39.5 m 8	ϵ
		84m	1+	-73.827	4.6 s 2	ϵ
		85	(1/2)-	-77.84	2.68 h 5	ϵ
		85m	9/2+	-77.82	4.86 h 20	ϵ , IT < 2.0 × 10 ⁻³ %
		86	4-	-79.28	14.74 h 2	ϵ
		86m	(8+)	-79.06	48 m 1	IT 99.31%, ϵ 0.69%
		87	1/2-	-83.018	79.8 h 3	ϵ
		87m	9/2+	-82.637	13.37 h 3	IT 98.43%, ϵ 1.57%
		88	4-	-84.298	106.626 d 21	ϵ
		89	1/2-	-87.709	100%	
89m	9/2+	-86.800	15.663 s 5	IT		
90	2-	-86.495	64.053 h 20	β^-		
90m	7+	-85.813	3.19 h 6	IT, $\beta^- 1.8 \times 10^{-3}\%$		
91	1/2-	-86.352	58.51 d 6	β^-		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or		
Z	El	A	(MeV)	Abundance	Decay Mode	
39	Y	91m	9/2+	-85.796	49.71 m 4	IT, $\beta^- < 1.5\%$
		92	2-	-84.817	3.54 h 1	β^-
		93	1/2-	-84.23	10.18 h 8	β^-
		93m	(9/2)+	-83.47	0.82 s 4	IT
		94	2-	-82.352	18.7 m 1	β^-
		95	1/2-	-81.213	10.3 m 1	β^-
		96	0-	-78.344	5.34 s 5	β^-
		96m	8+	-77.204	9.6 s 2	β^-
		97	(1/2-)	-76.130	3.75 s 3	β^- , $\beta^- n$ 0.06%
		97m	(9/2)+	-75.463	1.17 s 3	$\beta^- > 99.3\%$, IT < 0.7%, $\beta^- n < 0.08\%$
		97m	(27/2-)	-72.607	142 ms 8	IT 98.4%, β^- 1.6%
		98	(0)-	-72.303	0.548 s 2	β^- , $\beta^- n$ 0.33%
		98m	(4,5)	-71.893	2.0 s 2	$\beta^- > 80\%$, IT < 20%, $\beta^- n$ 3.4%
		99	(5/2+)	-70.658	1.484 s 7	β^- , $\beta^- n$ 1.7%
		100	1-, 2-	-67.34	735 ms 7	β^- , $\beta^- n$ 0.92%
		100m	(3,4,5)	-67.19	0.94 s 3	β^-
		101	(5/2+)	-65.070	0.45 s 2	β^- , $\beta^- n$ 1.94%
		102m	HighJ	-61.2s	0.36 s 4	β^- , $\beta^- n$ 4.9%
		102m	LowJ	-61.2s	0.298 s 9	β^- , $\beta^- n$ 4.9%
		103	(5/2+)	-58.50	0.23 s 2	β^- , $\beta^- n$ 8%
104		-54.1s	197 ms 4	β^- , $\beta^- n$		
105		-50.8s	85 ms +5-4	β^- , $\beta^- n < 82\%$		
106		-46.1s	62 ms +25-14	β^-		
107	(5/2+)	-42.4s	41 ms +15-9	β^-		
108		-37.3s	25 ms +66-10	β^- , $\beta^- n$		
109			>393 ns	β^- , $\beta^- n$, $\beta^- 2n$		
40	Zr	78	0+	-41.3s	>170 ns	ϵ
		79		-47.1s	56 ms 30	ϵ , ϵp
		80	0+	-56	4.6 s 6	ϵ , ϵp
		81	(3/2-)	-58.4	5.5 s 4	ϵ , ϵp 0.12%
		82	0+	-63.9s	32 s 5	ϵ
		83	(1/2-)	-65.911	41.6 s 24	ϵ , ϵp
		84	0+	-71.421	25.8 m 5	ϵ
		85	(7/2+)	-73.175	7.86 m 4	ϵ
		85m	(1/2-)	-72.883	10.9 s 3	IT $\leq 92\%$, $\epsilon > 8\%$
		86	0+	-77.969	16.5 h 1	ϵ
		87	(9/2)+	-79.347	1.68 h 1	ϵ
		87m	(1/2-)	-79.011	14.0 s 2	IT
		88	0+	-83.629	83.4 d 3	ϵ
		89	9/2+	-84.876	78.41 h 12	ϵ
		89m	1/2-	-84.288	4.161 m 17	IT 93.77%, ϵ 6.23%
		90	0+	-88.774	51.45% 40	
		90m	5-	-86.455	809.2 ms 20	IT
		91	5/2+	-87.897	11.22% 5	
92	0+	-88.460	17.15% 8			
93	5/2+	-87.123	1.61×10^6 y 5	β^-		
94	0+	-87.272	17.38% 28			
95	5/2+	-85.663	64.032 d 6	β^-		
96	0+	-85.447	2.35×10^{19} y 21	2 β^-		
			2.80% 9			

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
40	Zr	97	1/2+	-82.951	16.749 h 8	β^-
		98	0+	-81.295	30.7 s 4	β^-
		99	(1/2+)	-77.63	2.1 s 1	β^-
		100	0+	-76.384	7.1 s 4	β^-
		101	(3/2+)	-73.173	2.3 s 1	β^-
		102	0+	-71.595	2.9 s 2	β^-
		103	(5/2-)	-67.824	1.32 s 11	β^- , $\beta^-n \leq 1\%$
		104	0+	-65.733	0.87 s 6	β^- , $\beta^-n \leq 1\%$
		105		-61.47	0.66 s 7	β^- , $\beta^-n \leq 2\%$
		106	0+	-59.0s	191 ms 19	β^- , $\beta^-n \leq 7\%$
		107		-54.3s	138 ms 4	β^- , $\beta^-n \leq 23\%$
		108	0+	-51.4s	73 ms 4	β^- , β^-n
		109		-46.2s	63 ms +38-17	β^- , β^-n
		110	0+	-42.9s	37 ms +17-9	β^-
			>392 ns	β^- , β^-n , β^-2n		
			>394 ns	β^- , β^-n , β^-2n		
41	Nb	81		-47.2s	<200 ns	ϵ
		82	(0+)	-52.2s	50 ms 5	ϵ , ϵp
		83	(5/2+)	-58.4	3.8 s 2	ϵ
		84	(1+,2+,3+)	-61.0s	9.8 s 9	ϵ , ϵp
		85	(9/2+)	-66.279	20.5 s 12	ϵ
		85m		-66.279	12 s 5	ϵ , IT
		85m	(1/2-,3/2-)	-66.279	3.3 s 9	ϵ , IT
		86	(6+)	-69.134	88 s 1	ϵ
		87	(1/2-)	-73.874	3.75 m 9	ϵ
		87m	(9/2+)	-73.870	2.6 m 1	ϵ
		88	(8+)	-76.18	14.55 m 6	ϵ
		88m	(4-)	-76.18	7.78 m 5	ϵ
		89	(9/2+)	-80.65	2.03 h 7	ϵ
		89m	(1/2)-	-80.61	66 m 2	ϵ
		90	8+	-82.663	14.60 h 5	ϵ
		90m	4-	-82.538	18.81 s 6	IT
		91	9/2+	-86.639	6.8×10^2 y 13	ϵ
		91m	1/2-	-86.534	60.86 d 22	IT 96.6%, ϵ 3.4%
		92	(7)+	-86.454	3.47×10^7 y 24	ϵ , $\beta^- < 0.05\%$
		92m	(2)+	-86.318	10.15 d 2	ϵ
		93	9/2+	-87.214	100%	
93m	1/2-	-87.183	16.12 y 12	IT		
94	6+	-86.370	2.03×10^4 y 16	β^-		
94m	3+	-86.329	6.263 m 4	IT 99.5%, β^- 0.5%		
95	9/2+	-86.786	34.991 d 6	β^-		
95m	1/2-	-86.550	3.61 d 3	IT 94.4%, β^- 5.6%		
96	6+	-85.608	23.35 h 5	β^-		
97	9/2+	-85.610	72.1 m 7	β^-		
97m	1/2-	-84.867	58.7 s 18	IT		
98	1+	-83.533	2.86 s 6	β^-		
98m	(5+)	-83.449	51.3 m 4	β^- 99.9%, IT < 0.2%		
99	9/2+	-82.33	15.0 s 2	β^-		
99m	1/2-	-81.96	2.5 m 2	$\beta^- > 96.2\%$, IT < 3.8%		
100	1+	-79.806	1.5 s 2	β^-		
100m	(5+)	-79.492	2.99 s 11	β^-		
101	(5/2+)	-78.886	7.1 s 3	β^-		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or	Decay Mode
Z	El	A	(MeV)	Abundance	
41 Nb	102	(4+)	-76.313	4.3 s 4	β^-
	102m	1+	-76.313	1.3 s 2	β^-
	103	(5/2+)	-75.023	1.5 s 2	β^-
	104	(1+)	-71.828	4.9 s 3	β^- , β^-n 0.06%
	104m		-71.613	0.94 s 4	β^- , β^-n 0.05%
	105	(5/2+)	-69.910	2.95 s 6	β^- , β^-n 1.7%
	106		-66.197	0.93 s 4	β^- , β^-n 4.5%
	107		-63.718	300 ms 9	β^- , β^-n 8%
	108	(2+)	-59.6	220 ms 18	β^- , β^-n 8%
	109	(5/2)	-56.8s	106 ms 9	β^- , β^-n <15%
	110		-52.3s	86 ms 6	β^- , β^-n 40%
	111	(5/2+)	-49.0s	51 ms +6-5	β^-
	112	(2+)	-44.4s	33 ms +9-6	β^-
	113		-40.6s	>300 ns	β^-
	114			>392 ns	β^- , β^-n , β^-2n
115			>394 ns	β^- , β^-n , β^-2n	
42 Mo	83		-46.7s	6 ms +30-3	ϵ
	84	0+	-54.5s	2.3 s 3	ϵ , ϵp
	85	(1/2-)	-57.51	3.2 s 2	ϵ , ϵp = 0.14%
	86	0+	-64.110	19.1 s 3	ϵ
	87	7/2+	-66.882	14.02 s 26	ϵ , ϵp 15%
	88	0+	-72.686	8.0 m 2	ϵ
	89	(9/2+)	-75.014	2.11 m 10	ϵ
	89m	(1/2-)	-74.627	190 ms 15	IT
	90	0+	-80.174	5.56 h 9	ϵ
	91	9/2+	-82.21	15.49 m 1	ϵ
	91m	1/2-	-81.56	64.6 s 6	ϵ 50%, IT 50%
	92	0+	-86.809	14.53% 30	
	93	5/2+	-86.807	4.0×10^3 y 8	ϵ
	93m	21/2+	-84.382	6.85 h 7	IT 99.88%, ϵ 0.12%
	94	0+	-88.414	9.15% 9	
	95	5/2+	-87.711	15.84% 11	
	96	0+	-88.794	16.67% 15	
	97	5/2+	-87.544	9.60% 14	
	98	0+	-88.116	24.39% 37	
	99	1/2+	-85.970	65.976 h 24	β^-
	100	0+	-86.187	7.3×10^{18} y 4	2 β^-
				9.82% 31	
	101	1/2+	-83.514	14.61 m 3	β^-
	102	0+	-83.572	11.3 m 2	β^-
	103	(3/2+)	-80.970	67.5 s 15	β^-
	104	0+	-80.359	60 s 2	β^-
	105	(5/2-)	-77.346	35.6 s 16	β^-
106	0+	-76.144	8.73 s 12	β^-	
107	(5/2+)	-72.561	3.5 s 5	β^-	
108	0+	-70.765	1.09 s 2	β^- , β^-n <0.5%	
109	(7/2-)	-66.68	660 ms 45	β^- , β^-n 1.3%	
110	0+	-64.55	0.27 s 1	β^- , β^-n 2%	
111		-60.1s	220 ms +41-36	β^- , β^-n \leq 12%	
112	0+	-57.6s	120 ms +13-11	β^-	
113		-52.9s	78 ms +6-5	β^-	
114	0+	-50.0s	60 ms +13-9	β^-	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
42	Mo	115	-44.7s	51 ms +79-19	β^- , β^-n	
		116	0+	>391 ns	β^- , β^-n	
		117		>393 ns	$\beta^-?$, $\beta^-n?$, $\beta^-2n?$	
43	Tc	85	-46.0s	≈ 0.5 s	p?	
		86	(0+)	-51.3s	54 ms 7	ϵ , ϵp
		87	(9/2+)	-57.690	2.2 s 2	ϵ
		88m	(3+)	-61.679	5.8 s 2	ϵ
		88m	(6+)	-61.679	6.4 s 8	ϵ
		89	(9/2+)	-67.394	12.8 s 9	ϵ
		89m	(1/2-)	-67.331	12.9 s 8	ϵ , IT<0.01%
		90m	1+	-70.723	8.7 s 2	ϵ
		90m	(6+)	-70.223	49.2 s 4	ϵ
		91	(9/2+)	-75.987	3.14 m 2	ϵ
		91m	(1/2-)	-75.848	3.3 m 1	ϵ , IT<1%
		92	(8+)	-78.924	4.25 m 15	ϵ
		93	9/2+	-83.606	2.75 h 5	ϵ
		93m	1/2-	-83.214	43.5 m 10	IT 77.4%, ϵ 22.6%
		94	7+	-84.158	293 m 1	ϵ
		94m	(2+)	-84.082	52.0 m 10	ϵ , IT<0.1%
		95	9/2+	-86.021	20.0 h 1	ϵ
		95m	1/2-	-85.982	61 d 2	ϵ 96.12%, IT 3.88%
		96	7+	-85.821	4.28 d 7	ϵ
		96m	4+	-85.787	51.5 m 10	IT 98%, ϵ 2%
		97	9/2+	-87.224	4.21×10 ⁶ y 16	ϵ
		97m	1/2-	-87.127	91.0 d 6	IT 96.06%, ϵ 3.94%
		98	(6+)	-86.431	4.2×10 ⁶ y 3	β^-
		99	9/2+	-87.327	2.111×10 ⁵ y 12	β^-
		99m	1/2-	-87.184	6.0067 h 5	IT, β^- 3.7×10 ⁻³ %
		100	1+	-86.020	15.46 s 19	β^- , ϵ 2.6×10 ⁻³ %
		101	9/2+	-86.34	14.02 m 1	β^-
		102	1+	-84.569	5.28 s 15	β^-
		102m	(4,5)	-84.569	4.35 m 7	β^- 98%, IT 2%
		103	5/2+	-84.600	54.2 s 8	β^-
		104	(3+)	-82.51	18.3 m 3	β^-
		105	(3/2-)	-82.29	7.6 m 1	β^-
106	(2+)	-79.77	35.6 s 6	β^-		
107	(3/2-)	-78.746	21.2 s 2	β^-		
108	(2+)	-75.919	5.17 s 7	β^-		
109	(5/2+)	-74.279	0.86 s 4	β^- , β^-n 0.08%		
110	(2+)	-71.030	0.92 s 3	β^- , β^-n 0.04%		
111	(5/2+)	-69.02	350 ms 21	β^- , β^-n 0.85%		
112		-65.253	0.29 s 2	β^- , β^-n 4%		
113	>5/2	-62.88	160 ms +50-40	β^- , β^-n 2.1%		
114m	>3	-58.9s	100 ms 20	β^- , $\beta^-n?$		
114m	(1+)	-58.9s	90 ms 20	β^- , $\beta^-n?$		
115		-56.1s	83 ms +20-13	β^- , β^-n		
116		-51.5s	56 ms +15-10	β^-		
117	(5/2+)	-48.4s	85 ms +95-30	β^-		
118		-43.8s		β^-		
119			>392 ns	β^- , $\beta^-n?$, $\beta^-2n?$		
120			>394 ns	β^- , $\beta^-n?$, $\beta^-2n?$		
44	Ru	87	-45.9s	>1.5 μ s	$\epsilon?$	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode	
Z	El	A	(MeV)	Abundance		
44	Ru	88	0+	-54.4s	1.2 s +3-2	ϵ
		89	(9/2+)	-58.1s	1.5 s 2	$\epsilon, \epsilon_p < 0.15\%$
		90	0+	-64.883	11.7 s 9	ϵ
		91	(9/2+)	-68.238	7.9 s 4	ϵ
		91m	(1/2-)	-68.238	7.6 s 8	IT, $\epsilon > 0\%, \epsilon_p > 0\%$
		92	0+	-74.301	3.65 m 5	ϵ
		93	(9/2+)	-77.213	59.7 s 6	ϵ
		93m	(1/2-)	-76.479	10.8 s 3	ϵ 78%, IT 22%, ϵ_p 0.03%
		94	0+	-82.579	51.8 m 6	ϵ
		95	5/2+	-83.457	1.643 h 13	ϵ
		96	0+	-86.080	5.54% 14	
		97	5/2+	-86.120	2.83 d 23	ϵ
		98	0+	-88.224	1.87% 3	
		99	5/2+	-87.620	12.76% 14	
		100	0+	-89.222	12.60% 7	
		101	5/2+	-87.952	17.06% 2	
		102	0+	-89.101	31.55% 14	
		103	3/2+	-87.262	39.247 d 13	β^-
		104	0+	-88.092	18.62% 27	
		105	3/2+	-85.931	4.44 h 2	β^-
		106	0+	-86.320	371.8 d 18	β^-
		107	(5/2+)	-83.859	3.75 m 5	β^-
		108	0+	-83.657	4.55 m 5	β^-
		109	(5/2+)	-80.734	34.5 s 10	β^-
		110	0+	-80.069	11.6 s 6	β^-
		111	5/2+	-76.781	2.12 s 7	β^-
		112	0+	-75.627	1.75 s 7	β^-
		113	(1/2+)	-71.87	0.80 s 5	β^-
		113m	(7/2-)	-71.87	510 ms 30	β^-
		114	0+	-70.21	0.52 s 5	β^-
		115	(3/2+)	-66.19	318 ms 19	β^-
		115m		-66.19	740 ms 80	β^-, β^-n
115m		-66.19	270 ms 38	β^-, β^-n		
115m		-66.19	76 ms 6	β^-, β^-n		
116	0+	-64.2s	204 ms +32-29	β^-		
117		-59.6s	142 ms +18-17	β^-		
118	0+	-57.3s	123 ms +48-35	β^-, β^-n		
119		-52.6s	>300 ns	β^-		
120	0+	-50.0s	>150 ns	β^-		
121			>390 ns	β^-, β^-n		
122	0+		>392 ns	β^-, β^-n		
123			>394 ns	$\beta^-, \beta^-n, \beta^-2n$		
124	0+		>396 ns	β^-, β^-n		
45	Rh	89		-46.0s	>1.5 μ s	$\epsilon?, p?$
		90		-52.0s	12 ms +9-4	$\epsilon?$
		90m		-52.0s	1.0 s +3-2	$\epsilon?$
		91	(9/2+)	-58.8s	1.47 s 22	ϵ
		91m	(1/2-)	-58.8s	1.46 s 11	ϵ
		92?	(6+)	-62.999	4.66 s 25	ϵ
		92m	(2+)	-62.999	0.53 s 37	ϵ
		93	(9/2+)	-69.017	12.2 s 7	ϵ

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode		
Z	El	A	(MeV)	Abundance			
45	Rh	94	(4+)	-72.907	66 s 6	$\epsilon, \epsilon p$ 1.8%	
		94m	(8+)	-72.607	25.8 s 2	ϵ	
		95	9/2+	-78.342	5.02 m 10	ϵ	
		95m	(1/2)-	-77.799	1.96 m 4	IT 88%, ϵ 12%	
		96	$\geq 6+$	-79.69	9.90 m 10	ϵ	
		96m	3+	-79.64	1.51 m 2	IT 60%, ϵ 40%	
		97	9/2+	-82.60	30.7 m 6	ϵ	
		97m	1/2-	-82.34	46.2 m 16	ϵ 94.4%, IT 5.6%	
		98	(2)+	-83.18	8.72 m 12	ϵ	
		98m	(5+)	-83.18	3.6 m 2	IT 89%, ϵ 11%	
		99	1/2-	-85.576	16.1 d 2	ϵ	
		99m	9/2+	-85.511	4.7 h 1	$\epsilon > 99.84\%$, IT < 0.16%	
			100	1-	-85.59	20.8 h 1	ϵ
			100m	(5+)	-85.48	4.6 m 2	IT = 98.3%, $\epsilon \approx 1.7\%$
			101	1/2-	-87.411	3.3 y 3	ϵ
			101m	9/2+	-87.254	4.34 d 1	ϵ 92.8%, IT 7.2%
			102	(1-, 2-)	-86.778	207.3 d 17	ϵ 78%, β - 22%
			102m	6(+)	-86.637	3.742 y 10	ϵ 99.77%, IT 0.23%
			103	1/2-	-88.025	100%	
			103m	7/2+	-87.985	56.114 m 9	IT
			104	1+	-86.953	42.3 s 4	β - 99.55%, ϵ 0.45%
			104m	5+	-86.824	4.34 m 3	IT 99.87%, β - 0.13%
			105	7/2+	-87.848	35.36 h 6	β -
			105m	1/2-	-87.718	42.9 s 3	IT
			106	1+	-86.360	30.07 s 35	β -
			106m	(6)+	-86.223	131 m 2	β -
			107	7/2+	-86.86	21.7 m 4	β -
			108	1+	-85.03	16.8 s 5	β -
			108m	(5+)	-85.03	6.0 m 3	β -, IT
			109	7/2+	-85.010	80 s 2	β -
			110m	(≥ 4)	-82.84	28.5 s 15	β -
			110m	1+	-82.84	3.2 s 2	β -
			111	(7/2+)	-82.304	11 s 1	β -
			112m	1+	-79.73	3.45 s 37	β -
			112m	(4,5,6)	-79.73	6.73 s 15	β -
			113	(7/2+)	-78.767	2.80 s 12	β -
		114	1+	-75.71	1.85 s 5	β -	
		114m	(7-)	-75.51	1.86 s 6	β -	
		115	(7/2+)	-74.229	0.99 s 5	β -	
		116	1+	-70.74	0.68 s 6	β -	
		116m	(6-)	-70.59	0.57 s 5	β -	
		117	(7/2+)	-68.897	0.44 s 4	β -	
		118		-64.89	266 ms +22-21	β -, β -n 3.1%	
		119	(7/2+)	-62.8s	171 ms 18	β -, β -n 6.4%	
		120		-58.8s	136 ms +14-13	β -, β -n < 5.4%	
		121		-56.4s	151 ms +67-58	β -, β -n	
		122		-52.4s	>300 ns	β -, β -n	
		123			>403 ns	β -, β -n	
		124			>391 ns	β -, β -n, β -2n	
		125			>393 ns	β -, β -n	
		126			>395 ns	β -, β -2n, β -n	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode
Z	El	A	(MeV)	Abundance	
46 Pd	91		-46.3s	>1 μ s	ϵ ?
	92	0+	-55.1s	0.7 s +4-2	ϵ
	93	(9/2+)	-59.1s	1.00 s 9	$\epsilon, \epsilon p$
	94	0+	-66.102	9.6 s 2	ϵ
	95	(9/2+)	-69.966	5 s 3	ϵ
	95m	(21/2+)	-68.091	13.3 s 3	ϵ 89%, IT 11%, ϵp 0.93%
	96	0+	-76.183	122 s 2	ϵ
	97	(5/2+)	-77.805	3.10 m 9	ϵ
	98	0+	-81.320	17.7 m 3	ϵ
	99	(5/2+)	-82.184	21.4 m 2	ϵ
	100	0+	-85.23	3.63 d 9	ϵ
	101	5/2+	-85.431	8.47 h 6	ϵ
	102	0+	-87.928	1.02% 1	
	103	5/2+	-87.482	16.991 d 19	ϵ
	104	0+	-89.393	11.14% 8	
	105	5/2+	-88.416	22.33% 8	
	106	0+	-89.905	27.33% 3	
	107	5/2+	-88.370	6.5 \times 10 ⁶ y 3	β^-
	107m	11/2-	-88.155	21.3 s 5	IT
	108	0+	-89.521	26.46% 9	
	109	5/2+	-87.603	13.7012 h 24	β^-
	109m	11/2-	-87.414	4.696 m 3	IT
	110	0+	-88.348	11.72% 9	
	111	5/2+	-86.003	23.4 m 2	β^-
	111m	11/2-	-85.831	5.5 h 1	IT 73%, β^- 27%
	112	0+	-86.323	21.03 h 5	β^-
	113	(5/2+)	-83.590	93 s 5	β^-
	113m	(9/2-)	-83.509	0.3 s 1	IT
	114	0+	-83.490	2.42 m 6	β^-
	115	(5/2+)	-80.43	25 s 2	β^-
	115m	(11/2-)	-80.34	50 s 3	β^- 92%, IT 8%
	116	0+	-79.831	11.8 s 4	β^-
117	(5/2+)	-76.424	4.3 s 3	β^-	
118	0+	-75.391	1.9 s 1	β^-	
119		-71.407	0.92 s 1	β^-	
120	0+	-70.309	0.5 s 1	β^-	
121	(3/2+)	-66.3s	285 ms 24	β^- , $\beta^- n \leq 0.8\%$	
122	0+	-64.7s	175 ms 16	$\beta^- \geq 97.5\%$, $\beta^- n \leq 2.5\%$	
123		-60.6s	174 ms +38-34	β^-	
124	0+	-58.8s	38 ms +38-19	β^-	
125			>230 ns	β^- , $\beta^- n$	
126	0+		>230 ns	β^- , $\beta^- n$	
128	0+		>394 ns	β^- , $\beta^- n$	
47 Ag	93		-46.3s		p, ϵ , ϵp
	94	(0+)	-52.4s	26 ms +26-9	ϵ , ϵp
	94m	(7+)	-52.4s	0.60 s 2	ϵ , ϵp 20%
	94m	(21+)	-45.7s	0.40 s 4	ϵ 95.4%, ϵp 27%, p 4.1%, 2p 0.5%
	95	(9/2+)	-59.6s	1.75 s 12	ϵ , ϵp
	95m	(1/2-)	-59.3s	<500 ms	IT

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode	
Z	El	A	(MeV)	Abundance		
47	Ag	96m	(8)+	-64.62	4.40 s 6	ϵ , ϵ p 8.5%
		96m	(2+)	-64.62	6.9 s 6	ϵ , ϵ p 18%
		97	(9/2+)	-70.8	25.5 s 3	ϵ
		98	(6+)	-73.05	47.5 s 3	ϵ , ϵ p $1.1 \times 10^{-3}\%$
		99	(9/2+)	-76.712	124 s 3	ϵ
		99m	(1/2-)	-76.206	10.5 s 5	IT
		100	(5+)	-78.137	2.01 m 9	ϵ
		100m	(2+)	-78.121	2.24 m 13	ϵ , IT
		101	9/2+	-81.334	11.1 m 3	ϵ
		101m	(1/2-)	-81.060	3.10 s 10	IT
		102	5(+)	-82.246	12.9 m 3	ϵ
		102m	2+	-82.237	7.7 m 5	ϵ 51%, IT 49%
		103	7/2+	-84.800	65.7 m 7	ϵ
		103m	1/2-	-84.665	5.7 s 3	IT
		104	5+	-85.114	69.2 m 10	ϵ
		104m	2+	-85.107	33.5 m 20	ϵ 99.93%, IT < 0.07%
		105	1/2-	-87.070	41.29 d 7	ϵ
		105m	7/2+	-87.045	7.23 m 16	IT 99.66%, ϵ 0.34%
		106	1+	-86.940	23.96 m 4	ϵ 99.5%, β - < 1%
		106m	6+	-86.850	8.28 d 2	ϵ
		107	1/2-	-88.405	51.839% 8	
		107m	7/2+	-88.312	44.3 s 2	IT
		108	1+	-87.605	2.382 m 11	β - 97.15%, ϵ 2.85%
		108m	6+	-87.495	438 y 9	ϵ 91.3%, IT 8.7%
		109	1/2-	-88.719	48.161% 8	
		109m	7/2+	-88.631	39.6 s 2	IT
		110	1+	-87.457	24.6 s 2	β - 99.7%, ϵ 0.3%
		110m	6+	-87.339	249.76 d 4	β - 98.64%, IT 1.36%
		111	1/2-	-88.217	7.45 d 1	β -
		111m	7/2+	-88.157	64.8 s 8	IT 99.3%, β - 0.7%
		112	2(-)	-86.583	3.130 h 9	β -
		113	1/2-	-87.03	5.37 h 5	β -
		113m	7/2+	-86.99	68.7 s 16	IT 64%, β - 36%
114	1+	-84.930	4.6 s 1	β -		
115	1/2-	-84.98	20.0 m 5	β -		
115m	7/2+	-84.94	18.0 s 7	β - 79%, IT 21%		
116	(0-)	-82.542	237 s 5	β -		
116m	(3+)	-82.494	20 s 1	β - 93%, IT 7%		
116m	(6-)	-82.412	9.3 s 3	β - 92%, IT 8%		
117	(1/2-)	-82.18	72.8 s +20-7	β -		
117m	(7/2+)	-82.15	5.34 s 5	β - 94%, IT 6%		
118	1(-)	-79.553	3.76 s 15	β -		
118m	4(+)	-79.425	2.0 s 2	β - 59%, IT 41%		
119m	(1/2-)	-78.64	6.0 s 5	β -		
119m	(7/2+)	-78.64	2.1 s 1	β -		
120	3(+)	-75.651	1.23 s 4	β -, β -n < $3.0 \times 10^{-3}\%$		
120m	6(-)	-75.448	0.40 s 3	β - \approx 63%, IT \approx 37%		
121	(7/2+)	-74.40	0.78 s 2	β -, β -n 0.08%		
122	(3+)	-71.11	0.529 s 13	β - 99.8%, β -n 0.2%		
122m	(1-)	-71.11	0.55 s 5	β -, IT, β -n		
122m	(9-)	-71.03	0.20 s 5	β -, β -n		
123	(7/2+)	-69.55	0.300 s 5	β -, β -n 0.55%		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$				
Z	El	A	(MeV)	Abundance	Decay Mode			
47	Ag	124	≥ 2	-66.2	0.172 s 5	β^- , β^-n 1.3%		
		125	(9/2+)	-64.4s	166 ms 7	β^- , β^-n		
		126		-60.9s	107 ms 12	β^- , β^-n		
		127		-58.8s	109 ms 25	β^-		
		128		-54.9s	58 ms 5	β^- , β^-n		
		129	(9/2+)	-52.6s	46 ms +5-9	β^- , β^-n		
		129m	(1/2-)	-52.6s	\approx 160 ms	β^- , β^-n		
		130		-46.3s	\approx 50 ms	β^- , β^-n		
		48	Cd	95		-46.6s		$\epsilon p?$, $\epsilon?$
				96	0+	-55.6s	1.03 s +24-21	ϵ
97	(9/2+)			-60.5s	1.10 s 7	ϵ , ϵp 12%		
97m	(25/2+)			-60.5s	3.70 s 8	ϵ , ϵp 25%		
98	0+			-67.62	9.2 s 3	ϵ , $\epsilon p < 0.03\%$		
99	(5/2+)			-69.931	16 s 3	ϵ , $\epsilon \alpha < 1.0 \times 10^{-4}\%$, ϵp 0.17%		
100	0+			-74.194	49.1 s 5	ϵ		
101	(5/2+)			-75.836	1.36 m 5	ϵ		
102	0+			-79.659	5.5 m 5	ϵ		
103	(5/2+)			-80.652	7.3 m 1	ϵ		
104	0+			-83.968	57.7 m 10	ϵ		
105	5/2+			-84.333	55.5 m 4	ϵ		
106	0+			-87.130	$> 3.6 \times 10^{20}$ y	2 ϵ		
					1.25% 6			
107	5/2+			-86.990	6.50 h 2	ϵ		
108	0+			-89.252	$> 1.9 \times 10^{18}$ y	2 ϵ		
					0.89% 3			
109	5/2+			-88.504	461.4 d 12	ϵ		
110	0+			-90.350	12.49% 18			
111	1/2+			-89.254	12.80% 12			
111m	11/2-			-88.858	48.50 m 9	IT		
112	0+			-90.577	24.13% 21			
113	1/2+			-89.046	8.00×10^{15} y 26	β^-		
					12.22% 12			
113m	11/2-			-88.783	14.1 y 5	β^- 99.86%, IT 0.14%		
114	0+			-90.018	$> 2.1 \times 10^{18}$ y	2 β^-		
					28.73% 42			
115	1/2+			-88.087	53.46 h 5	β^-		
115m	(11/2)-			-87.906	44.56 d 24	β^-		
116	0+			-88.716	3.3×10^{19} y 4	2 β^-		
			7.49% 18					
117	1/2+	-86.422	2.49 h 4	β^-				
117m	(11/2)-	-86.286	3.36 h 5	β^-				
118	0+	-86.71	50.3 m 2	β^-				
119	3/2+	-83.98	2.69 m 2	β^-				
119m	(11/2-)	-83.83	2.20 m 2	β^-				
120	0+	-83.957	50.80 s 21	β^-				
121	(3/2+)	-81.06	13.5 s 3	β^-				
121m	(11/2-)	-80.84	8.3 s 8	β^-				
122	0+	-80.616	5.24 s 3	β^-				
123	(3/2+)	-77.32	2.10 s 2	β^-				
123m	(11/2-)	-77.00	1.82 s 3	$\beta^- \leq 100\%$, IT				
124	0+	-76.697	1.25 s 2	β^-				

Nuclear Wallet Cards

Nuclide		Δ	$T_{1/2}, \Gamma, \text{ or}$				
Z	El A	(MeV)	Abundance	Decay Mode			
48	Cd	125 (3/2+)	-73.35	0.68 s 4	β^-		
		125m (11/2-)	-73.35	0.48 s 3	β^-		
		126 0+	-72.256	0.515 s 17	β^-		
		127 (3/2+)	-68.43	0.37 s 7	β^-		
		128 0+	-67.25	0.28 s 4	β^-		
		129 (3/2+)	-63.3s	0.27 s 4			
		130 0+	-61.5	162 ms 7	β^- , β^-n 3.5%		
		131 (7/2-)	-55.4s	68 ms 3	β^- , β^-n 3.5%		
		132 0+	-50.9s	97 ms 10	β^- , β^-n 60%		
		133 (7/2-)		57 ms 10	β^- , β^-n , β^-2n		
		49	In	97	-47.2s		$\epsilon?$, p?
				98	-53.9s	32 ms +32-11	ϵ
				98m	-53.9s	1.2 s +12-4	ϵ
99	-61.4s			3.0 s 8	ϵ		
100 (6+,7+)	-64.3			5.9 s 2	ϵ , ϵp 1.6%		
101 (9/2+)	-68.6s			15.1 s 3	ϵ , ϵp		
102 (6+)	-70.694			23.3 s 1	ϵ , ϵp 9.3 $\times 10^{-3}\%$		
103 (9/2+)	-74.629			65 s 7	ϵ		
103m (1/2-)	-73.997			34 s 2	ϵ 67%, IT 33%		
104 (6+)	-76.182			1.80 m 3	ϵ		
104m (3+)	-76.089			15.7 s 5	IT 80%, ϵ 20%		
105 9/2+	-79.64			5.07 m 7	ϵ		
105m (1/2-)	-78.97			48 s 6	IT		
106 7+	-80.60			6.2 m 1	ϵ		
106m (2+)	-80.57			5.2 m 1	ϵ		
107 9/2+	-83.56			32.4 m 3	ϵ		
107m 1/2-	-82.89			50.4 s 6	IT		
108 7+	-84.116			58.0 m 12	ϵ		
108m 2+	-84.086			39.6 m 7	ϵ		
109 9/2+	-86.488			4.167 h 18	ϵ		
109m 1/2-	-85.838			1.34 m 7	IT		
109m (19/2+)	-84.386			0.209 s 6	IT		
110 7+	-86.47			4.9 h 1	ϵ		
110m 2+	-86.41			69.1 m 5	ϵ		
111 9/2+	-88.393			2.8047 d 4	ϵ		
111m 1/2-	-87.856			7.7 m 2	IT		
112 1+	-87.992			14.97 m 10	ϵ 56%, β^- 44%		
112m 4+	-87.835	20.56 m 6	IT				
113 9/2+	-89.368	4.29% 5					
113m 1/2-	-88.976	99.476 m 23	IT				
114 1+	-88.570	71.9 s 1	β^- 99.5%, ϵ 0.5%				
114m 5+	-88.380	49.51 d 1	IT 96.75%, ϵ 3.25%				
115 9/2+	-89.536	4.41 $\times 10^{14}$ y 25	β^-				
		95.71% 5					
115m 1/2-	-89.200	4.486 h 4	IT 95%, β^- 5%				
116 1+	-88.249	14.10 s 3	β^- 99.98%, ϵ 0.02%				
116m 5+	-88.122	54.29 m 17	β^-				
116m 8-	-87.959	2.18 s 4	IT				
117 9/2+	-88.943	43.2 m 3	β^-				
117m 1/2-	-88.628	116.2 m 3	β^- 52.9%, IT 47.1%				
118 1+	-87.228	5.0 s 5	β^-				
118m 5+	-87.168	4.45 m 5	β^-				

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
49	In	118m	8-	-87.028	8.5 s 3	IT 98.6%, β^- 1.4%
		119	9/2+	-87.699	2.4 m 1	β^-
		119m	1/2-	-87.388	18.0 m 3	β^- 95.6%, IT 4.4%
		120	1+	-85.73	3.08 s 8	β^-
		120m	(8-)	-85.73	47.3 s 5	β^-
		120m	(5+)	-85.66	46.2 s 8	β^-
		121	9/2+	-85.84	23.1 s 6	β^-
		121m	1/2-	-85.52	3.88 m 10	β^- 98.8%, IT 1.2%
		122	1+	-83.57	1.5 s 3	β^-
		122m	5+	-83.53	10.3 s 6	β^-
		122m	(8-)	-83.28	10.8 s 4	β^-
		123	(9/2)+	-83.43	6.17 s 5	β^-
		123m	(1/2)-	-83.10	47.4 s 4	β^-
		124	(1)+	-80.87	3.12 s 9	β^-
		124m	(8-)	-80.82	3.7 s 2	β^-
		125	9/2+	-80.48	2.36 s 4	β^-
		125m	1/2(-)	-80.12	12.2 s 2	β^-
		126	3(+)	-77.81	1.53 s 1	β^-
		126m	(8-)	-77.71	1.64 s 5	β^-
		127	(9/2+)	-76.89	1.09 s 1	β^- , $\beta^-n \leq 0.03\%$
		127m	(1/2)-	-76.43	3.67 s 4	β^- , $\beta^-n 0.69\%$
		127m	(21/2-)	-75.03	1.04 s 10	β^-
		128	(3)+	-74.36	0.84 s 6	β^- , $\beta^-n < 0.05\%$
		128m	(8-)	-74.02	0.72 s 10	β^- , $\beta^-n < 0.05\%$
		129	(9/2+)	-72.81	0.61 s 1	β^- , $\beta^-n 0.25\%$
		129m	(1/2-)	-72.44	1.23 s 3	$\beta^- > 99.7\%$, $\beta^-n 2.5\%$, IT < 0.3%
		129m	(23/2-)	-71.18	0.67 s 10	β^-
		130	1(-)	-69.89	0.29 s 2	β^- , $\beta^-n 0.93\%$
		130m	(10-)	-69.84	0.54 s 1	β^- , $\beta^-n 1.65\%$
		130m	(5+)	-69.49	0.54 s 1	β^- , $\beta^-n 1.65\%$
131	(9/2+)	-68.05	0.28 s 3	β^- , $\beta^-n \leq 2\%$		
131m	(1/2-)	-67.75	0.35 s 5	$\beta^- \geq 99.98\%$, $\beta^-n \leq 2\%$, IT $\leq 0.02\%$		
131m	(21/2+)	-64.29	0.32 s 6	$\beta^- > 99\%$, IT < 1%, $\beta^-n \approx 0.03\%$		
132	(7-)	-62.41	0.207 s 6	β^- , $\beta^-n 6.3\%$		
133	(9/2+)	-57.8s	165 ms 3	β^- , $\beta^-n 85\%$		
133m	(1/2-)	-57.4s	180 ms 15	β^- , IT, β^-n		
134	(4- to 7-)	-52.0s	140 ms 4	β^- , $\beta^-n 65\%$		
135		-47.2s	92 ms 10	β^- , β^-n		
50	Sn	99		-47.7s		$\epsilon?$, $\epsilon p?$
		100	0+	-56.9	0.86 s +37-20	ϵ , $\epsilon p < 17\%$
		101	(5/2+)	-59.9s	1.7 s 3	ϵ , $\epsilon p 26\%$
		102	0+	-64.9	3.8 s 2	ϵ
		103	(5/2+)	-66.97	7.0 s 2	ϵ , $\epsilon p 1.2\%$
		104	0+	-71.624	20.8 s 5	ϵ
		105	(5/2+)	-73.337	32.7 s 5	ϵ , $\epsilon p 0.01\%$
		106	0+	-77.353	115 s 5	ϵ
		107	(5/2+)	-78.512	2.90 m 5	ϵ
		108	0+	-82.071	10.30 m 8	ϵ
		109	5/2+	-82.632	18.0 m 2	ϵ

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	
Z	El	A	(MeV)	Abundance	Decay Mode
50 Sn	110	0+	-85.84	4.11 h 10	ϵ
	111	7/2+	-85.941	35.3 m 6	ϵ
	112	0+	-88.657	$<1.3 \times 10^{21}$ y	2 ϵ
				0.97% 1	
	113	1/2+	-88.330	115.09 d 3	ϵ
	113m	7/2+	-88.253	21.4 m 4	IT 91.1%, ϵ 8.9%
	114	0+	-90.559	0.66% 1	
	115	1/2+	-90.033	0.34% 1	
	116	0+	-91.525	14.54% 9	
	117	1/2+	-90.397	7.68% 7	
	117m	11/2-	-90.082	13.76 d 4	IT
	118	0+	-91.652	24.22% 9	
	119	1/2+	-90.065	8.59% 4	
	119m	11/2-	-89.976	293.1 d 7	IT
	120	0+	-91.098	32.58% 9	
	121	3/2+	-89.197	27.03 h 4	β^-
	121m	11/2-	-89.191	43.9 y 5	IT 77.6%, β^- 22.4%
	122	0+	-89.942	4.63% 3	
	123	11/2-	-87.817	129.2 d 4	β^-
	123m	3/2+	-87.792	40.06 m 1	β^-
	124	0+	-88.237	$>1.2 \times 10^{21}$ y	2 β^-
				5.79% 5	
	125	11/2-	-85.898	9.64 d 3	β^-
	125m	3/2+	-85.870	9.52 m 5	β^-
	126	0+	-86.02	2.30×10^5 y 14	β^-
	127	(11/2-)	-83.47	2.10 h 4	β^-
	127m	(3/2+)	-83.46	4.13 m 3	β^-
	128	0+	-83.34	59.07 m 14	β^-
	128m	(7-)	-81.24	6.5 s 5	IT
	129	(3/2+)	-80.59	2.23 m 4	β^-
129m	(11/2-)	-80.56	6.9 m 1	β^- , IT $<2.0 \times 10^{-3}\%$	
130	0+	-80.137	3.72 m 7	β^-	
130m	(7-)	-78.190	1.7 m 1	β^-	
131	(3/2+)	-77.271	56.0 s 5	β^-	
131m	(11/2-)	-77.271	58.4 s 5	β^- , IT	
132	0+	-76.548	39.7 s 8	β^-	
133	7/2-	-70.85	1.46 s 3	β^- , β^- -n 0.03%	
134	0+	-66.3	1.050 s 11	β^- , β^- -n 17%	
135	(7/2-)	-60.6s	530 ms 20	β^- , β^- -n 21%	
136	0+	-56.3s	0.25 s 3	β^- , β^- -n 30%	
137		-50.3s	190 ms 60	β^- , β^- -n 58%	
138	0+		>408 ns	β^- , β^- -n	
51 Sb	103		-56.2s	>1.5 μ s	ϵ ?
	104		-59.2s	0.44 s +15-11	ϵ , ϵ p $<7\%$, p $<1\%$
	105	(5/2+)	-63.85	1.22 s 11	ϵ 99%, p 1%
	106	(2+)	-66.473	0.6 s 2	ϵ
	107	(5/2+)	-70.653	4.0 s 2	ϵ
	108	(4+)	-72.445	7.4 s 3	ϵ
	109	(5/2+)	-76.251	17.0 s 7	ϵ
	110	(3+,4+)	-77.449	23.0 s 4	ϵ
	111	(5/2+)	-80.836	75 s 1	ϵ
	112	3+	-81.60	51.4 s 10	ϵ

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
51	Sb	113	5/2+	-84.42	6.67 m 7	ϵ
		114	3+	-84.50	3.49 m 3	ϵ
		115	5/2+	-87.00	32.1 m 3	ϵ
		116	3+	-86.822	15.8 m 8	ϵ
		116m	8-	-86.439	60.3 m 6	ϵ
		117	5/2+	-88.642	2.80 h 1	ϵ
		118	1+	-87.996	3.6 m 1	ϵ
		118m	8-	-87.746	5.00 h 2	ϵ
		119	5/2+	-89.474	38.19 h 22	ϵ
		119m (27/2+)		-86.632	0.85 s 9	IT
		120	1+	-88.417	15.89 m 4	ϵ
		120m	8-	-88.417	5.76 d 2	ϵ
		121	5/2+	-89.599	57.21% 5	
		122	2-	-88.334	2.7238 d 2	β^- 97.59%, ϵ 2.41%
		122m (8)-		-88.170	4.191 m 3	IT
		123	7/2+	-89.226	42.79% 5	
		124	3-	-87.622	60.20 d 3	β^-
		124m	5+	-87.611	93 s 5	IT 75%, β^- 25%
		124m (8)-		-87.585	20.2 m 2	IT
		125	7/2+	-88.257	2.75856 y 25	β^-
		126	(8-)	-86.40	12.35 d 6	β^-
		126m (5+)		-86.38	19.15 m 8	β^- 86%, IT 14%
		126m (3-)		-86.36	\approx 11 s	IT
		127	7/2+	-86.700	3.85 d 5	β^-
		128	8-	-84.61	9.01 h 4	β^-
		128m	5+	-84.61	10.4 m 2	β^- 96.4%, IT 3.6%
		129	7/2+	-84.63	4.40 h 1	β^-
		129m (19/2-)		-82.78	17.7 m 1	β^- 85%, IT 15%
		130	(8-)	-82.29	39.5 m 8	β^-
		130m (4,5)+		-82.29	6.3 m 2	β^-
		131	(7/2+)	-81.98	23.03 m 4	β^-
		132	(4+)	-79.67	2.79 m 7	β^-
		132m (8-)		-79.67	4.10 m 5	β^-
		133	(7/2+)	-78.94	2.34 m 5	β^-
134	(0-)	-74.17	0.78 s 6	β^-		
134m (7-)		-73.89	10.07 s 5	β^- , β^-n 0.09%		
135	(7/2+)	-69.79	1.679 s 15	β^- , β^-n 22%		
136	1-	-64.5s	0.923 s 14	β^- , β^-n 16.3%		
137	(7/2+)	-60.4s	492 ms 25	β^- , β^-n 49%		
138		-54.8s	350 ms 15	β^- , β^-n 72%		
139		-50.3s	93 ms +14-3	β^- , β^-n 90%		
140			>407 ns	β^- , β^-n , β^-2n		
52	Te	105	(5/2+)	-52.6s	0.62 μ s 7	α
		106	0+	-58.2	70 μ s 17	α
		107		-60.54	3.1 ms 1	α 70%, ϵ 30%
		108	0+	-65.783	2.1 s 1	ϵ 51%, α 49%, ϵp 2.4%
		109	(5/2+)	-67.715	4.6 s 3	ϵ 96.1%, ϵp 9.4%, α 3.9%, $\epsilon \alpha < 5.0 \times 10^{-3}\%$
		110	0+	-72.229	18.6 s 8	ϵ , $\alpha \approx 3.0 \times 10^{-3}\%$
		111	(5/2+)	-73.587	19.3 s 4	ϵ , ϵp

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
52	Te	112	0+	-77.567	2.0 m 2	ϵ
		113	(7/2+)	-78.35	1.7 m 2	ϵ
		114	0+	-81.89	15.2 m 7	ϵ
		115	7/2+	-82.06	5.8 m 2	ϵ
		115m	(1/2)+	-82.04	6.7 m 4	$\epsilon \leq 100\%$, IT
		116	0+	-85.27	2.49 h 4	ϵ
		117	1/2+	-85.10	62 m 2	ϵ
		117m	(11/2-)	-84.80	103 ms 3	IT
		118	0+	-87.68	6.00 d 2	ϵ
		119	1/2+	-87.181	16.05 h 5	ϵ
		119m	11/2-	-86.920	4.70 d 4	ϵ , IT < 8.0 × 10 ⁻³ %
		120	0+	-89.369	0.09% 1	
		121	1/2+	-88.54	19.17 d 4	ϵ
		121m	11/2-	-88.25	164.2 d 8	IT 88.6%, ϵ 11.4%
		122	0+	-90.315	2.55% 12	
		123	1/2+	-89.173	>9.2 × 10 ¹⁶ y	ϵ
					0.89% 3	
		123m	11/2-	-88.925	119.2 d 1	IT
		124	0+	-90.526	4.74% 14	
		125	1/2+	-89.024	7.07% 15	
		125m	11/2-	-88.879	57.40 d 15	IT
		126	0+	-90.066	18.84% 25	
		127	3/2+	-88.283	9.35 h 7	β^-
		127m	11/2-	-88.195	106.1 d 7	IT 97.6%, β^- 2.4%
		128	0+	-88.993	2.41 × 10 ²⁴ y 39	2 β^-
					31.74% 8	
		129	3/2+	-87.004	69.6 m 3	β^-
		129m	11/2-	-86.898	33.6 d 1	IT 63%, β^- 37%
		130	0+	-87.352	$\geq 3.0 \times 10^{24}$ y	2 β^-
					34.08% 62	
		131	3/2+	-85.211	25.0 m 1	β^-
		131m	11/2-	-85.029	33.25 h 25	β^- 74.1%, IT 25.9%
		131m	(23/2+)	-83.271	93 ms 12	IT
132	0+	-85.180	3.204 d 13	β^-		
133	(3/2+)	-82.94	12.5 m 3	β^-		
133m	(11/2-)	-82.61	55.4 m 4	β^- 83.5%, IT 16.5%		
134	0+	-82.56	41.8 m 8	β^-		
135	(7/2-)	-77.90	19.0 s 2	β^-		
136	0+	-74.48	17.63 s 8	β^- , β^-n 1.31%		
137	(7/2-)	-69.3	2.49 s 5	β^- , β^-n 2.99%		
138	0+	-65.8	1.4 s 4	β^- , β^-n 6.3%		
139	(7/2-)	-60.4s	>150 ns	β^- , β^-n		
140	0+	-56.6s	>300 ns	β^- , β^-n		
141		-51.0s	>150 ns	$\beta^-?$, $\beta^-n?$		
142	0+	-46.9s				
143			>408 ns	β^- , β^-n , β^-2n		
53	I	107		-49.6s		
		108	(1)	-52.6s	36 ms 6	α 91%, ϵ 9%, p < 1%
		109	1/2+	-57.675	93.5 μ s 3	p 99.99%, α 0.01%
		110		-60.46	0.65 s 2	ϵ 83%, α 17%, ϵ p 11%, ϵ α 1.1%
		111	(5/2+)	-64.953	2.5 s 2	ϵ 99.9%, $\alpha \approx 0.1\%$

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode	
Z	El	A	(MeV)	Abundance		
53	I	112	-67.06	3.42 s 11	$\epsilon, \alpha \approx 1.2 \times 10^{-3}\%$	
		113	5/2+	-71.119	6.6 s 2	$\epsilon, \alpha 3.3 \times 10^{-7}\%$
		114	1+	-72.8s	2.1 s 2	$\epsilon, \epsilon p$
		114m	(7)	-72.5s	6.2 s 5	$\epsilon 91\%, \text{ IT } 9\%$
		115	(5/2+)	-76.34	1.3 m 2	ϵ
		116	1+	-77.49	2.91 s 15	ϵ
		117	(5/2)+	-80.43	2.22 m 4	ϵ
		118	2-	-80.97	13.7 m 5	ϵ
		118m	(7-)	-80.87	8.5 m 5	$\epsilon < 100\%, \text{ IT}$
		119	5/2+	-83.76	19.1 m 4	ϵ
		120	2-	-83.75	81.6 m 2	ϵ
		120m	(7-)	-83.43	53 m 4	ϵ
		121	5/2+	-86.253	2.12 h 1	ϵ
		122	1+	-86.081	3.63 m 6	ϵ
		123	5/2+	-87.945	13.2235 h 19	ϵ
		124	2-	-87.367	4.1760 d 3	ϵ
		125	5/2+	-88.838	59.407 d 10	ϵ
		126	2-	-87.912	12.93 d 5	$\epsilon 52.7\%, \beta- 47.3\%$
		127	5/2+	-88.984	100%	
		128	1+	-87.739	24.99 m 2	$\beta- 93.1\%, \epsilon 6.9\%$
		129	7/2+	-88.507	1.57×10^7 y 4	$\beta-$
		130	5+	-86.936	12.36 h 1	$\beta-$
		130m	2+	-86.896	8.84 m 6	IT 84%, $\beta- 16\%$
		131	7/2+	-87.442	8.0252 d 6	$\beta-$
		132	4+	-85.698	2.295 h 13	$\beta-$
		132m	(8-)	-85.578	1.387 h 15	IT 86%, $\beta- 14\%$
		133	7/2+	-85.886	20.83 h 8	$\beta-$
		133m	(19/2-)	-84.252	9 s 2	IT
		134	(4)+	-84.072	52.5 m 2	$\beta-$
		134m	(8)-	-83.756	3.52 m 4	IT 97.7%, $\beta- 2.3\%$
135	7/2+	-83.791	6.58 h 3	$\beta-$		
136	(1-)	-79.57	83.4 s 10	$\beta-$		
136m	(6-)	-78.93	46.9 s 10	$\beta-$		
137	(7/2+)	-76.51	24.5 s 2	$\beta-, \beta-n 7.14\%$		
138	(2-)	-71.9s	6.23 s 3	$\beta-, \beta-n 5.56\%$		
139	(7/2+)	-68.5	2.280 s 11	$\beta-, \beta-n 10\%$		
140	(4-)	-63.6	0.86 s 4	$\beta-, \beta-n 9.3\%$		
141		-60.3	0.43 s 2	$\beta-, \beta-n 21.2\%$		
142		-55.0s	222 ms 12	$\beta-, \beta-n?$		
143		-51.1s	130 ms 45	$\beta-?$		
144		-45.8s	>300 ns	$\beta-?$		
145			>407 ns	$\beta-, \beta-n$		
54	Xe	108	0+	-42.7s		
		109	(7/2+)	-45.9s	13 ms 2	α
		110	0+	-51.9	93 ms 3	$\alpha 64\%, \epsilon, \epsilon p$
		111	(7/2+)	-54.39	0.81 s 20	$\epsilon 90\%, \alpha 10\%$
		112	0+	-60.028	2.7 s 8	$\epsilon 99.16\%, \alpha 0.84\%$
		113	(5/2+)	-62.203	2.74 s 8	$\epsilon, \epsilon p 7\%, \alpha \approx 0.01\%,$ $\epsilon \alpha \approx 7.0 \times 10^{-3}\%$
		114	0+	-67.08	10.0 s 4	ϵ
		115	(5/2+)	-68.66	18 s 4	$\epsilon, \epsilon p 0.34\%,$ $\alpha 3.0 \times 10^{-4}\%$

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or	Decay Mode			
Z	El	A	(MeV)	Abundance				
54	Xe	116	0+	-73.05	59 s 2	ϵ		
		117	5/2(+)	-74.18	61 s 2	ϵ , ϵp 2.9×10 ^{-3%}		
		118	0+	-78.08	3.8 m 9	ϵ		
		119	(5/2+)	-78.79	5.8 m 3	ϵ		
		120	0+	-82.17	40 m 1	ϵ		
		121	5/2(+)	-82.47	40.1 m 20	ϵ		
		122	0+	-85.35	20.1 h 1	ϵ		
		123	(1/2)+	-85.249	2.08 h 2	ϵ		
		124	0+	-87.661	$\geq 1.6 \times 10^{14}$ y	2 ϵ		
					0.0952% 3			
				125	1/2(+)	-87.193	16.9 h 2	ϵ
				125m	9/2(-)	-86.940	57 s 1	IT
				126	0+	-89.146	0.0890% 2	
				127	1/2+	-88.322	36.346 d 3	ϵ
				127m	9/2-	-88.025	69.2 s 9	IT
				128	0+	-89.860	1.9102% 8	
				129	1/2+	-88.696	26.4006% 82	
				129m	11/2-	-88.460	8.88 d 2	IT
				130	0+	-89.880	4.0710% 13	
				131	3/2+	-88.413	21.232% 30	
				131m	11/2-	-88.249	11.84 d 4	IT
				132	0+	-89.279	26.9086% 33	
				132m	(10+)	-86.527	8.39 ms 11	IT
				133	3/2+	-87.643	5.2475 d 5	β^-
				133m	11/2-	-87.410	2.198 d 13	IT
				134	0+	-88.124	$> 5.8 \times 10^{22}$ y	2 β^-
						10.4357% 21		
				134m	7-	-86.159	290 ms 17	IT
				135	3/2+	-86.417	9.14 h 2	β^-
				135m	11/2-	-85.890	15.29 m 5	IT > 99.4%, β^- < 0.6%
				136	0+	-86.429	$> 2.4 \times 10^{21}$ y	2 β^-
						8.8573% 44		
				137	7/2-	-82.383	3.818 m 13	β^-
		138	0+	-79.975	14.08 m 8	β^-		
		139	3/2-	-75.644	39.68 s 14	β^-		
		140	0+	-72.986	13.60 s 10	β^-		
		141	5/2(-)	-68.197	1.73 s 1	β^- , $\beta^- n$ 0.04%		
		142	0+	-65.229	1.23 s 2	β^- , $\beta^- n$ 0.21%		
		143	5/2-	-60.202	0.511 s 6	β^- , $\beta^- n$ 1%		
		144	0+	-56.872	0.388 s 7	β^- , $\beta^- n$ 3%		
		145		-51.49	188 ms 4	β^- , $\beta^- n$ 5%		
		146	0+	-47.95	146 ms 6	β^- , $\beta^- n$ 6.9%		
		147	(3/2-)	-42.5s	0.10 s +10 ⁻⁵	β^- , $\beta^- n$ < 8%		
		148	0+		> 408 ns	β^- , $\beta^- n$		
55	Cs	112	(0+,3+)	-46.29	0.5 ms 1	p		
		113	(3/2+)	-51.765	16.7 μ s 7	p, α		
		114	(1+)	-54.68	0.57 s 2	ϵ 99.98%, ϵp 8.7%, $\epsilon \alpha$ 0.19%, α 0.02%		
		115		-59.7s	1.4 s 8	ϵ , ϵp = 0.07%		
		116	(1+)	-62.1s	0.70 s 4	ϵ , ϵp 2.8%, $\epsilon \alpha$ 0.05%		
		116m	4+,5,6	-62.0s	3.85 s 13	ϵ , ϵp 0.51%, $\epsilon \alpha$ 8.0×10 ^{-3%}		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode
Z	El	A	(MeV)	Abundance	
55	Cs	117m (9/2+)	-66.49	8.4 s 6	ϵ
		117m (3/2+)	-66.49	6.5 s 4	ϵ
		118 2	-68.41	14 s 2	$\epsilon, \epsilon p < 0.04\%, \epsilon \alpha < 2.4 \times 10^{-3}\%$
		118m 6,7,8	-68.41	17 s 3	$\epsilon, \epsilon p < 0.04\%, \epsilon \alpha < 2.4 \times 10^{-3}\%$
		119 9/2+	-72.31	43.0 s 2	ϵ
		119m 3/2(+)	-72.31	30.4 s 1	ϵ
		120 2(+)	-73.888	61.3 s 11	$\epsilon, \epsilon \alpha 2.0 \times 10^{-5}\%, \epsilon p 7.0 \times 10^{-6}\%$
		120m (7-)	-73.888	57 s 6	ϵ
		121 3/2(+)	-77.10	155 s 4	ϵ
		121m 9/2(+)	-77.03	122 s 3	$\epsilon 83\%, \text{ IT } 17\%$
		122 1+	-78.14	21.18 s 19	ϵ
		122m (5)-	-78.01	0.36 s 2	IT
		122m 8(-)	-78.00	3.70 m 11	ϵ
		123 1/2+	-81.04	5.88 m 3	ϵ
		123m (11/2)-	-80.89	1.64 s 12	IT
		124 1+	-81.731	30.9 s 4	ϵ
		124m (7)+	-81.268	6.3 s 2	IT
		125 1/2(+)	-84.087	46.7 m 1	ϵ
		125m (11/2-)	-83.821	0.90 ms 3	IT
		126 1+	-84.34	1.64 m 2	ϵ
		127 1/2+	-86.240	6.25 h 10	ϵ
		128 1+	-85.931	3.66 m 2	ϵ
		129 1/2+	-87.499	32.06 h 6	ϵ
		130 1+	-86.899	29.21 m 4	$\epsilon 98.4\%, \beta- 1.6\%$
		130m 5-	-86.736	3.46 m 6	IT 99.84%, $\epsilon 0.16\%$
		131 5/2+	-88.058	9.689 d 16	ϵ
		132 2+	-87.155	6.480 d 6	$\epsilon 98.13\%, \beta- 1.87\%$
		133 7/2+	-88.070	100%	
		134 4+	-86.891	2.0652 y 4	$\beta-, \epsilon 3.0 \times 10^{-4}\%$
		134m 8-	-86.752	2.912 h 2	IT
		135 7/2+	-87.581	2.3×10^6 y 3	$\beta-$
		135m 19/2-	-85.948	53 m 2	IT
		136 5+	-86.339	13.04 d 3	$\beta-$
136m 8-	-85.821	17.5 s 2	$\beta-, \text{ IT} > 0\%$		
137 7/2+	-86.545	30.08 y 9	$\beta-$		
138 3-	-82.887	33.41 m 18	$\beta-$		
138m 6-	-82.807	2.91 m 8	IT 81%, $\beta- 19\%$		
139 7/2+	-80.701	9.27 m 5	$\beta-$		
140 1-	-77.050	63.7 s 3	$\beta-$		
141 7/2+	-74.48	24.84 s 16	$\beta-, \beta-n 0.04\%$		
142 0-	-70.53	1.684 s 14	$\beta-, \beta-n 0.09\%$		
143 3/2+	-67.67	1.791 s 7	$\beta-, \beta-n 1.64\%$		
144 1(-)	-63.27	0.994 s 6	$\beta-, \beta-n 3.03\%$		
144m (≥ 4)	-63.27	<1 s	$\beta-$		
145 3/2+	-60.06	0.587 s 5	$\beta-, \beta-n 14.7\%$		
146 1-	-55.57	0.321 s 2	$\beta-, \beta-n 14.2\%$		
147 (3/2+)	-52.02	0.230 s 1	$\beta-, \beta-n 28.5\%$		
148	-47.3	146 ms 6	$\beta-, \beta-n 25.1\%$		
149	-43.8s	>50 ms	$\beta-, \beta-n$		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode	
Z	El	A	(MeV)	Abundance		
55	Cs	150	-39.0s	>50 ms	β^- , β^-n	
		151	-35.1s	>50 ms	β^- , β^-n	
56	Ba	112	0+	-36.1s		
		113		-39.8s		
		114	0+	-46.0	0.43 s +30-15	ϵ 99.1%, ϵp 20%, α 0.9%, $^{12}C < 0.0034\%$
		115	(5/2+)	-49.0s	0.45 s 5	ϵ , $\epsilon p > 15\%$
		116	0+	-54.6s	1.3 s 2	ϵ , ϵp 3%
		117	(3/2)	-57.5	1.75 s 7	ϵ , $\epsilon \alpha > 0\%$, $\epsilon p > 0\%$
		118	0+	-62.4s	5.5 s 2	ϵ , ϵp
		119	(5/2+)	-64.6	5.4 s 3	ϵ , $\epsilon p < 25\%$
		120	0+	-68.9	24 s 2	ϵ
		121	5/2(+)	-70.7	29.7 s 15	ϵ
		122	0+	-74.61	1.95 m 15	ϵ
		123	5/2(+)	-75.65	2.7 m 4	ϵ
		124	0+	-79.09	11.0 m 5	ϵ
		125	1/2(+)	-79.67	3.3 m 3	ϵ
		126	0+	-82.67	100 m 2	ϵ
		127	1/2+	-82.82	12.7 m 4	ϵ
		127m	7/2-	-82.73	1.9 s 2	IT
		128	0+	-85.379	2.43 d 5	ϵ
		129	1/2+	-85.06	2.23 h 11	ϵ
		129m	7/2+	-85.06	2.16 h 2	$\epsilon \leq 100\%$, IT
		130	0+	-87.261	0.106% 1	
		130m	8-	-84.786	9.4 ms 4	IT
		131	1/2+	-86.684	11.50 d 6	ϵ
		131m	9/2-	-86.496	14.6 m 2	IT
		132	0+	-88.434	$> 3.0 \times 10^{21}$ y 0.101% 1	2ϵ
		133	1/2+	-87.553	10.551 y 11	ϵ
133m	11/2-	-87.265	38.93 h 10	IT 99.99%, ϵ 0.01%		
134	0+	-88.950	2.417% 18			
135	3/2+	-87.850	6.592% 12			
135m	11/2-	-87.582	28.7 h 2	IT		
136	0+	-88.887	7.854% 24			
136m	7-	-86.856	0.3084 s 19	IT		
137	3/2+	-87.721	11.232% 24			
137m	11/2-	-87.059	2.552 m 1	IT		
138	0+	-88.261	71.698% 42			
139	7/2-	-84.914	83.06 m 28	β^-		
140	0+	-83.270	12.7527 d 23	β^-		
141	3/2-	-79.733	18.27 m 7	β^-		
142	0+	-77.845	10.6 m 2	β^-		
143	5/2-	-73.937	14.5 s 3	β^-		
144	0+	-71.767	11.5 s 2	β^- , β^-n 3.6%		
145	5/2-	-67.516	4.31 s 16	β^-		
146	0+	-64.94	2.22 s 7	β^-		
147	(3/2-)	-60.26	0.894 s 10	β^- , β^-n 0.06%		
148	0+	-57.59	0.612 s 17	β^- , β^-n 0.4%		
149		-53.2s	0.344 s 7	β^- , β^-n 0.43%		
150	0+	-50.3s	0.3 s	β^- , β^-n		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
56	Ba	151	-45.6s	>300 ns	β^- , β^-n	
		152	0+	-42.4s	>406 ns	β^- , β^-n
		153		-37.2s		$\beta^-?$
57	La	117	(3/2+, 3/2-)	-46.5s	23.5 ms 26	p 93.9%, ϵ 6.1%
		117m	(9/2+)	-46.3s	10 ms 5	p 97.4%, ϵ 2.6%
		118		-49.6s		$\epsilon?$
		119		-55.0s		$\epsilon?$
		120m		-57.7s	2.8 s 2	ϵ , $\epsilon p > 0\%$
		121		-62.4s	5.3 s 2	ϵ
		122		-64.5s	8.6 s 5	ϵ , ϵp
		123		-68.7s	17 s 3	ϵ
		124m	(8-)	-70.26	29.21 s 17	ϵ
		124m		-70.26	21 s 4	ϵ
		125	(3/2+)	-73.76	64.8 s 12	ϵ
		125m		-73.65	0.39 s 4	
		126m	(5+)	-74.97	54 s 2	$\epsilon > 0\%$
		126m	(0-, 1, 2-)	-74.97	<50 s	ϵ , IT
		127	(11/2-)	-77.89	5.1 m 1	ϵ
		127m	(3/2+)	-77.88	3.7 m 4	ϵ , IT
		128	(5+)	-78.63	5.18 m 14	ϵ
		128m	(1+, 2-)	-78.63	<1.4 m	ϵ
		129	3/2+	-81.33	11.6 m 2	ϵ
		129m	11/2-	-81.15	0.56 s 5	IT
		130	3(+)	-81.63	8.7 m 1	ϵ
		131	3/2+	-83.77	59 m 2	ϵ
		132	2-	-83.72	4.8 h 2	ϵ
		132m	6-	-83.53	24.3 m 5	IT 76%, ϵ 24%
		133	5/2+	-85.49	3.912 h 8	ϵ
		134	1+	-85.22	6.45 m 16	ϵ
		135	5/2+	-86.65	19.5 h 2	ϵ
		136	1+	-86.04	9.87 m 3	ϵ
		136m	(8+)	-85.81	114 ms 3	IT
		137	7/2+	-87.11	6×10^4 y 2	ϵ
		138	5+	-86.521	1.02×10^{11} y 1	ϵ 65.6%, β^- 34.4%
					0.08881% 71	
		139	7/2+	-87.228	99.9119% 71	
140	3-	-84.317	1.67855 d 12	β^-		
141	(7/2+)	-82.934	3.92 h 3	β^-		
142	2-	-80.022	91.1 m 5	β^-		
143	(7/2+)	-78.171	14.2 m 1	β^-		
144	(3-)	-74.83	40.8 s 4	β^-		
145	(5/2+)	-72.83	24.8 s 20	β^-		
146	2-	-69.05	6.27 s 10	β^-		
146m	(6-)	-69.05	10.0 s 1	β^-		
147	(3/2+)	-66.68	4.06 s 4	β^- , β^-n 0.04%		
148	(2-)	-62.71	1.26 s 8	β^- , β^-n 0.15%		
149	(3/2-)	-60.2	1.05 s 3	β^- , β^-n 1.43%		
150	(3+)	-56.6s	0.86 s 5	β^- , β^-n 2.7%		
151		-53.9s	>300 ns	β^- , β^-n		
152		-49.7s	>150 ns	β^-		
153		-46.6s	>100 ns	$\beta^-?$		
154		-42.0s		$\beta^-?$		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode
Z	El	A	(MeV)	Abundance	
57	La	155	-38.5s		β^- ?
58	Ce	119	-43.9s		ϵ ?
		120	0+		ϵ ?
		121	(5/2)	1.1 s 1	$\epsilon, \epsilon p \approx 1\%$
		122	0+		$\epsilon, \epsilon p$
		123	(5/2)	3.8 s 2	$\epsilon, \epsilon p > 0\%$
		124	0+	6 s 2	ϵ
		125	(7/2-)	9.7 s 3	$\epsilon, \epsilon p$
		126	0+	51.0 s 3	ϵ
		127	(1/2+)	34 s 2	ϵ
		127m	(5/2+)	28.6 s 7	ϵ
		128	0+	3.93 m 2	ϵ
		129	5/2+	3.5 m 5	$\epsilon > 0\%$
		130	0+	22.9 m 5	ϵ
		131	7/2+	10.3 m 3	ϵ
		131m	(1/2+)	5.4 m 4	ϵ, IT
		132	0+	3.51 h 11	ϵ
		132m	(8-)	9.4 ms 3	IT
		133	1/2+	97 m 4	ϵ
		133m	9/2-	5.1 h 3	ϵ, IT
		134	0+	3.16 d 4	ϵ
		135	1/2(+)	17.7 h 3	ϵ
		135m	(11/2-)	20 s 1	IT
		136	0+	$> 0.7 \times 10^{14}$ y	2ϵ
				0.185% 2	
		137	3/2+	9.0 h 3	ϵ
		137m	11/2-	34.4 h 3	IT 99.21%, ϵ 0.79%
		138	0+	$\approx 0.9 \times 10^{14}$ y	2ϵ
				0.251% 2	
		138m	7-	8.65 ms 20	IT
		139	3/2+	137.641 d 20	ϵ
		139m	11/2-	54.8 s 10	IT
		140	0+	88.450% 51	
		141	7/2-	32.508 d 13	β^-
		142	0+	$> 5 \times 10^{16}$ y	$2\beta^-$
				11.114% 51	
		143	3/2-	33.039 h 6	β^-
		144	0+	284.91 d 5	β^-
		145	(5/2-)	3.01 m 6	β^-
		146	0+	13.52 m 13	β^-
		147	(5/2-)	56.4 s 10	β^-
		148	0+	56 s 1	β^-
		149	(3/2-)	5.3 s 2	β^-
		150	0+	4.0 s 6	β^-
		151	(5/2+)	1.76 s 6	β^-
		151m		1.02 s 6	β^-
		152	0+	1.4 s 2	β^-
		153		> 100 ns	β^- ?
		154	0+	> 100 ns	β^-
		155		> 300 ns	β^- ?
		156	0+		β^- ?
		157			β^- ?

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode
Z	El	A	(MeV)	Abundance	
59 Pr	121	(3/2)	-41.4s	10 ms +6-3	p
	122		-44.7s	≈ 0.5 s	ϵ ?
	123		-50.1s	≈ 0.8 s	ϵ ?
	124		-53.0s	1.2 s 2	$\epsilon, \epsilon p > 0\%$
	125		-57.7s	3.3 s 7	$\epsilon, \epsilon p$
	126	>3	-60.1s	3.14 s 22	$\epsilon, \epsilon p$
	127		-64.3s	4.2 s 3	ϵ
	128	4,5,6	-66.33	2.84 s 9	ϵ
	129	(11/2-)	-69.77	30 s 4	$\epsilon > 0\%$
	130?	(7,8)	-71.18	40 s 4	ϵ
	130?	(4+,5+)	-71.18	40 s 4	ϵ
	130?	(2+)	-71.18	40 s 4	ϵ
	131	(3/2+)	-74.30	1.51 m 2	ϵ
	131m	(11/2-)	-74.15	5.73 s 20	IT 96.4%, ϵ 3.6%
	132	(2)+	-75.21	1.6 m 3	ϵ
	133	(3/2+)	-77.94	6.5 m 3	ϵ
	133m	(11/2-)	-77.74	1.1 s 2	IT
	134m	(6-)	-78.51	≈ 11 m	ϵ
	134m	2-	-78.51	17 m 2	ϵ
	135	3/2(+)	-80.93	24 m 1	ϵ
	136	2+	-81.33	13.1 m 1	ϵ
	137	5/2+	-83.18	1.28 h 3	ϵ
	138	1+	-83.13	1.45 m 5	ϵ
	138m	7-	-82.76	2.12 h 4	ϵ
	139	5/2+	-84.820	4.41 h 4	ϵ
	140	1+	-84.690	3.39 m 1	ϵ
	141	5/2+	-86.015	100%	
	142	2-	-83.787	19.12 h 4	β^- 99.98%, ϵ 0.02%
	142m	5-	-83.783	14.6 m 5	IT
	143	7/2+	-83.067	13.57 d 2	β^-
	144	0-	-80.749	17.28 m 5	β^-
	144m	3-	-80.690	7.2 m 3	IT 99.93%, β^- 0.07%
	145	7/2+	-79.626	5.984 h 10	β^-
146	(2)-	-76.68	24.15 m 18	β^-	
147	(5/2+)	-75.44	13.4 m 3	β^-	
148	1-	-72.54	2.29 m 2	β^-	
148m	(4)	-72.44	2.01 m 7	β^-	
149	(5/2+)	-71.039	2.26 m 7	β^-	
150	(1)-	-68.299	6.19 s 16	β^-	
151	(3/2-)	-66.78	18.90 s 7	β^-	
152	(4+)	-63.76	3.57 s 18	β^-	
153		-61.58	4.28 s 11	β^-	
154	(3+)	-58.2	2.3 s 1	β^-	
155		-55.8s	>300 ns	β^- ?	
156		-51.9s	>300 ns	β^- ?	
157		-49.0s		β^- ?	
158		-44.7s		β^- ?	
159		-41.5s		β^- ?	
60 Nd	124	0+	-44.3s		ϵ ?
	125	(5/2)	-47.4s	0.65 s 15	$\epsilon, \epsilon p > 0\%$
	126	0+	-52.6s	>200 ns	$\epsilon, \epsilon p$
	127		-55.3s	1.8 s 4	$\epsilon, \epsilon p$

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or	Decay Mode
Z	El	A	(MeV)	Abundance	
60 Nd	128	0+	-60.1s	5 s	ϵ , ϵp
	129	(5/2+)	-62.2s	4.9 s 2	$\epsilon > 0\%$, $\epsilon p > 0\%$
	130	0+	-66.60	21 s 3	ϵ
	131	(5/2+)	-67.77	25.4 s 9	ϵ , $\epsilon p > 0\%$
	132	0+	-71.43	94 s 8	ϵ
	133	(7/2+)	-72.33	70 s 10	ϵ
	133m	(1/2+)	-72.20	≈ 70 s	ϵ , IT
	134	0+	-75.65	8.5 m 15	ϵ
	135	9/2(-)	-76.21	12.4 m 6	ϵ
	135m	(1/2+)	-76.15	5.5 m 5	$\epsilon > 99.97\%$, IT < 0.03%
	136	0+	-79.20	50.65 m 33	ϵ
	137	1/2+	-79.58	38.5 m 15	ϵ
	137m	11/2-	-79.06	1.60 s 15	IT
	138	0+	-82.02	5.04 h 9	ϵ
	139	3/2+	-82.01	29.7 m 5	ϵ
	139m	11/2-	-81.78	5.50 h 20	ϵ 88.2%, IT 11.8%
	140	0+	-84.25	3.37 d 2	ϵ
	140m	7-	-82.03	0.60 ms 5	IT
	141	3/2+	-84.192	2.49 h 3	ϵ
	141m	11/2-	-83.436	62.0 s 8	IT, $\epsilon < 0.05\%$
	142	0+	-85.949	27.152% 40	
	143	7/2-	-84.001	12.174% 26	
	144	0+	-83.747	2.29 $\times 10^{15}$ y 16	α
				23.798% 19	
	145	7/2-	-81.431	8.293% 12	
	146	0+	-80.925	17.189% 32	
	147	5/2-	-78.146	10.98 d 1	β^-
	148	0+	-77.406	5.756% 21	
	149	5/2-	-74.374	1.728 h 1	β^-
	150	0+	-73.683	0.79 $\times 10^{19}$ y 7	
			5.638% 28		
151	3/2+	-70.946	12.44 m 7	β^-	
152	0+	-70.15	11.4 m 2	β^-	
153	(3/2)-	-67.34	31.6 s 10	β^-	
154	0+	-65.7	25.9 s 2	β^-	
155		-62.5s	8.9 s 2	β^-	
156	0+	-60.5	5.06 s 13	β^-	
157		-56.8s	>100 ns	$\beta^-?$	
158	0+	-54.4s	>50 ns	β^-	
159		-50.2s		$\beta^-?$	
160	0+	-47.4s		$\beta^-?$	
161		-43.0s		$\beta^-?$	
61 Pm	126		-38.8s		$\epsilon?$
	127		-44.4s		$p?, \epsilon?$
	128		-47.6s	1.0 s 3	ϵ , α , ϵp
	129	(5/2-)	-52.5s	2.4 s 9	ϵ
	130	(4,5,6)	-55.2s	2.6 s 2	ϵ , ϵp
	131	(11/2-)	-59.6s	6.3 s 8	ϵ
	132	(3+)	-61.6s	6.2 s 6	ϵ , $\epsilon p = 5.0 \times 10^{-5}\%$
	133	(3/2+)	-65.41	13.5 s 21	ϵ
	133m	(11/2-)	-65.28	<8.8 s	IT, ϵ

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode
Z	El	A	(MeV)	Abundance	
61 Pm	134	(2+)	-66.74	≈ 5 s	ϵ
	134m	(5+)	-66.74	22 s 1	ϵ
	135m(3/2+,5/2+)		-69.98	49 s 3	ϵ
	135m	(11/2-)	-69.91	45 s 4	ϵ
	136m	(5-)	-71.20	107 s 6	ϵ
	136m	(2+)	-71.20	47 s 2	ϵ
	137	11/2-	-74.07	2.4 m 1	ϵ
	138		-74.94	10 s 2	ϵ
	138m		-74.92	3.24 m 5	ϵ
	139	(5/2+)	-77.50	4.15 m 5	ϵ
	139m	(11/2-)	-77.31	180 ms 20	IT 99.94%, ϵ 0.06%
	140	1+	-78.21	9.2 s 2	ϵ
	140m	8-	-78.21	5.95 m 5	ϵ
	141	5/2+	-80.52	20.90 m 5	ϵ
	142	1+	-81.16	40.5 s 5	ϵ
	142m	(8)-	-80.27	2.0 ms 2	IT
	143	5/2+	-82.960	265 d 7	ϵ
	144	5-	-81.415	363 d 14	ϵ
	145	5/2+	-81.267	17.7 y 4	ϵ , α 2.8 \times 10 ⁻⁷ %
	146	3-	-79.453	5.53 y 5	ϵ 66%, β - 34%
	147	7/2+	-79.041	2.6234 y 2	β -
	148	1-	-76.865	5.368 d 2	β -
	148m	5-,6-	-76.727	41.29 d 11	β - 95.8%, IT 4.2%
	149	7/2+	-76.063	53.08 h 5	β -
	150	(1-)	-73.60	2.68 h 2	β -
	151	5/2+	-73.388	28.40 h 4	β -
	152	1+	-71.25	4.12 m 8	β -
	152m	(8)	-71.11	13.8 m 2	β -, IT \geq 0%
	152m	4-	-71.11	7.52 m 8	β -
	153	5/2-	-70.68	5.25 m 2	β -
	154	(3,4)	-68.49	2.68 m 7	β -
	154m	(0-,1-)	-68.49	1.73 m 10	β -
	155	5/2-	-66.97	41.5 s 2	β -
156m	4-	-64.21	26.70 s 10	β -	
157	(5/2-)	-62.4	10.56 s 10	β -	
158		-59.1	4.8 s 5	β -	
159		-56.8	1.5 s 2	β -	
160		-53.1s		β -?	
161		-50.4s		β -?	
162		-46.3s		β -?	
163		-43.1s		β -?	
62 Sm	128	0+	-38.0s		ϵ ?, p?
	129	(1/2+,3/2+)	-41.3s	0.55 s 10	ϵ , ϵ p > 0%
	130	0+	-46.9s		ϵ
	131		-49.6s	1.2 s 2	ϵ , ϵ p > 0%
	132	0+	-54.7s	4.0 s 3	ϵ , ϵ p
	133	(5/2+)	-56.8s	2.89 s 16	ϵ , ϵ p > 0%
	133m	(1/2-)	-56.8s	3.5 s 4	ϵ , IT, ϵ p
	134	0+	-61.2s	9.5 s 8	ϵ
	135	(3/2+,5/2+)	-62.9	10.3 s 5	ϵ , ϵ p 0.02%
	136	0+	-66.81	47 s 2	ϵ
	137	(9/2-)	-68.03	45 s 1	ϵ

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	
Z	El	A	(MeV)	Abundance	Decay Mode
62 Sm	138	0+	-71.50	3.1 m 2	ϵ
	139	1/2+	-72.38	2.57 m 10	ϵ
	139m	11/2-	-71.92	10.7 s 6	IT 93.7%, ϵ 6.3%
	140	0+	-75.46	14.82 m 12	ϵ
	141	1/2+	-75.934	10.2 m 2	ϵ
	141m	11/2-	-75.758	22.6 m 2	ϵ 99.69%, IT 0.31%
	142	0+	-78.987	72.49 m 5	ϵ
	143	3/2+	-79.516	8.75 m 6	ϵ
	143m	11/2-	-78.762	66 s 2	IT 99.76%, ϵ 0.24%
	143m	23/2(-)	-76.722	30 ms 3	IT
	144	0+	-81.965	3.07% 7	
	145	7/2-	-80.651	340 d 3	ϵ
	146	0+	-80.995	10.3×10 ⁷ y 5	α
	147	7/2-	-79.265	1.060×10 ¹¹ y 11	α
				14.99% 18	
	148	0+	-79.335	7×10 ¹⁵ y 3	α
				11.24% 10	
	149	7/2-	-77.135	13.82% 7	
	150	0+	-77.050	7.38% 1	
	151	5/2-	-74.575	90 y 8	β^-
	152	0+	-74.762	26.75% 16	
	153	3/2+	-72.559	46.284 h 4	β^-
	153m	11/2-	-72.461	10.6 ms 3	IT
	154	0+	-72.454	22.75% 29	
	155	3/2-	-70.190	22.3 m 2	β^-
	156	0+	-69.362	9.4 h 2	β^-
	157	(3/2-)	-66.72	8.03 m 7	β^-
158	0+	-65.21	5.30 m 3	β^-	
159	5/2-	-62.24	11.37 s 15	β^-	
160	0+	-60.4s	9.6 s 3	β^-	
161		-56.8	4.8 s 4	β^-	
162	0+	-54.8s	2.4 s 5	β^-	
163		-50.9s		$\beta^-?$	
164	0+	-48.2s		$\beta^-?$	
165		-43.8s		$\beta^-?$	
63 Eu	130	(1+)	-33.0s	0.90 ms +49-29	p
	131	3/2+	-38.7s	17.8 ms 19	p 89%, ϵ 11%
	132		-41.9s		p, ϵ
	133		-47.1s		$\epsilon?$
	134		-49.7s	0.5 s 2	ϵ , $\epsilon p > 0%$
	135		-54.1s	1.5 s 2	ϵ , ϵp
	136m	(7+)	-56.1s	3.3 s 3	ϵ , ϵp 0.09%
	136m	(3+)	-56.1s	3.8 s 3	ϵ , ϵp 0.09%
	137	(11/2-)	-60.0s	11 s 2	ϵ
	138	(6-)	-61.75	12.1 s 6	ϵ
	139	(11/2)-	-65.40	17.9 s 6	ϵ
	140	1+	-66.99	1.51 s 2	ϵ
	140m	(5-)	-66.99	125 ms 2	IT, $\epsilon < 1%$
	141	5/2+	-69.93	40.7 s 7	ϵ
	141m	11/2-	-69.83	2.7 s 3	IT 87%, ϵ 13%
	142	1+	-71.31	2.34 s 12	ϵ
	142m	8-	-71.31	1.223 m 8	ϵ

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode
Z	El	A	(MeV)	Abundance	
63 Eu	143	5/2+	-74.24	2.59 m 2	ϵ
	144	1+	-75.62	10.2 s 1	ϵ
	145	5/2+	-77.991	5.93 d 4	ϵ
	146	4-	-77.117	4.61 d 3	ϵ
	147	5/2+	-77.544	24.1 d 6	$\epsilon, \alpha 2.2 \times 10^{-3}\%$
	148	5-	-76.30	54.5 d 5	$\epsilon, \alpha 9.4 \times 10^{-7}\%$
	149	5/2+	-76.440	93.1 d 4	ϵ
	150	5-	-74.791	36.9 y 9	ϵ
	150m	0-	-74.749	12.8 h 1	$\beta- 89\%, \epsilon 11\%,$ $IT \leq 5.0 \times 10^{-8}\%$
	151	5/2+	-74.651	$\geq 1.7 \times 10^{18}$ y 47.81% 3	α
	152	3-	-72.887	13.528 y 14	$\epsilon 72.1\%, \beta- 27.9\%$
	152m	0-	-72.841	9.3116 h 13	$\beta- 72\%, \epsilon 28\%$
	152m	8-	-72.739	96 m 1	IT
	153	5/2+	-73.366	52.19% 6	
	154	3-	-71.736	8.601 y 10	$\beta- 99.98\%, \epsilon 0.02\%$
	154m	8-	-71.591	46.3 m 4	IT
	155	5/2+	-71.816	4.753 y 14	$\beta-$
	156	0+	-70.085	15.19 d 8	$\beta-$
	157	5/2+	-69.459	15.18 h 3	$\beta-$
	158	(1-)	-67.20	45.9 m 2	$\beta-$
	159	5/2+	-66.045	18.1 m 1	$\beta-$
	160	1	-63.24	38 s 4	$\beta-$
	161		-61.80	26 s 3	$\beta-$
	162		-58.69	10.6 s 10	$\beta-$
	163		-56.80	7.7 s 4	$\beta-$
	164		-53.4s	4.2 s 2	$\beta-$
	165		-50.8s	2.3 s 2	$\beta-$
166		-46.8s		$\beta-?$	
167		-43.8s		$\beta-?$	
64 Gd	133		-35.6s		
	134	0+	-41.1s		$\epsilon?$
	135	(5/2+)	-44.0s	1.1 s 2	$\epsilon, \epsilon p 18\%$
	136	0+	-48.9s	≥ 200 ns	
	137	(7/2)	-51.2s	2.2 s 2	$\epsilon, \epsilon p$
	138	0+	-55.7s	4.7 s 9	ϵ
	139	(9/2-)	-57.6s	5.8 s 9	$\epsilon p > 0\%, \epsilon > 0\%$
	139m		-57.6s	4.8 s 9	$\epsilon p > 0\%, \epsilon > 0\%$
	140	0+	-61.78	15.8 s 4	ϵ
	141	1/2+	-63.22	14 s 4	$\epsilon, \epsilon p 0.03\%$
	141m	11/2-	-62.85	24.5 s 5	$\epsilon 89\%, IT 11\%$
	142	0+	-66.96	70.2 s 6	ϵ
	143	(1/2)+	-68.2	39 s 2	ϵ
	143m (11/2-)		-68.1	110.0 s 14	ϵ
	144	0+	-71.76	4.47 m 6	ϵ
	145	1/2+	-72.93	23.0 m 4	ϵ
	145m	11/2-	-72.18	85 s 3	IT 94.3%, $\epsilon 5.7\%$
	146	0+	-76.087	48.27 d 10	ϵ
	147	7/2-	-75.356	38.06 h 12	ϵ
148	0+	-76.269	70.9 y 10	α	
149	7/2-	-75.126	9.28 d 10	$\epsilon, \alpha 4.3 \times 10^{-4}\%$	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or	Decay Mode
Z	El	A	(MeV)	Abundance	
64 Gd	150	0+	-75.763	1.79×10^6 y 8	α
	151	7/2-	-74.187	123.9 d 10	ϵ , $\alpha \approx 8.0 \times 10^{-7}\%$
	152	0+	-74.706	1.08×10^{14} y 8	α
				0.20% 1	
	153	3/2-	-72.882	240.4 d 10	ϵ
	154	0+	-73.705	2.18% 3	
	155	3/2-	-72.069	14.80% 12	
	155m	11/2-	-71.948	31.97 ms 27	IT
	156	0+	-72.534	20.47% 9	
	157	3/2-	-70.823	15.65% 2	
	158	0+	-70.689	24.84% 7	
	159	3/2-	-68.560	18.479 h 4	β^-
	160	0+	-67.940	$>3.1 \times 10^{19}$ y	$2\beta^-$
				21.86% 19	
	161	5/2-	-65.505	3.66 m 5	β^-
	162	0+	-64.279	8.4 m 2	β^-
	163	(5/2-, 7/2+)	-61.47	68 s 3	β^-
	164	0+	-59.9s	45 s 3	β^-
	165		-56.6s	10.3 s 16	β^-
	166	0+	-54.5s	4.8 s 10	β^-
167		-50.8s		$\beta^-?$	
168	0+	-48.3s		$\beta^-?$	
169		-44.2s		$\beta^-?$	
65 Tb	135	(7/2-)	-32.6s	0.94 ms +33-22	p
	136		-35.9s		$\epsilon?$
	137		-40.7s		p?, $\epsilon?$
	138m		-43.5s	≥ 200 ns	ϵ , p
	139		-48.0s	1.6 s 2	ϵ , $\epsilon p?$
	140	(7+)	-50.5	2.0 s 5	ϵ , ϵp 0.26%
	141	(5/2-)	-54.5	3.5 s 2	ϵ
	141m		-54.5	7.9 s 6	ϵ
	142	1+	-56.6	597 ms 17	ϵ , ϵp $2.2 \times 10^{-3}\%$
	142m	5-	-56.3	303 ms 17	IT
	143	(11/2-)	-60.42	12 s 1	ϵ
	143m		-60.42	<21 s	ϵ
	144	1+	-62.37	≈ 1 s	ϵ
	144m	(6-)	-61.97	4.25 s 15	IT 66%, ϵ 34%
	145		-65.88		$\epsilon?$
	145m	(11/2-)	-65.88	30.9 s 6	ϵ
	146	1+	-67.76	8 s 4	ϵ
	146m	5-	-67.76	23 s 2	ϵ
	146m	(10+)	-66.98	1.18 ms 2	IT
	147	(1/2+)	-70.742	1.64 h 3	ϵ
147m	(11/2-)	-70.691	1.83 m 6	ϵ	
148	2-	-70.54	60 m 1	ϵ	
148m	(9+)	-70.45	2.20 m 5	ϵ	
149	1/2+	-71.489	4.118 h 25	ϵ 83.3%, α 16.7%	
149m	11/2-	-71.453	4.16 m 4	ϵ 99.98%, α 0.02%	
150	(2-)	-71.105	3.48 h 16	ϵ , $\alpha < 0.05\%$	
150m	9+	-70.631	5.8 m 2	ϵ	
151	1/2(+)	-71.622	17.609 h 14	ϵ 99.99%, α $9.5 \times 10^{-3}\%$	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
65 Tb	151m	(11/2-)	-71.522	25 s 3	IT 93.4%, ϵ 6.6%	
	152	2-	-70.72	17.5 h 1	ϵ , $\alpha < 7.0 \times 10^{-7}\%$	
	152m	8+	-70.21	4.2 m 1	IT 78.8%, ϵ 21.2%	
	153	5/2+	-71.313	2.34 d 1	ϵ	
	154	0	-70.15	21.5 h 4	ϵ , $\beta- < 0.1\%$	
	154m	7-	-70.15	22.7 h 5	ϵ 98.2%, IT 1.8%	
	154m	3-	-70.15	9.4 h 4	ϵ 78.2%, IT 21.8%, $\beta- < 0.1\%$	
	155	3/2+	-71.25	5.32 d 6	ϵ	
	156	3-	-70.090	5.35 d 10	ϵ	
	156m	(7-)	-70.040	24.4 h 10	IT	
	156m	(0+)	-70.002	5.3 h 2	IT < 100%, $\epsilon > 0\%$	
	157	3/2+	-70.762	71 y 7	ϵ	
	158	3-	-69.469	180 y 11	ϵ 83.4%, $\beta-$ 16.6%	
	158m	0-	-69.359	10.70 s 17	IT, $\beta- < 0.6\%$, $\epsilon < 0.01\%$	
	158m	7-	-69.081	0.40 ms 4	IT	
	159	3/2+	-69.531	100%		
	160	3-	-67.835	72.3 d 2	$\beta-$	
	161	3/2+	-67.460	6.89 d 2	$\beta-$	
	162	1-	-65.67	7.60 m 15	$\beta-$	
	163	3/2+	-64.594	19.5 m 3	$\beta-$	
	164	(5+)	-62.1	3.0 m 1	$\beta-$	
	165	(3/2+)	-60.7s	2.11 m 10	$\beta-$	
	166	(2-)	-57.88	25.1 s 21	$\beta-$	
	167	(3/2+)	-55.9s	19.4 s 27	$\beta-$	
	168	(4-)	-52.6s	8.2 s 13	$\beta-$	
	169		-50.2s		$\beta-?$	
	170		-46.5s		$\beta-?$	
	171		-43.8s		$\beta-?$	
	66 Dy	138	0+	-34.8s		$\epsilon?$
		139	(7/2+)	-37.6s	0.6 s 2	ϵ , ϵp
		140	0+	-42.7s		ϵ
		141	(9/2-)	-45.2s	0.9 s 2	ϵ , ϵp
		142	0+	-49.9s	2.3 s 3	ϵ , ϵp 0.06%
143		(1/2+)	-52.17	5.6 s 10	ϵ , ϵp	
143m		(11/2-)	-51.86	3.0 s 3	ϵ , ϵp	
144		0+	-56.570	9.1 s 4	ϵ , ϵp	
145		(1/2+)	-58.242	6 s 2	ϵ , $\epsilon p \approx 50\%$	
145m		(11/2-)	-58.124	14.1 s 7	ϵ , $\epsilon p \approx 50\%$	
146		0+	-62.554	29 s 3	ϵ	
146m		(10+)	-59.618	150 ms 20	IT	
147		(1/2+)	-64.194	67 s 7	ϵ , ϵp 0.05%	
147m		(11/2-)	-63.444	55.2 s 5	ϵ 68.9%, IT 31.1%	
148		0+	-67.859	3.3 m 2	ϵ	
149		(7/2-)	-67.702	4.20 m 14	ϵ	
149m	(27/2-)	-65.041	0.490 s 15	IT 99.3%, ϵ 0.7%		
150	0+	-69.310	7.17 m 5	ϵ 64%, α 36%		
151	7/2(-)	-68.752	17.9 m 3	ϵ 94.4%, α 5.6%		
152	0+	-70.118	2.38 h 2	ϵ 99.9%, α 0.1%		
153	7/2(-)	-69.142	6.4 h 1	ϵ 99.99%, α $9.4 \times 10^{-3}\%$		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or	Decay Mode
Z	El	A	(MeV)	Abundance	
66 Dy	154	0+	-70.392	3.0×10^6 y 15	α
	155	3/2-	-69.15	9.9 h 2	ϵ
	156	0+	-70.522	0.056% 3	
	157	3/2-	-69.420	8.14 h 4	ϵ
	157m	11/2-	-69.221	21.6 ms 16	IT
	158	0+	-70.404	0.095% 3	
	159	3/2-	-69.166	144.4 d 2	ϵ
	160	0+	-69.671	2.329% 18	
	161	5/2+	-68.054	18.889% 42	
	162	0+	-68.179	25.475% 36	
	163	5/2-	-66.379	24.896% 42	
	164	0+	-65.966	28.260% 54	
	165	7/2+	-63.610	2.334 h 1	β^-
	165m	1/2-	-63.502	1.257 m 6	IT 97.76%, β^- 2.24%
	166	0+	-62.583	81.6 h 1	β^-
	167	(1/2-)	-59.93	6.20 m 8	β^-
	168	0+	-58.6	8.7 m 3	β^-
	169	(5/2-)	-55.6	39 s 8	β^-
	170	0+	-53.7s		β^-
	171		-50.1s		$\beta^-?$
172	0+	-47.8s		$\beta^-?$	
173		-43.7s		$\beta^-?$	
67 Ho	140	(6-,0-,8+)	-29.2s	6 ms 3	p
	141	7/2-	-34.3s	4.1 ms 3	p
	142	(7-,8+)	-37.2s	0.4 s 1	ϵ , $\epsilon p > 0\%$
	143	(11/2-)	-42.0s		$\epsilon?$, $\epsilon p?$
	144	(5-)	-44.609	0.7 s 1	ϵ , ϵp
	145	(11/2-)	-49.120	2.4 s 1	ϵ
	146	(10+)	-51.238	3.6 s 3	ϵ
	147	(11/2-)	-55.757	5.8 s 4	ϵ
	148	(1+)	-57.99	2.2 s 11	ϵ
	148m	(6-)	-57.99	9.59 s 15	ϵ , ϵp 0.08%
	148m	(10+)	-57.30	2.35 ms 4	IT
	149	(11/2-)	-61.66	21.1 s 2	ϵ
	149m	(1/2+)	-61.62	56 s 3	ϵ
	150	2-	-61.95	72 s 4	ϵ
	150m	(9+)	-61.45	24.1 s 5	ϵ ,
	151	(11/2-)	-63.622	35.2 s 1	ϵ 78%, α 22%
	151m	(1/2+)	-63.581	47.2 s 13	α 80%, ϵ 20%
	152	2-	-63.61	161.8 s 3	ϵ 88%, α 12%
	152m	9+	-63.45	50.0 s 4	ϵ 89.2%, α 10.8%
	153	11/2-	-65.012	2.01 m 3	ϵ 99.95%, α 0.05%
	153m	1/2+	-64.943	9.3 m 5	ϵ 99.82%, α 0.18%
	154	2-	-64.639	11.76 m 19	ϵ 99.98%, α 0.02%
	154m	8+	-64.639	3.10 m 14	ϵ , $\alpha < 1.0 \times 10^{-3}\%$
	155	5/2+	-66.04	48 m 1	ϵ
	155m	11/2-	-65.90	0.88 ms 8	IT
	156	4-	-65.47	56 m 1	ϵ
	156m	1-	-65.42	9.5 s 15	IT
	156m	9+	-65.42	7.8 m 3	ϵ 75%, IT 25%
157	7/2-	-66.83	12.6 m 2	ϵ	
158	5+	-66.18	11.3 m 4	ϵ	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	
Z	El	A	(MeV)	Abundance	Decay Mode
67 Ho	158m	2-	-66.12	28 m 2	IT > 81%, ϵ < 19%
	158m	(9+)	-66.00	21.3 m 23	$\epsilon \geq 93%$, IT $\leq 7%$
	159	7/2-	-67.328	33.05 m 11	ϵ
	159m	1/2+	-67.122	8.30 s 8	IT
	160	5+	-66.38	25.6 m 3	ϵ
	160m	2-	-66.32	5.02 h 5	IT 73%, ϵ 27%
	160m	(9+)	-66.21	3 s	IT
	161	7/2-	-67.195	2.48 h 5	ϵ
	161m	1/2+	-66.984	6.76 s 7	IT
	162	1+	-66.040	15.0 m 10	ϵ
	162m	6-	-65.934	67.0 m 7	IT 62%, ϵ 38%
	163	7/2-	-66.376	4570 y 25	ϵ
	163m	1/2+	-66.078	1.09 s 3	IT
	164	1+	-64.980	29 m 1	ϵ 60%, β^- 40%
	164m	6-	-64.840	37.5 m +15-5	IT
	165	7/2-	-64.897	100%	
	166	0-	-63.070	26.824 h 12	β^-
	166m	7-	-63.064	1.20 × 10 ³ y 18	β^-
	167	7/2-	-62.279	3.003 h 18	β^-
	168	3+	-60.06	2.99 m 7	β^-
	168m	(6+)	-60.00	132 s 4	IT $\geq 99.5%$, $\beta^- \leq 0.5%$
	169	7/2-	-58.80	4.72 m 10	β^-
	170	(6+)	-56.24	2.76 m 5	β^-
	170m	(1+)	-56.12	43 s 2	β^-
	171	(7/2-)	-54.5	53 s 2	β^-
	172		-51.5s	25 s 3	β^-
	173		-49.2s		$\beta^- ?$
174		-45.7s		$\beta^- ?$	
175		-43.1s		$\beta^- ?$	
68 Er	142	0+	-28.1s		
	143		-31.2s		$\epsilon ?$
	144	0+	-36.7s	≥ 200 ns	ϵ
	145	(1/2+)	-39.4s		$\epsilon ?$
	145m	(11/2-)	-39.2s	1.0 s 3	$\epsilon, \epsilon p$
	146	0+	-44.322	1.7 s 6	$\epsilon, \epsilon p$
	147	(1/2+)	-46.61	2.5 s 2	$\epsilon, \epsilon p > 0%$
	147m	(11/2-)	-46.61	1.6 s 2	$\epsilon, \epsilon p > 0%$
	148	0+	-51.48	4.6 s 2	ϵ
	149	(1/2+)	-53.74	4 s 2	$\epsilon, \epsilon p 7%$
	149m	(11/2-)	-53.00	8.9 s 2	$\epsilon 96.5%$, IT 3.5%, $\epsilon p 0.18%$
	150	0+	-57.83	18.5 s 7	ϵ
	151	(7/2-)	-58.26	23.5 s 20	ϵ
	151m	(27/2-)	-55.68	0.58 s 2	IT 95.3%, ϵ 4.7%
	152	0+	-60.500	10.3 s 1	$\alpha 90%$, $\epsilon 10%$
	153	(7/2-)	-60.475	37.1 s 2	$\alpha 53%$, $\epsilon 47%$
	154	0+	-62.606	3.73 m 9	$\epsilon 99.53%$, $\alpha 0.47%$
	155	7/2-	-62.209	5.3 m 3	$\epsilon 99.98%$, $\alpha 0.02%$
	156	0+	-64.21	19.5 m 10	$\epsilon, \alpha 1.7 \times 10^{-5} %$
	157	3/2-	-63.41	18.65 m 10	ϵ
157m	(9/2+)	-63.26	76 ms 6	IT	
158	0+	-65.30	2.29 h 6	ϵ	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or	Decay Mode
Z	El	A	(MeV)	Abundance	
68 Er	159	3/2-	-64.560	36 m 1	ϵ
	160	0+	-66.06	28.58 h 9	ϵ
	161	3/2-	-65.199	3.21 h 3	ϵ
	162	0+	-66.332	0.139% 5	
	163	5/2-	-65.166	75.0 m 4	ϵ
	164	0+	-65.941	1.601% 3	
	165	5/2-	-64.520	10.36 h 4	ϵ
	166	0+	-64.924	33.503% 36	
	167	7/2+	-63.289	22.869% 9	
	167m	1/2-	-63.081	2.269 s 6	IT
	168	0+	-62.989	26.978% 18	
	169	1/2-	-60.921	9.392 d 18	β^-
	170	0+	-60.108	14.910% 36	
	171	5/2-	-57.718	7.516 h 2	β^-
	172	0+	-56.482	49.3 h 3	β^-
	173	(7/2-)	-53.7s	1.4 m 1	β^-
	174	0+	-51.9s	3.2 m 2	β^-
	175	(9/2+)	-48.7s	1.2 m 3	β^-
176	0+	-46.6s		$\beta^-?$	
177		-42.9s		$\beta^-?$	
69 Tm	144	(10+)	-22.2s	1.9 μ s +12-5	p>0%
	145	(11/2-)	-27.7s	3.17 μ s 20	p
	146	(5-)	-31.2s	80 ms 10	p, ϵ
	146m	(8+)	-31.1s	200 ms 10	p, ϵ
	147	11/2-	-35.974	0.58 s 3	ϵ 85%, p 15%
	147m	3/2+	-35.906	0.36 ms 4	p
	148m	(10+)	-38.76	0.7 s 2	ϵ
	149	(11/2-)	-43.9s	0.9 s 2	ϵ , ϵ p 0.2%
	150	(6-)	-46.5s	2.20 s 6	ϵ
	150m	(10+)	-45.8s	5.2 ms 3	IT
	151	(11/2-)	-50.78	4.17 s 11	ϵ
	151m	(1/2+)	-50.78	6.6 s 20	ϵ
	152	(2-)	-51.77	8.0 s 10	ϵ
	152m	(9+)	-51.77	5.2 s 6	ϵ
	153	(11/2-)	-53.99	1.48 s 1	α 91%, ϵ 9%
	153m	(1/2+)	-53.95	2.5 s 2	α 92%, ϵ 8%
	154	(2-)	-54.43	8.1 s 3	α 54%, ϵ 46%
	154m	9+	-54.43	3.30 s 7	α 58%, ϵ 42%, IT
	155	11/2-	-56.626	21.6 s 2	ϵ 99.11%, α 0.89%
	155m	1/2+	-56.585	45 s 3	ϵ >98%, α <2%
	156	2-	-56.84	83.8 s 18	ϵ 99.94%, α 0.06%
	157	1/2+	-58.71	3.63 m 9	ϵ
	158	2-	-58.70	3.98 m 6	ϵ
	158m	(5+)	-58.70	\approx 20 s	$\epsilon?$
	159	5/2+	-60.57	9.13 m 16	ϵ
	160	1-	-60.30	9.4 m 3	ϵ
160m	5	-60.23	74.5 s 15	IT 85%, ϵ 15%	
161	7/2+	-61.90	30.2 m 8	ϵ	
162	1-	-61.47	21.70 m 19	ϵ	
162m	5+	-61.47	24.3 s 17	IT 81%, ϵ 19%	
163	1/2+	-62.727	1.810 h 5	ϵ	
164	1+	-61.90	2.0 m 1	ϵ	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or	Decay Mode
Z	El	A	(MeV)	Abundance	
69 Tm	164m	6-	-61.90	5.1 m 1	IT=80%, $\epsilon \approx 20\%$
	165	1/2+	-62.928	30.06 h 3	ϵ
	166	2+	-61.89	7.70 h 3	ϵ
	166m	(6-)	-61.78	340 ms 25	IT
	167	1/2+	-62.542	9.25 d 2	ϵ
	168	3+	-61.312	93.1 d 2	ϵ 99.99%, β - 0.01%
	169	1/2+	-61.274	100%	
	170	1-	-59.795	128.6 d 3	β - 99.87%, ϵ 0.13%
	171	1/2+	-59.210	1.92 y 1	β -
	172	2-	-57.373	63.6 h 2	β -
	173	(1/2+)	-56.253	8.24 h 8	β -
	174	(4)-	-53.86	5.4 m 1	β -
	174m	0+	-53.61	2.29 s 1	IT 99%, β - < 1%
	175	(1/2+)	-52.31	15.2 m 5	β -
	176	(4+)	-49.4	1.9 m 1	β -
	177m	(7/2-)	-47.5s	90 s 6	β -
	178		-44.1s	>300 ns	β -
	179		-41.6s		β -?
	70 Yb	148	0+	-30.2s	
149		(1/2+,3/2+)	-33.2s	0.7 s 2	ϵ , ϵ p
150		0+	-38.6s	≥ 200 ns	ϵ ?
151		(1/2+)	-41.5	1.6 s 1	ϵ , ϵ p > 0%
151m		(11/2-)	-41.5	1.6 s 1	ϵ , IT=0.4%, ϵ p
152		0+	-46.3	3.03 s 6	ϵ , ϵ p
153		7/2-	-47.1s	4.2 s 2	α 60%, ϵ 40%
154		0+	-49.93	0.409 s 2	α 92.6%, ϵ 7.4%
155		(7/2-)	-50.50	1.793 s 19	α 89%, ϵ 11%
156		0+	-53.265	26.1 s 7	ϵ 90%, α 10%
157		7/2-	-53.43	38.6 s 10	ϵ 99.5%, α 0.5%
158		0+	-56.008	1.49 m 13	$\alpha \approx 2.1 \times 10^{-3}\%$, ϵ
159		5/2(-)	-55.84	1.67 m 9	ϵ
160		0+	-58.16	4.8 m 2	ϵ
161		3/2-	-57.84	4.2 m 2	ϵ
162		0+	-59.83	18.87 m 19	ϵ
163		3/2-	-59.30	11.05 m 35	ϵ
164		0+	-61.02	75.8 m 17	ϵ
165		5/2-	-60.29	9.9 m 3	ϵ
166		0+	-61.594	56.7 h 1	ϵ
167		5/2-	-60.588	17.5 m 2	ϵ
168		0+	-61.580	0.123% 3	
169		7/2+	-60.376	32.018 d 5	ϵ
169m		1/2-	-60.352	46 s 2	IT
170		0+	-60.763	2.982% 39	
171		1/2-	-59.306	14.09% 14	
171m		7/2+	-59.211	5.25 ms 24	IT
172	0+	-59.255	21.68% 13		
173	5/2-	-57.551	16.103% 63		
174	0+	-56.944	32.026% 80		
175	(7/2-)	-54.695	4.185 d 1	β -	
175m	1/2-	-54.180	68.2 ms 3	IT	
176	0+	-53.488	12.996% 83		
176m	8-	-52.438	11.4 s 3	IT	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
70	Yb	177	(9/2+)	-50.983	1.911 h 3	β^-
		177m	(1/2-)	-50.652	6.41 s 2	IT
		178	0+	-49.69	74 m 3	β^-
		179	(1/2-)	-46.4s	8.0 m 4	β^-
		180	0+	-44.4s	2.4 m 5	β^-
		181		-40.8s		β^- ?
71	Lu	150	(2+)	-24.6s	45 ms 3	p 70.9%, ϵ 29.1%
		151	11/2-	-30.1s	80.6 ms 20	p 63.4%, ϵ 36.6%
		152	(4-,5-,6-)	-33.4s	0.7 s 1	ϵ , ϵ p 15%
		153	11/2-	-38.4	0.9 s 2	$\alpha \approx 70\%$, $\epsilon \approx 30\%$
		154	(2-)	-39.6s		
		154m	(9+)	-39.6s	1.12 s 8	ϵ
		155	11/2-	-42.55	68 ms 1	α 90%, ϵ 10%
		155m	1/2+	-42.53	138 ms 8	α 76%, ϵ 24%
		155m	(25/2-)	-40.77	2.69 ms 3	α
		156	(2-)	-43.75	494 ms 12	$\alpha \approx 95\%$, $\epsilon \approx 5\%$
		156m	9+	-43.75	198 ms 2	α
		157	(1/2+,3/2+)	-46.46	6.8 s 18	$\alpha > 0\%$
		157m	(11/2-)	-46.43	4.79 s 12	ϵ 94%, α 6%
		158		-47.21	10.6 s 3	ϵ 99.09%, α 0.91%
		159		-49.71	12.1 s 10	ϵ , α 0.1%
		160		-50.27	36.1 s 3	ϵ , $\alpha \leq 1.0 \times 10^{-4}\%$
		160m		-50.27	40 s 1	$\epsilon \leq 100\%$, α
		161	1/2+	-52.56	77 s 2	ϵ
		161m	(9/2-)	-52.40	7.3 ms 4	IT
		162	1-	-52.84	1.37 m 2	$\epsilon \leq 100\%$
		162m		-52.84	1.9 m	$\epsilon \leq 100\%$
		162m	(4-)	-52.84	1.5 m	$\epsilon \leq 100\%$
		163	1/2(+)	-54.79	3.97 m 13	ϵ
		164	1(-)	-54.64	3.14 m 3	ϵ
		165	1/2+	-56.44	10.74 m 10	ϵ
		166	6-	-56.02	2.65 m 10	ϵ
		166m	3(-)	-55.99	1.41 m 10	ϵ 58%, IT 42%
		166m	0-	-55.98	2.12 m 10	$\epsilon > 80\%$, IT < 20%
		167	7/2+	-57.50	51.5 m 10	ϵ
		167m	1/2+	-57.50	≥ 1 m	ϵ , IT
		168	6(-)	-57.07	5.5 m 1	ϵ
		168m	3+	-56.87	6.7 m 4	$\epsilon > 99.6\%$, IT < 0.8%
169	7/2+	-58.083	34.06 h 5	ϵ		
169m	1/2-	-58.054	160 s 10	IT		
170	0+	-57.30	2.012 d 20	ϵ		
170m	(4-)	-57.21	0.67 s 10	IT		
171	7/2+	-57.828	8.24 d 3	ϵ		
171m	1/2-	-57.757	79 s 2	IT		
172	4-	-56.736	6.70 d 3	ϵ		
172m	1-	-56.694	3.7 m 5	IT		
173	7/2+	-56.881	1.37 y 1	ϵ		
174	(1)-	-55.570	3.31 y 5	ϵ		
174m	(6)-	-55.399	142 d 2	IT 99.38%, ϵ 0.62%		
175	7/2+	-55.166	97.401% 13			
176	7-	-53.382	3.76×10^{10} y 7	β^-		
			2.599% 13			

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
71 Lu	176m	1-	-53.259	3.664 h 19	β^- 99.9%, ϵ 0.09%	
	177	7/2+	-52.384	6.647 d 4	β^-	
	177m	23/2-	-51.414	160.44 d 6	β^- 78.6%, IT 21.4%	
	177m	(39/2-)	-49.644	6 m +3-2	β^- , IT?	
	178	1(+)	-50.338	28.4 m 2	β^-	
	178m	(9-)	-50.214	23.1 m 3	β^-	
	179	7/2+	-49.059	4.59 h 6	β^-	
	179m	1/2+	-48.467	3.1 ms 9	IT	
	180	5+	-46.68	5.7 m 1	β^-	
	181	(7/2+)	-44.7s	3.5 m 3	β^-	
	182		-41.9s	2.0 m 2	β^-	
	183	(7/2+)	-39.5s	58 s 4	β^-	
	184	(3+)	-36.4s	19 s 2	β^-	
	72 Hf	153		-27.3s	>60 ns	ϵ ?
		154	0+	-32.7s	2 s 1	ϵ , α ?
155			-34.1s	0.84 s 3	ϵ	
156		0+	-37.9	23 ms 1	α	
156m		8+	-35.9	0.52 ms 1	α	
157		7/2-	-38.8s	110 ms 6	α 86%, ϵ 14%	
158		0+	-42.10	2.85 s 7	ϵ 55.7%, α 44.3%	
159		7/2-	-42.85	5.6 s 4	ϵ 65%, α 35%	
160		0+	-45.938	13.6 s 2	ϵ 99.3%, α 0.7%	
161			-46.32	18.2 s 5	ϵ >99.87%, α <0.13%	
162		0+	-49.166	39.4 s 9	ϵ 99.99%, α $8.0 \times 10^{-3}\%$	
163			-49.29	40.0 s 6	ϵ , α < $1.0 \times 10^{-4}\%$	
164		0+	-51.83	111 s 8	ϵ	
165		(5/2-)	-51.63	76 s 4	ϵ	
166		0+	-53.86	6.77 m 30	ϵ	
167		(5/2-)	-53.47	2.05 m 5	ϵ	
168		0+	-55.36	25.95 m 20	ϵ	
169		5/2-	-54.72	3.24 m 4	ϵ	
170		0+	-56.25	16.01 h 13	ϵ	
171		7/2+	-55.43	12.1 h 4	ϵ	
171m		1/2-	-55.41	29.5 s 9	IT \leq 100%, ϵ	
172		0+	-56.40	1.87 y 3	ϵ	
173		1/2-	-55.41	23.6 h 1	ϵ	
174		0+	-55.845	2.0×10^{15} y 4	α	
				0.16% 1		
175		5/2(-)	-54.482	70 d 2	ϵ	
176		0+	-54.576	5.26% 7		
177		7/2-	-52.885	18.60% 9		
177m		23/2+	-51.569	1.09 s 5	IT	
177m		37/2-	-50.145	51.4 m 5	IT	
178	0+	-52.439	27.28% 7			
178m	8-	-51.292	4.0 s 2	IT		
178m	16+	-49.993	31 y 1	IT		
179	9/2+	-50.467	13.62% 2			
179m	1/2-	-50.092	18.67 s 4	IT		
179m	25/2-	-49.361	25.05 d 25	IT		
180	0+	-49.783	35.08% 16			
180m	8-	-48.641	5.47 h 4	IT 99.7%, β^- 0.3%		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode
Z	El	A	(MeV)	Abundance	
72 Hf	181	1/2-	-47.407	42.39 d 6	β^-
	181m	(25/2-)	-45.665	1.5 ms 5	IT
	182	0+	-46.053	8.90×10^6 y 9	β^-
	182m	(8-)	-44.880	61.5 m 15	β^- 54%, IT 46%
	183	(3/2-)	-43.29	1.018 h 2	β^-
	184	0+	-41.50	4.12 h 5	β^-
	184m	(8-)	-40.23	48 s 10	IT
	185		-38.4s	3.5 m 6	β^-
	186	0+	-36.4s	2.6 m 12	β^-
	187m		-32.8s	0.27 μ s 8	β^-
	188	0+	-30.9s		β^-
	189				
	73 Ta	155m	11/2-	-24.0s	2.9 ms +15-11
156		(2-)	-25.8s	144 ms 24	p, ϵ
156m		9+	-25.7s	0.36 s 4	ϵ 95.8%, p 4.2%
157		1/2+	-29.6	10.1 ms 4	α 96.6%, p 3.4%
157m		11/2-	-29.6	4.3 ms 1	α
157m		(25/2-)	-28.0	1.7 ms 1	α
158		(2-)	-31.0s	55 ms 15	$\alpha \approx 91\%$, $\epsilon \approx 9\%$
158m		(9+)	-30.9s	36.7 ms 15	α 95%, ϵ 5%
159		1/2+	-34.44	0.83 s 18	ϵ 66%, α 34%
159m		11/2-	-34.38	0.56 s 6	α 55%, ϵ 45%
160			-35.87	1.55 s 4	ϵ 66%, α 34%
160m			-35.87	1.7 s 2	
161		(1/2+)	-38.71		ϵ, α
161m		(11/2-)	-38.71	3.08 s 11	ϵ, α
162			-39.78	3.57 s 12	ϵ 99.93%, α 0.07%
163			-42.54	10.6 s 18	$\epsilon \approx 99.8\%$, $\alpha = 0.2\%$
164		(3+)	-43.28	14.2 s 3	ϵ
165			-45.85	31.0 s 15	ϵ
166		(2+)	-46.10	34.4 s 5	ϵ
167		(3/2+)	-48.35	80 s 4	ϵ
168		(2-,3+)	-48.39	2.0 m 1	ϵ
169		(5/2+)	-50.29	4.9 m 4	ϵ
170		(3+)	-50.14	6.76 m 6	ϵ
171		(5/2-)	-51.72	23.3 m 3	ϵ
172		(3+)	-51.33	36.8 m 3	ϵ
173		5/2-	-52.40	3.14 h 13	ϵ
174		3+	-51.74	1.14 h 8	ϵ
175		7/2+	-52.41	10.5 h 2	ϵ
176		(1-)	-51.37	8.09 h 5	ϵ
177		7/2+	-51.719	56.56 h 6	ϵ
178m		(1+)	-50.50	9.31 m 3	ϵ
178m		7-	-50.50	2.36 h 8	ϵ
178m	15-	-49.03	58 ms 4	IT	
178m	(21-)	-47.60	290 ms 12	IT	
179	7/2+	-50.361	1.82 y 3	ϵ	
179m	(25/2+)	-49.044	9.0 ms 2	IT	
179m	(37/2+)	-47.722	54.1 ms 17	IT	
180	1+	-48.936	8.154 h 6	ϵ 86%, β^- 14%	
180m	9-	-48.859	$>1.2 \times 10^{15}$ y	ϵ ?	
0.01201% 32					

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or		
Z	El	A	(MeV)	Abundance	Decay Mode	
73	Ta	180m	9-	-48.859	$>1.2 \times 10^{15}$ y 0.01201% 32	β^- ?
		181	7/2+	-48.441	99.98799% 32	
		182	3-	-46.433	114.74 d 12	β^-
		182m	5+	-46.417	283 ms 3	IT
		182m	10-	-45.913	15.84 m 10	IT
		183	7/2+	-45.296	5.1 d 1	β^-
		184	(5-)	-42.84	8.7 h 1	β^-
		185	(7/2+)	-41.40	49.4 m 15	β^-
		185m	(21/2)	-40.14	>1 ms	
		186	(2-,3-)	-38.61	10.5 m 3	β^-
		186m		-38.61	1.54 m 5	β^-
		187	(7/2+)	-36.8s	2.3 m 6	β^-
		187m	(27/2-)	-35.0s	22 s 9	β^- ?, IT?
		187m	(41/2+)	-33.8s	>5 m	β^- ?, IT?
		188		-33.7s	19.6 s 20	β^-
		189?		-31.8s	1.6 μ s 2	β^- ?
		190		-28.7s	5.3 s 7	β^-
		191		-26.5s	>300 ns	β^- ?
		192	(1,2)	-23.1s	2.2 s 7	β^-
74	W	157	(7/2-)	-19.3s	275 ms 40	ϵ
		158	0+	-23.7s	1.25 ms 21	α
		158m	(8+)	-21.8s	0.143 ms 19	IT, α
		159		-25.2s	7.3 ms 27	$\alpha \approx 99.9\%$, $\epsilon \approx 0.1\%$
		160	0+	-29.4	91 ms 5	$\alpha 87\%$
		161		-30.4s	409 ms 18	$\alpha 73\%$, $\epsilon 27\%$
		162	0+	-34.00	1.36 s 7	$\epsilon 54.8\%$, $\alpha 45.2\%$
		163	7/2-	-34.91	2.67 s 10	$\epsilon 86\%$, $\alpha 14\%$
		164	0+	-38.235	6.3 s 2	$\epsilon 96.2\%$, $\alpha 3.8\%$
		165	(5/2-)	-38.86	5.1 s 5	ϵ , $\alpha < 0.2\%$
		166	0+	-41.88	19.2 s 6	$\epsilon 99.96\%$, $\alpha 0.04\%$
		167	(+)	-42.09	19.9 s 5	$\epsilon 99.96\%$, $\alpha 0.04\%$
		168	0+	-44.90	50.9 s 19	ϵ , $\alpha 3.2 \times 10^{-3}\%$
		169	(5/2-)	-44.92	74 s 6	ϵ
		170	0+	-47.29	2.42 m 4	ϵ
		171	(5/2-)	-47.09	2.38 m 4	ϵ
		172	0+	-49.10	6.6 m 9	ϵ
		173	5/2-	-48.73	7.6 m 2	ϵ
		174	0+	-50.23	33.2 m 21	ϵ
		175	(1/2-)	-49.63	35.2 m 6	ϵ
		176	0+	-50.64	2.5 h 1	ϵ
		177	1/2-	-49.70	132 m 2	ϵ
		178	0+	-50.41	21.6 d 3	ϵ
		179	7/2-	-49.29	37.05 m 16	ϵ
		179m	1/2-	-49.07	6.40 m 7	IT 99.71%, $\epsilon 0.29\%$
		180	0+	-49.636	$\geq 6.6 \times 10^{17}$ y 0.12% 1	2 ϵ
		181	9/2+	-48.253	121.2 d 2	ϵ
		182	0+	-48.247	26.50% 16	
		183	1/2-	-46.367	$>1.3 \times 10^{19}$ y 14.31% 4	α
		183m	11/2+	-46.057	5.2 s 3	IT

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	
Z	El	A	(MeV)	Abundance	Decay Mode
74 W	184	0+	-45.707	30.64% 2	
	185	3/2-	-43.389	75.1 d 3	β^-
	185m	11/2+	-43.192	1.67 m 3	IT
	186	0+	-42.510	$>2.3 \times 10^{19}$ y	$2\beta^-$
				28.43% 19	
	186m	(16+)	-38.967	>3 ms	IT
	187	3/2-	-39.906	24.000 h 4	β^-
	188	0+	-38.669	69.78 d 5	β^-
	189	(3/2-)	-35.5	10.7 m 5	β^-
	190	0+	-34.3	30.0 m 15	β^-
	190m	(10-)	-31.9	≤ 3.1 ms	IT
	191		-31.1s	>300 ns	$\beta^- ?$
	192	0+	-29.6s		$\beta^- ?$
	193		-26.2s	>300 ns	$\beta^- ?$
	194	0+	-24.4s	>300 ns	$\beta^- ?$
	75 Re	159	(1/2+)	-14.8s	
160		(2-)	-16.7s	0.82 ms +15-9	p 91%, α 9%
161		1/2+	-20.9	0.44 ms 1	p, $\alpha \leq 1.4\%$
161m		11/2-	-20.8	14.7 ms 3	α 93%, p 7%
162		(2-)	-22.4s	107 ms 13	α 94%, ϵ 6%
162m		(9+)	-22.2s	77 ms 9	α 91%, ϵ 9%
163		1/2+	-26.01	390 ms 72	ϵ 68%, α 32%
163m		11/2-	-25.89	214 ms 5	α 66%, ϵ 34%
164			-27.52	0.85 s +14-11	$\alpha \approx 58\%$, $\epsilon \approx 42\%$
164m			-27.45	0.86 s +15-11	IT, $\alpha \approx 3\%$
165		(1/2+)	-30.65	≈ 1 s	α, ϵ
165m		(11/2-)	-30.60	2.1 s 3	ϵ 87%, α 13%
166			-31.89	2.25 s 21	$\epsilon > 76\%$, $\alpha < 24\%$
167		(9/2-)	-34.84s	5.9 s 3	$\epsilon \approx 99\%$, $\alpha \approx 1\%$
167m			-34.84s	3.4 s 4	α
168		(7+)	-35.79	4.4 s 1	$\epsilon, \alpha \approx 5.0 \times 10^{-3}\%$
169		(9/2-)	-38.41	8.1 s 5	$\epsilon, \alpha < 0.01\%$
169m		(5/2+, 3/2+)	-38.41	15.1 s 15	$\epsilon, \text{ IT}, \alpha \approx 0.2\%$
170		(5+)	-38.92	9.2 s 2	ϵ
171		(9/2-)	-41.25	15.2 s 4	ϵ
172m		(2)	-41.52	55 s 5	ϵ
172m		(5)	-41.52	15 s 3	ϵ
173		(5/2-)	-43.55	1.98 m 26	ϵ
174		(≤ 4)	-43.67	2.40 m 4	ϵ
175		(5/2-)	-45.29	5.89 m 5	ϵ
176		(3+)	-45.06	5.3 m 3	ϵ
177		5/2-	-46.27	14 m 1	ϵ
178		(3+)	-45.65	13.2 m 2	ϵ
179		5/2+	-46.58	19.5 m 1	ϵ
179m		7/2, 49/2+	-41.18	0.466 ms 15	IT
180		(1-)	-45.84	2.44 m 6	ϵ
181		5/2+	-46.52	19.9 h 7	ϵ
182	7+	-45.4	64.0 h 5	ϵ	
182m	2+	-45.4	12.7 h 2	ϵ	
183	5/2+	-45.811	70.0 d 14	ϵ	
183m	(25/2)+	-43.903	1.04 ms 4	IT	
184	3(-)	-44.224	35.4 d 7	ϵ	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or		
Z	El	A	(MeV)	Abundance	Decay Mode	
75	Re	184m	8(+)	-44.036	169 d 8	IT 74.5%, ϵ 25.5%
		185	5/2+	-43.822	37.40% 2	
		186	1-	-41.930	3.7186 d 5	β^- 92.53%, ϵ 7.47%
		186m	(8+)	-41.781	2.0×10^5 y	IT
		187	5/2+	-41.218	4.33×10^{10} y 7	β^- , 62.60% 2 $\alpha < 1.0 \times 10^{-4}\%$
		188	1-	-39.018	17.003 h 3	β^-
		188m	(6)-	-38.846	18.59 m 4	IT
		189	5/2+	-37.980	24.3 h 4	β^-
		190	(2)-	-35.6	3.1 m 3	β^-
		190m	(6-)	-35.4	3.2 h 2	β^- 54.4%, IT 45.6%
		191	(3/2+, 1/2+)	-34.35	9.8 m 5	β^-
		192		-31.8s	16 s 1	β^-
		193?		-30.2s		
		194m		-27.4s	5 s 1	β^-
		194m		-27.4s	25 s 8	β^-
		194m		-27.4s	100 s 10	β^-
		195		-25.6s	6 s 1	β^-
		196		-22.5s	3 s +1-2	β^-
		198				
		76	Os	161	(7/2-)	-9.9s
162	0+			-14.5s	2.1 ms 1	$\alpha \approx 99\%$
163	(7/2-)			-16.1s	5.5 ms 6	α , ϵ
164	0+			-20.5	21 ms 1	α 98%, ϵ 2%
165	(7/2-)			-21.6s	71 ms 3	$\alpha > 60\%$, $\epsilon < 40\%$
166	0+			-25.44	199 ms 3	α 72%, ϵ 18%
167	(7/2-)			-26.50	0.81 s 6	α 57%, ϵ 43%
168	0+			-29.992	2.1 s 1	ϵ 57%, α 43%
169	(5/2-)			-30.72	3.43 s 14	ϵ 86.3%, α 13.7%
170	0+			-33.92	7.37 s 18	ϵ 90.5%, α 9.5%
171	(5/2-)			-34.29	8.3 s 2	ϵ 98.2%, α 1.8%
172	0+			-37.24	19.2 s 9	ϵ 99.8%, α 0.2%
173	(5/2-)			-37.44	22.4 s 9	ϵ , α 0.4%
174	0+			-40.00	44 s 4	ϵ 99.98%, α 0.02%
175	(5/2-)			-40.11	1.4 m 1	ϵ
176	0+			-42.10	3.6 m 5	ϵ
177	1/2-			-41.95	3.0 m 2	ϵ
178	0+			-43.55	5.0 m 4	ϵ , α
179	1/2-			-43.02	6.5 m 3	ϵ
180	0+			-44.35	21.5 m 4	ϵ
181	1/2-			-43.55	105 m 3	ϵ
181m	7/2-			-43.50	2.7 m 1	ϵ , IT $\leq 3\%$
182	0+			-44.61	21.84 h 20	ϵ
182m	(8)-			-42.78	0.78 ms 7	IT
183	9/2+			-43.66	13.0 h 5	ϵ
183m	1/2-			-43.49	9.9 h 3	ϵ 85%, IT 15%
184	0+			-44.256	$> 5.6 \times 10^{13}$ y	α
			0.02% 1			
			93.6 d 5	ϵ		
			2.0×10^{15} y 11	α		
			1.59% 3			
			1.96% 2			

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or	Decay Mode
Z	El	A	(MeV)	Abundance	
76 Os	188	0+	-41.139	13.24% 8	
	189	3/2-	-38.988	16.15% 5	
	189m	9/2-	-38.957	5.81 h 6	IT
	190	0+	-38.709	26.26% 2	
	190m	(10)-	-37.004	9.9 m 1	IT
	191	9/2-	-36.396	15.4 d 1	β^-
	191m	3/2-	-36.322	13.10 h 5	IT
	192	0+	-35.883	40.78% 19	
	192m	(10-)	-33.868	5.9 s 1	IT>87%, β^- <13%
	193	3/2-	-33.395	30.11 h 1	β^-
	194	0+	-32.437	6.0 y 2	β^-
	195		-29.7	\approx 9 m	β^-
	196	0+	-28.28	34.9 m 2	β^-
	197		-25.3s	2.8 m 6	β^-
	198	0+	-23.8s		β^-
	199		-20.5s	5 s +4-2	β^-
	200	0+	-18.9s	6 s +4-3	β^-
	201			>300 ns	$\beta^-?$
	202	0+		>300 ns	$\beta^-?$
	77 Ir	164m	(9+)	-7.3s	94 μ s 27
165		(1/2+)	-11.6s	<1 μ s	p?, $\alpha?$
165m		11/2-	-11.4s	0.30 ms 6	p 87%, α 13%
166		(2-)	-13.2s	10.5 ms 22	α 93%, p 7%
166m		(9+)	-13.0s	15.1 ms 9	α 98.2%, p 1.8%
167		1/2+	-17.08	35.2 ms 20	α 48%, p 32%, ϵ 20%
167m		11/2-	-16.90	25.7 ms 8	α 80%, ϵ 20%, p 0.4%
168			-18.72	222 ms +60-40	$\alpha \leq 100%$, ϵ , p
168m			-18.72	159 ms +16-13	α 77%, $\epsilon \leq 23%$, p
169		(1/2+)	-22.08	0.353 s 4	α 45%, ϵ , p
169m		(11/2-)	-21.93	0.281 s 4	α 72%, ϵ , p
170		(3-)	-23.36s	0.87 s +18-12	ϵ 94.8%, α 5.2%
170m		(8+)	-23.36s	811 ms 18	IT \leq 62%, $\epsilon \leq 62%$, α 38%
171		(1/2+)	-26.43	3.2 s +13-7	$\alpha > 0%$, p, ϵ
171m		(11/2-)	-26.43	1.40 s 10	α 58%, p \leq 42%, $\epsilon \leq 42%$
172		(3+)	-27.38	4.4 s 3	ϵ 98%, $\alpha \approx 2%$
172m		(7+)	-27.24	2.0 s 1	ϵ 77%, α 23%
173		(3/2+,5/2+)	-30.27	9.0 s 8	$\epsilon > 93%$, $\alpha < 7%$
173m		(11/2-)	-30.04	2.4 s 9	ϵ , α 7%
174		(3+)	-30.87	7.9 s 6	ϵ 99.5%, α 0.5%
174m		(7+)	-30.67	4.9 s 3	ϵ 97.5%, α 2.5%
175		(5/2-)	-33.39	9 s 2	ϵ 99.15%, α 0.85%
176			-33.86	8.7 s 5	ϵ 96.9%, α 3.1%
177		5/2-	-36.05	30 s 2	ϵ 99.94%, α 0.06%
178			-36.25	12 s 2	ϵ
179		(5/2-)	-38.08	79 s 1	ϵ
180		(4,5)	-37.98	1.5 m 1	ϵ
181		5/2-	-39.47	4.90 m 15	ϵ
182	3+	-39.05	15 m 1	ϵ	
183	5/2-	-40.20	57 m 4	ϵ	
184	5-	-39.61	3.09 h 3	ϵ	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
77	Ir	185	5/2-	-40.33	14.4 h 1	ϵ
		186	5+	-39.17	16.64 h 3	ϵ
		186m	2-	-39.17	1.90 h 5	$\epsilon \approx 75\%$, IT $\approx 25\%$
		187	3/2+	-39.532	10.5 h 3	ϵ
		187m	9/2-	-39.346	30.3 ms 6	IT
		188	1-	-38.351	41.5 h 5	ϵ
		188m		-37.428	4.2 ms 2	$\epsilon ?$, IT
		189	3/2+	-38.46	13.2 d 1	ϵ
		189m	11/2-	-38.08	13.3 ms 3	IT
		189m	(25/2)+	-36.12	3.7 ms 2	IT
		190	4-	-36.755	11.78 d 10	ϵ
		190m	(1-)	-36.729	1.120 h 3	IT
		190m	(11-)	-36.379	3.087 h 12	$\epsilon 91.4\%$, IT 8.6%
		191	3/2+	-36.710	37.3% 2	
		191m	11/2-	-36.539	4.899 s 23	IT
		191m		-34.663	5.5 s 7	IT
		192	4+	-34.837	73.829 d 11	$\beta- 95.24\%$, $\epsilon 4.76\%$
		192m	1-	-34.780	1.45 m 5	IT 99.98% , $\beta- 0.02\%$
		192m	(11-)	-34.669	241 y 9	IT
		193	3/2+	-34.538	62.7% 2	
		193m	11/2-	-34.458	10.53 d 4	IT
		194	1-	-32.533	19.28 h 13	$\beta-$
		194m	4+	-32.386	31.85 ms 24	IT
		194m	(10,11)	-32.343	171 d 11	$\beta-$
		195	3/2+	-31.694	2.5 h 2	$\beta-$
		195m	11/2-	-31.594	3.8 h 2	$\beta- 95\%$, IT 5%
		196	(0-)	-29.44	52 s 1	$\beta-$
		196m	(10,11-)	-29.03	1.40 h 2	$\beta-$, IT $< 0.3\%$
		197	3/2+	-28.26	5.8 m 5	$\beta-$
		197m	11/2-	-28.15	8.9 m 3	$\beta- 99.75\%$, IT 0.25%
198		-25.8s	8 s 1	$\beta-$		
199		-24.40	6 s +5-4	$\beta-$		
200		-21.6s	>300 ns	$\beta-$		
201		-19.9s	>300 ns	$\beta-$		
202	(1-,2-)	-17.0s	11 s 3	$\beta-$		
203			>300 ns	$\beta- ?$		
204						
78	Pt	166	0+	-4.8s	300 μ s 100	α
		167		-6.5s	0.9 ms 3	α
		168	0+	-11.0	2.02 ms 10	α
		169	(7/2-)	-12.4s	7.0 ms 2	α
		170	0+	-16.30	13.8 ms 5	$\alpha 98\%$, ϵ
		171	(7/2-)	-17.47	45.5 ms 25	$\alpha 90\%$, $\epsilon 10\%$
		172	0+	-21.10	97.6 ms 13	$\alpha 94\%$, $\epsilon 6\%$
		173	(5/2-)	-21.94	382 ms 2	α , $\epsilon ?$
		174	0+	-25.31	0.889 s 17	$\alpha 76\%$, $\epsilon 24\%$
		175	7/2-	-25.69	2.53 s 6	$\alpha 64\%$, $\epsilon 36\%$
		176	0+	-28.93	6.33 s 15	$\epsilon 60\%$, $\alpha 40\%$
		177	5/2-	-29.37	10.6 s 4	$\epsilon 94.3\%$, $\alpha 5.7\%$
		178	0+	-32.00	20.7 s 7	$\epsilon 92.3\%$, $\alpha 7.7\%$
		179	1/2-	-32.270	21.2 s 4	$\epsilon 99.76\%$, $\alpha 0.24\%$
		180	0+	-34.44	56 s 2	ϵ , $\alpha = 0.3\%$

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or		
Z	El	A	(MeV)	Abundance	Decay Mode	
78 Pt	181	1/2-	-34.37	52.0 s 22	ϵ , $\alpha \approx 0.08\%$	
	182	0+	-36.17	2.67 m 12	ϵ 99.96%, α 0.04%	
	183	1/2-	-35.77	6.5 m 10	ϵ , $\alpha \approx 1.3 \times 10^{-3}\%$	
	183m	(7/2)-	-35.74	43 s 5	ϵ , $\alpha < 4.0 \times 10^{-4}\%$, IT	
	184	0+	-37.33	17.3 m 2	ϵ , $\alpha \approx 1.0 \times 10^{-3}\%$	
	184m	8-	-35.49	1.01 ms 5	IT	
	185	9/2+	-36.68	70.9 m 24	$\epsilon < 100\%$	
	185m	1/2-	-36.58	33.0 m 8	ϵ 99%, IT < 2%	
	186	0+	-37.86	2.08 h 5	ϵ , $\alpha \approx 1.4 \times 10^{-4}\%$	
	187	3/2-	-36.71	2.35 h 3	ϵ	
	188	0+	-37.828	10.2 d 3	ϵ , $\alpha 2.6 \times 10^{-5}\%$	
	189	3/2-	-36.49	10.87 h 12	ϵ	
	190	0+	-37.325	6.5×10^{11} y 3	α	
				0.012% 2		
		191	3/2-	-35.701	2.83 d 2	ϵ
		192	0+	-36.292	0.782% 24	
		193	1/2-	-34.481	50 y 6	ϵ
		193m	13/2+	-34.331	4.33 d 3	IT
		194	0+	-34.762	32.86% 40	
		195	1/2-	-32.796	33.78% 24	
		195m	13/2+	-32.537	4.010 d 5	IT
		196	0+	-32.646	25.21% 34	
		197	1/2-	-30.421	19.8915 h 19	β^-
		197m	13/2+	-30.021	95.41 m 18	IT 96.7%, β^- 3.3%
		198	0+	-29.905	7.36% 13	
		199	5/2-	-27.390	30.80 m 21	β^-
		199m	(13/2)+	-26.966	13.6 s 4	IT
		200	0+	-26.60	12.6 h 3	β^-
		201	(5/2-)	-23.74	2.5 m 1	β^-
		202	0+	-22.6s	44 h 15	β^-
	202m	(7-)	-20.8s	0.28 ms +42-19	IT	
	203	(1/2-)	-19.7s	10 s 3	β^-	
	204	0+	-18.1s	10.3 s 14	β^-	
	205		-12.8s	>300 ns	β^-	
79 Au	169		-1.8s		p?, α ?	
	170	(2-)	-3.6s	286 μ s +50-40	p 89%, α 11%	
	170m	(9+)	-3.6s	617 μ s +50-40	p 58%, α 42%	
	171	(1/2+)	-7.57	17 μ s +9-5	p, α	
	171m	(11/2-)	-7.32	1.02 ms 10	α 54%, p 46%	
	172		-9.37	22 ms +6-4	α , ϵ , p	
	172m		-9.37	7.7 ms 14	α , p < 0.02%, ϵ	
	173	(1/2+)	-12.82	25 ms 1	α 94%, ϵ , p	
	173m	(11/2-)	-12.61	14.0 ms 9	α 92%, p, ϵ	
	174		-14.24s	139 ms 3	$\alpha > 0\%$	
	175	(1/2+)	-17.44		ϵ ?, α ?	
	175m	(11/2-)	-17.44	156 ms 5	α 94%, ϵ 6%	
	176		-18.40			
	176m	(3-)	-18.40	1.05 s 1	ϵ , α	
	176m	(9+)	-18.40	1.36 s 2		
177	(1/2+, 3/2+)	-21.55	1.53 s 7	α 40%, ϵ		
177m	11/2-	-21.39	1.00 s 20	α 66%, ϵ		
178		-22.33	2.6 s 5	$\epsilon \leq 60\%$, $\alpha \geq 40\%$		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or	Decay Mode	
Z	El	A	(MeV)	Abundance		
79	Au	179	(1/2+, 3/2+)	-24.98	7.1 s 3	ϵ 78%, α 22%
		180		-25.60	8.1 s 3	$\epsilon \leq 98.2\%$, $\alpha \geq 1.8\%$
		181	(3/2-)	-27.87	13.7 s 14	ϵ 97.3%, α 2.7%
		182	(2+)	-28.30	15.5 s 4	ϵ 99.87%, α 0.13%
		183	(5/2)-	-30.19	42.8 s 10	ϵ 99.45%, α 0.55%
		184	5+	-30.32	20.6 s 9	ϵ , $\alpha \leq 0.02\%$
		184m	2+	-30.25	47.6 s 14	ϵ 70%, IT 30%, $\alpha \leq 0.02\%$
		185	5/2-	-31.87	4.25 m 6	ϵ 99.74%, α 0.26%
		185m		-31.87	6.8 m 3	$\epsilon < 100\%$, IT
		186	3-	-31.71	10.7 m 5	ϵ , α $8.0 \times 10^{-4}\%$
		187	1/2(+)	-33.01	8.3 m 2	ϵ , α $3.0 \times 10^{-3}\%$
		187m	9/2(-)	-32.88	2.3 s 1	IT
		188	1(-)	-32.30	8.84 m 6	ϵ
		189	1/2+	-33.58	28.7 m 3	ϵ , $\alpha < 3.0 \times 10^{-5}\%$
		189m	11/2-	-33.33	4.59 m 11	ϵ
		190	1-	-32.88	42.8 m 10	ϵ , $\alpha < 1.0 \times 10^{-6}\%$
		190m	(11-)	-32.88	125 ms 20	IT
		191	3/2+	-33.81	3.18 h 8	ϵ
		191m	(11/2-)	-33.54	0.92 s 11	IT
		192	1-	-32.78	4.94 h 9	ϵ
		192m	(5+)	-32.64	29 ms	IT
		192m	(11-)	-32.34	160 ms 20	IT
		193	3/2+	-33.405	17.65 h 15	ϵ
		193m	11/2-	-33.115	3.9 s 3	IT 99.97%, $\epsilon \approx 0.03\%$
		194	1-	-32.26	38.02 h 10	ϵ
		194m	(5+)	-32.15	600 ms 8	IT
		194m	(11-)	-31.79	420 ms 10	IT
		195	3/2+	-32.569	186.098 d 47	ϵ
		195m	11/2-	-32.250	30.5 s 2	IT
		196	2-	-31.139	6.1669 d 6	ϵ 93%, β^- 7%
		196m	5+	-31.054	8.1 s 2	IT
		196m	12-	-30.543	9.6 h 1	IT
		197	3/2+	-31.140	100%	
		197m	11/2-	-30.731	7.73 s 6	IT
		198	2-	-29.581	2.6948 d 12	β^-
		198m	(12-)	-28.769	2.272 d 16	IT
		199	3/2+	-29.094	3.139 d 7	β^-
		199m	(11/2)-	-28.545	0.44 ms 3	IT
		200	(1-)	-27.27	48.4 m 3	β^-
		200m	12-	-26.31	18.7 h 5	β^- 84%, IT 16%
		201	3/2+	-26.401	26.0 m 8	β^-
		202	(1-)	-24.4	28.4 s 12	β^-
		203	3/2+	-23.143	60 s 6	β^-
		204	(2-)	-20.8s	39.8 s 9	β^-
		205	(3/2+)	-18.9s	32.5 s 14	β^-
		205m	(11/2-)	-18.0s	6 s 2	β^- , IT
		206		-14.3s	>300 ns	β^-
		207		-10.8s	>300 ns	β^- , β^-n
		208		-6.1s	>300 ns	β^- , β^-n
		209		-2.5s	>300 ns	β^- , β^-n
		210		2.3s	>300 ns	β^- , β^-n

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
80	Hg	171	3.5s	59 μ s +36-16	α	
		172	0+	-1.1	231 μ s 9	α
		173		-2.6s	0.6 ms +5-2	α
		174	0+	-6.65	2.1 ms +18-7	α 99.6%
		175	(7/2-)	-7.97	10.6 ms 4	α
		176	0+	-11.78	20.3 ms 14	α 94%
		177	(7/2-)	-12.78	118 ms 8	α
		178	0+	-16.31	266.5 ms 24	$\alpha \approx 70\%$, $\epsilon \approx 30\%$
		179	(7/2-)	-16.92	1.05 s 3	α 55%, ϵ 45%, $\epsilon p = 0.15\%$
		180	0+	-20.25	2.58 s 1	ϵ 52%, α 48%
		181	1/2-	-20.66	3.6 s 1	ϵ 73%, α 27%, ϵp 0.01%, $\epsilon \alpha$ $9.0 \times 10^{-6}\%$
		182	0+	-23.576	10.83 s 6	ϵ 84.8%, α 15.2%
		183	1/2-	-23.806	9.4 s 7	ϵ 88.3%, α 11.7%, ϵp $2.6 \times 10^{-4}\%$
		184	0+	-26.35	30.87 s 26	ϵ 98.89%, α 1.11%
		185	1/2-	-26.17	49.1 s 10	ϵ 94%, α 6%
		185m	13/2+	-26.08	21.6 s 15	IT 54%, ϵ 46%, $\alpha = 0.03\%$
		186	0+	-28.54	1.38 m 6	ϵ 99.98%, α 0.02%
		187	3/2(-)	-28.12	2.4 m 3	ϵ , $\alpha < 3.7 \times 10^{-4}\%$
		187m	13/2(+)	-28.12	1.9 m 3	ϵ , $\alpha < 3.7 \times 10^{-4}\%$
		188	0+	-30.20	3.25 m 15	ϵ , α $3.7 \times 10^{-5}\%$
		189	3/2-	-29.63	7.6 m 1	ϵ , $\alpha < 3.0 \times 10^{-5}\%$
		189m	13/2+	-29.63	8.6 m 1	ϵ , $\alpha < 3.0 \times 10^{-5}\%$
		190	0+	-31.37	20.0 m 5	ϵ , $\alpha < 3.4 \times 10^{-7}\%$
		191	3/2(-)	-30.59	49 m 10	ϵ , α $5.0 \times 10^{-6}\%$
		191m	13/2(+)	-30.59	50.8 m 15	ϵ
		192	0+	-32.01	4.85 h 20	ϵ
		193	3/2(-)	-31.06	3.80 h 15	ϵ
		193m	13/2(+)	-30.92	11.8 h 2	ϵ 92.8%, IT 7.2%
194	0+	-32.19	444 y 77	ϵ		
195	1/2-	-31.00	10.53 h 3	ϵ		
195m	13/2+	-30.82	41.6 h 8	IT 54.2%, ϵ 45.8%		
196	0+	-31.826	0.15% 1			
197	1/2-	-30.540	64.14 h 5	ϵ		
197m	13/2+	-30.241	23.8 h 1	IT 91.4%, ϵ 8.6%		
198	0+	-30.954	9.97% 20			
199	1/2-	-29.546	16.87% 22			
199m	13/2+	-29.014	42.67 m 9	IT		
200	0+	-29.503	23.10% 19			
201	3/2-	-27.662	13.18% 9			
202	0+	-27.345	29.86% 26			
203	5/2-	-25.269	46.594 d 12	β^-		
204	0+	-24.690	6.87% 15			
205	1/2-	-22.287	5.14 m 9	β^-		
205m	13/2+	-20.731	1.09 ms 4	IT		
206	0+	-20.95	8.32 m 7	β^-		
207	(9/2+)	-16.2	2.9 m 2	β^-		
208	0+	-13.27	41 m +5-4	β^-		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or	
Z	El	A	(MeV)	Abundance	Decay Mode
80	Hg	209	-8.5s	35 s +9-6	β^-
		210	0+	>300 ns	β^- ?
		211		>300 ns	β^- , β^-n
		212	0+	>300 ns	β^- , β^-n
		213		>300 ns	β^- , β^-n
		214	0+	>300 ns	β^- , β^-n
		215		>300 ns	β^- , β^-n
216	0+	19.9s	>300 ns	β^- , β^-n	
81	Tl	176 (3-,4-,5-)	0.58	5.2 ms +30-14	p
		177 (1/2+)	-3.33	18 ms 5	α 73%, p 27%
		178	-4.8s	254 ms +11-9	α \approx 53%, ϵ \approx 47%
		179 (1/2+)	-8.30	0.23 s 4	α < 100%, ϵ , p
		179m (11/2-)	-8.30	1.5 ms 3	α \leq 100%, p, ϵ , IT
		180 (4-,5-)	-9.26	1.09 s 1	ϵ 94%, α 6%, ϵ SF \approx $1.0 \times 10^{-4}\%$
		181 (1/2+)	-12.799	3.2 s 3	ϵ , α \leq 10%
		181m (9/2-)	-11.963	1.40 ms 3	IT 99.6%, α 0.4%
		182 (7+)	-13.35	3.1 s 10	ϵ 97.5%, α < 5%
		183 (1/2+)	-16.589	6.9 s 7	α , ϵ > 0%
		183m (9/2-)	-15.959	53.3 ms 3	IT, ϵ , α 2%
		184	-16.89	10.1 s 5	ϵ 97.9%, α 2.1%
		185 (1/2+)	-19.75	19.5 s 5	ϵ
		185m (9/2-)	-19.30	1.93 s 8	α , IT
		186m (7+)	-19.87	27.5 s 10	ϵ , α \approx $6.0 \times 10^{-3}\%$
		186m (10-)	-19.50	2.9 s 2	IT
		187 (1/2+)	-22.443	\approx 51 s	ϵ , α \approx 0.03%
		187m (9/2-)	-22.109	15.60 s 12	ϵ < 99.9%, IT < 99.9%, α 0.15%
		188m (2-)	-22.35	71 s 2	ϵ
		188m (7+)	-22.35	71 s 1	ϵ
		188m (9-)	-22.08	41 ms 4	IT, ϵ
		189 (1/2+)	-24.60	2.3 m 2	ϵ
		189m (9/2-)	-24.34	1.4 m 1	ϵ < 100%, IT < 4%
		190m 2(-)	-24.31	2.6 m 3	ϵ
		190m 7(+)	-24.31	3.7 m 3	ϵ
		190m (8-)	-24.15	0.75 ms 4	IT
		191 (1/2+)	-26.282		
		191m 9/2(-)	-26.282	5.22 m 16	
		192 (2-)	-25.87	9.6 m 4	ϵ
		192m (7+)	-25.72	10.8 m 2	ϵ
		193 1/2(+)	-27.30	21.6 m 8	ϵ
		193m (9/2-)	-26.93	2.11 m 15	IT \leq 75%, ϵ \geq 25%
194 2-	-26.8	33.0 m 5	ϵ , α < $1.0 \times 10^{-4}\%$		
194m (7+)	-26.8	32.8 m 2	ϵ		
195 1/2+	-28.16	1.16 h 5	ϵ		
195m 9/2-	-27.67	3.6 s 4	IT		
196 2-	-27.50	1.84 h 3	ϵ		
196m (7+)	-27.10	1.41 h 2	ϵ 96.2%, IT 3.8%		
197 1/2+	-28.34	2.84 h 4	ϵ		
197m 9/2-	-27.73	0.54 s 1	IT		
198 2-	-27.49	5.3 h 5	ϵ		
198m 7+	-26.95	1.87 h 3	ϵ 55.9%, IT 44.1%		

Nuclear Wallet Cards

Nuclide		Δ	$T_{1/2}, \Gamma, \text{ or}$	
Z	El A	(MeV)	Abundance	Decay Mode
81	Tl	198m (10-)	-26.75	32.1 ms 10 IT
		199 1/2+	-28.06	7.42 h 8 ϵ
		199m 9/2-	-27.31	28.4 ms 2 IT
		200 2-	-27.047	26.1 h 1 ϵ
		200m 7+	-26.293	34.0 ms 9 IT
		201 1/2+	-27.18	3.0421 d 17 ϵ
		201m (9/2-)	-26.26	2.01 ms 7 IT
		202 2-	-25.99	12.31 d 8 ϵ
		203 1/2+	-25.762	29.524% 1
		204 2-	-24.346	3.783 y 12 β^- 97.08%, ϵ 2.92%
		205 1/2+	-23.821	70.48% 1
		206 0-	-22.254	4.202 m 11 β^-
		206m (12-)	-19.611	3.74 m 3 IT
		207 1/2+	-21.034	4.77 m 3 β^-
		207m 11/2-	-19.686	1.33 s 11 IT
		208 5+	-16.752	3.053 m 4 β^-
		209 (1/2+)	-13.637	2.161 m 7 β^-
		210 (5+)	-9.25	1.30 m 3 β^- , β^-n $7.0 \times 10^{-3}\%$
		211	-5.9s	>300 ns $\beta^-?$
		212	-1.5s	>300 ns $\beta^-?$
		213	1.76	101 s +486-46 β^-
	214	6.5s	>300 ns β^- , β^-n	
	215	10.1s	>300 ns β^- , β^-n	
	216	14.7s	>300 ns β^- , β^-n	
	217	18.4s	>300 ns β^- , β^-n	
82	Pb	178 0+	3.57	0.12 ms +22-5 α
		179 (9/2-)	2.05	3.5 ms +14-8 α
		180 0+	-1.93	4.2 ms 5 α
		181 (9/2-)	-3.10	36 ms 2 α
		181m (13/2+)	-3.10	45 ms 20 $\alpha < 100\%$
		182 0+	-6.82	55 ms 5 $\alpha \approx 98\%$, $\epsilon \approx 2\%$
		183 (3/2-)	-7.57	535 ms 30 $\alpha \approx 90\%$
		183m (13/2+)	-7.47	415 ms 20 α
		184 0+	-11.05	490 ms 25 α 80%, ϵ 20%
		185 3/2-	-11.54	6.3 s 4 ϵ , α 34%
		185m 13/2+	-11.54	4.3 s 2 α 50%, ϵ
		186 0+	-14.68	4.82 s 3 ϵ 60%, α 40%
		187 (13/2+)	-14.990	18.3 s 3 ϵ 88%, α 12%
		187m (3/2-)	-14.957	15.2 s 3 ϵ 90.5%, α 9.5%
		188 0+	-17.82	25.1 s 1 ϵ 90.7%, α 9.3%
		189 (3/2-)	-17.88	39 s 8 ϵ , $\alpha < 1\%$
		189m (13/2+)	-17.84	50 s 3 ϵ , $\alpha < 1\%$
		190 0+	-20.42	71 s 1 ϵ 99.6%, α 0.4%
		191 (3/2-)	-20.25	1.33 m 8 ϵ 99.99%, α 0.01%
		191m (13/2+)	-20.25	2.18 m 8 ϵ , $\alpha \approx 0.02\%$
		192 0+	-22.56	3.5 m 1 ϵ 99.99%, α $5.9 \times 10^{-3}\%$
	193 (3/2-)	-22.19	ϵ	
	193m (13/2+)	-22.19	5.8 m 2 ϵ	
	194 0+	-24.21	10.7 m 6 ϵ , α $7.3 \times 10^{-6}\%$	
	195 3/2-	-23.71	≈ 15 m ϵ	
	195m 13/2+	-23.51	15.0 m 12 ϵ	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode
Z	El	A	(MeV)	Abundance	
82 Pb	196	0+	-25.36	37 m 3	$\epsilon, \alpha \leq 3.0 \times 10^{-5}\%$
	197	3/2-	-24.748	8.1 m 17	ϵ
	197m	13/2+	-24.429	42.9 m 9	ϵ 81%, IT 19%
	198	0+	-26.05	2.4 h 1	ϵ
	199	3/2-	-25.231	90 m 10	ϵ
	199m (13/2+)		-24.806	12.2 m 3	IT=93%, $\epsilon \approx 7\%$
	200	0+	-26.25	21.5 h 4	ϵ
	201	5/2-	-25.26	9.33 h 3	ϵ
	201m	13/2+	-24.63	60.8 s 18	IT
	202	0+	-25.937	52.5×10^3 y 28	ϵ
	202m	9-	-23.767	3.54 h 2	IT 90.5%, ϵ 9.5%
	203	5/2-	-24.787	51.92 h 3	ϵ
	203m	13/2+	-23.962	6.21 s 11	IT
	203m	29/2-	-21.838	480 ms 7	IT
	204	0+	-25.110	$\geq 1.4 \times 10^{17}$ y	α
				1.4% I	
	204m	9-	-22.924	66.93 m 10	IT
	205	5/2-	-23.770	1.73×10^7 y 7	ϵ
	205m	13/2+	-22.756	5.55 ms 2	IT
	206	0+	-23.786	24.1% I	
	207	1/2-	-22.452	22.1% I	
	207m	13/2+	-20.819	0.806 s 5	IT
208	0+	-21.749	52.4% I		
209	9/2+	-17.615	3.253 h 14	β^-	
210	0+	-14.729	22.20 y 22	β^- , α $1.9 \times 10^{-6}\%$	
211	9/2+	-10.491	36.1 m 2	β^-	
212	0+	-7.553	10.64 h 1	β^-	
213	(9/2+)	-3.200	10.2 m 3	β^-	
214	0+	-0.181	26.8 m 9	β^-	
215		4.5s	147 s 12	β^-	
216	0+	7.7s	>300 ns	β^-	
217		12.4s	>300 ns	β^-	
218	0+	15.6s	>300 ns	β^-	
219		20.5s	>300 ns	β^-	
220	0+	23.9s	>300 ns	β^-	
83 Bi	184m		1.19	13 ms 2	α
	184m		1.19	6.6 ms 15	α
	185	1/2+	-2.3s	58 μ s 4	p 90%, α 10%
	186	(3+)	-3.17	15.0 ms 17	α
	186m	(10-)	-3.17	9.8 ms 13	α
	187	(9/2-)	-6.39	37 ms 2	α
	187m	(1/2+)	-6.27	0.370 ms 20	α
	188m	(10-)	-7.20	265 ms 15	α, ϵ ?
	188m	(3+)	-7.20	60 ms 3	α, ϵ ?
	189	(9/2-)	-10.06	674 ms 11	$\alpha > 50\%$, $\epsilon < 50\%$
	189m	(1/2+)	-9.88	5.0 ms 1	$\alpha > 50\%$, $\epsilon < 50\%$
	190m	(3+)	-10.59	6.3 s 1	α 90%, ϵ 10%
	190m	(10-)	-10.59	6.2 s 1	α 70%, ϵ 30%
	191	(9/2-)	-13.240	12.4 s 3	α 51%, ϵ 49%
	191m	(1/2+)	-12.999	125 ms 13	α 68%, IT 32%, ϵ
192	(3+)	-13.55	34.6 s 9	ϵ 88%, α 12%	
192m	(10-)	-13.40	39.6 s 4	ϵ 90%, α 10%	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode	
Z	El	A	(MeV)	Abundance		
83	Bi	193	(9/2-)	-15.872	63.6 s 30	ϵ 96.5%, α 3.5%
		193m	(1/2+)	-15.564	3.2 s 5	α 84%, ϵ 16%
		194	(3+)	-15.97	95 s 3	ϵ 99.54%, α 0.46%
		194m	(6+,7+)	-15.97	125 s 2	ϵ
		194m	(10-)	-15.97	115 s 4	ϵ 99.8%, α 0.2%
		195	(9/2-)	-18.025	183 s 4	ϵ 99.97%, α 0.03%
		195m	(1/2+)	-17.624	87 s 1	ϵ 67%, α 33%
		196	(3+)	-18.01	308 s 12	ϵ , α $1.2 \times 10^{-3}\%$
		196m	(7+)	-17.84	0.6 s 5	ϵ , IT
		196m	(10-)	-17.74	240 s 3	ϵ 74.2%, IT 25.8%, α $3.8 \times 10^{-4}\%$
		197	(9/2-)	-19.686	9.33 m 50	ϵ , α $1.0 \times 10^{-4}\%$
		197m	(1/2+)	-19.186	5.04 m 16	α 55%, ϵ 45%, IT < 0.3%
		198	(2+,3+)	-19.37	10.3 m 3	ϵ
		198m	(7+)	-19.37	11.6 m 3	ϵ
		198m	10-	-19.12	7.7 s 5	IT
		199	9/2-	-20.80	27 m 1	ϵ
		199m	(1/2+)	-20.13	24.70 m 15	ϵ 99%, IT \leq 2%, $\alpha \approx 0.01\%$
		200	7+	-20.37	36.4 m 5	ϵ
		200m	(2+)	-20.37	31 m 2	$\epsilon \leq 100\%$
		200m	(10-)	-19.94	0.40 s 5	IT
		201	9/2-	-21.42	103 m 3	ϵ
		201m	1/2+	-20.57	57.5 m 21	$\epsilon > 91.1\%$, IT $\leq 8.6\%$, $\alpha \approx 0.3\%$
		202	5+	-20.74	1.71 h 4	ϵ
		203	9/2-	-21.52	11.76 h 5	ϵ
		203m	1/2+	-20.43	305 ms 5	IT
		204	6+	-20.645	11.22 h 10	ϵ
		204m	10-	-19.840	13.0 ms 1	IT
		204m	17+	-17.812	1.07 ms 3	IT
		205	9/2-	-21.064	15.31 d 4	ϵ
		206	6+	-20.028	6.243 d 3	ϵ
		206m	10-	-18.983	0.89 ms 1	IT
		207	9/2-	-20.055	31.55 y 4	ϵ
208	5+	-18.870	3.68×10^5 y 4	ϵ		
208m	10-	-17.299	2.58 ms 4	IT		
209	9/2-	-18.259	100%			
210	1-	-14.792	5.012 d 5	β^- , α $1.3 \times 10^{-4}\%$		
210m	9-	-14.521	3.04×10^6 y 6	α		
211	9/2-	-11.858	2.14 m 2	α 99.72%, β^- 0.28%		
212	1(-)	-8.120	60.55 m 6	β^- 64.06%, α 35.94%		
212m	(8-,9-)	-7.870	25.0 m 2	α 67%, β^- 33%, $\beta^- \alpha$ 30%		
212m	≥ 16	-6.210	7.0 m 3	β^-		
213	9/2-	-5.230	45.59 m 6	β^- 97.8%, α 2.2%		
214	1-	-1.20	19.9 m 4	β^- 99.98%, α 0.02%		
215	(9/2-)	1.65	7.6 m 2	β^-		
215m	>23/2-	3.00	36.9 s 6	IT 76.2%, β^- 23.8%		
216	(6-,7-)	5.87	2.25 m 5	$\beta^- \leq 100\%$		
216m	(3)	5.87	6.6 m 21	$\beta^- \leq 100\%$		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
83	Bi	217	(9/2-)	8.9s	98.5 s 8	β^-
		218		13.2s	33 s 1	β^-
		219		16.3s	>300 ns	β^-
		220		20.7s	>300 ns	β^-
		221		24.0s	>300 ns	β^- , β^-n
		222		28.4s	>300 ns	β^-
		223		31.9s	>300 ns	β^- , β^-n
		224		36.4s	>300 ns	β^- , β^-n
84	Po	186	0+	4.10		
		187	(1/2-, 5/2-)	2.83	1.40 ms 25	α
		188	0+	-0.54	0.275 ms 30	ϵ , α
		189	(7/2-)	-1.42	3.5 ms 5	α
		190	0+	-4.56	2.46 ms 5	α
		191	(3/2-)	-5.05	22 ms 1	α 99%
		191m	(13/2+)	-5.01	93 ms 3	α 96%
		192	0+	-8.07	32.2 ms 3	$\alpha \approx 99.5\%$, $\epsilon \approx 0.5\%$
		193m	(13/2+)	-8.36	245 ms 22	$\alpha \leq 100\%$
		193m	(3/2-)	-8.36	370 ms +46-40	$\alpha \leq 100\%$
		194	0+	-11.01	0.392 s 4	α , ϵ
		195	(3/2-)	-11.07	4.64 s 9	α 75%, ϵ 25%
		195m	(13/2+)	-10.84	1.92 s 2	$\alpha \approx 90\%$, $\epsilon \approx 10\%$, IT < 0.01%
		196	0+	-13.47	5.8 s 2	$\alpha \approx 98\%$, $\epsilon \approx 2\%$
		197	(3/2-)	-13.36	84 s 16	ϵ 56%, α 44%
		197m	(13/2+)	-13.15	32 s 2	α 84%, ϵ 16%, IT 0.01%
		198	0+	-15.47	1.77 m 3	α 57%, ϵ 43%
		199	(3/2-)	-15.21	5.47 m 15	ϵ 92.5%, α 7.5%
		199m	(13/2+)	-14.90	4.17 m 5	ϵ 73.5%, α 24%, IT 2.5%
		200	0+	-16.95	11.51 m 8	ϵ 88.9%, α 11.1%
		201	3/2-	-16.524	15.6 m 1	ϵ 98.87%, α 1.13%
		201m	13/2+	-16.100	8.96 m 12	IT 56.2%, ϵ 41.4%, α 2.4%
		202	0+	-17.92	44.6 m 4	ϵ 98.08%, α 1.92%
203	5/2-	-17.310	36.7 m 5	ϵ 99.89%, α 0.11%		
203m	13/2+	-16.668	45 s 2	IT, ϵ		
204	0+	-18.34	3.519 h 12	ϵ 99.33%, α 0.67%		
205	5/2-	-17.51	1.74 h 8	ϵ 99.96%, α 0.04%		
205m	13/2+	-16.63	0.645 ms 20	IT		
205m	19/2-	-16.05	57.4 ms 9	IT		
206	0+	-18.185	8.8 d 1	ϵ 94.55%, α 5.45%		
207	5/2-	-17.146	5.80 h 2	ϵ 99.98%, α 0.02%		
207m	19/2-	-15.763	2.79 s 8	IT		
208	0+	-17.470	2.898 y 2	α , ϵ $4.0 \times 10^{-3}\%$		
209	1/2-	-16.366	102 y 5	α 99.52%, ϵ 0.48%		
210	0+	-15.953	138.376 d 2	α		
211	9/2+	-12.433	0.516 s 3	α		
211m	(25/2+)	-10.971	25.2 s 6	α 99.98%, IT 0.02%		
212	0+	-10.370	0.299 μ s 2	α		
212m	(18+)	-7.448	45.1 s 6	α 99.93%, IT 0.07%		
213	9/2+	-6.654	3.72 μ s 2	α		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
84	Po	214	0+	-4.470	164.3 μ s 20	α
		215	9/2+	-0.540	1.781 ms 4	$\alpha, \beta-2.3 \times 10^{-4}\%$
		216	0+	1.778	0.145 s 2	α
		217	(9/2+)	5.886	1.53 s 5	α
		218	0+	8.357	3.098 m 12	α 99.98%, $\beta-$ 0.02%
		219		12.6s	>300 ns	$\beta-$
		220	0+	15.3s	>300 ns	$\beta-$
		221		19.78	112 s +58-28	$\beta-$?
		222	0+	22.48	550 s 430	$\beta-$?
		223		26.8s	>300 ns	$\beta-$
		224	0+	29.7s	>300 ns	$\beta-$
		225		34.3s	>300 ns	$\beta-$
		226	0+	37.3s	>300 ns	$\beta-$
		227		42.0s	>300 ns	$\beta-$
85	At	191	(1/2+)	3.86	1.7 ms +11-5	α
		191m	(7/2-)	3.92	2.1 ms +4-3	α
		192m		2.92	11.5 ms 6	α
		192m	(9-,10-)	2.92	88 ms 6	α
		193	(1/2+)	-0.06	28 ms +5-4	α
		193m	(7/2-)	-0.06	21 ms 5	α
		193m	(13/2+)	-0.03	27 ms +4-3	IT 76%, α 24%
		194m	(9-10-)	-0.70	310 ms 8	α
		194m		-0.70	253 ms 10	α
		195	1/2+	-3.476	328 ms 20	α
		195m	7/2-	-3.476	147 ms 5	α
		196	(3+)	-3.92	0.388 s 7	α 95.1%, ϵ 4.9%
		197	(9/2-)	-6.34	0.388 s 6	α 96.1%, ϵ 3.9%
		197m	(1/2+)	-6.29	2.0 s 2	α \leq 100%, ϵ , IT \leq 4.0 \times 10 ⁻³ %
		198	(3+)	-6.65	3.8 s 4	α 90%, ϵ 10%
		198m	(10-)	-6.55	1.04 s 15	α 84%, ϵ 16%
		199	(9/2-)	-8.822	7.03 s 15	α 90%, ϵ 10%
		200	(3+)	-8.99	43 s 1	α 52%, ϵ 48%
		200m	(7+)	-8.88	47 s 1	ϵ \leq 57%, α 43%
		200m	(10-)	-8.64	7.3 s +26-15	ϵ < 89.5%, IT < 89.5%, α = 10.5%
		201	(9/2-)	-10.789	85.2 s 16	α 71%, ϵ 29%
		202	(2+,3+)	-10.59	184 s 1	ϵ 63%, α 37%
		202m	(7+)	-10.59	182 s 2	ϵ 91.3%, α 8.7%
		202m	(10-)	-10.20	0.46 s 5	IT 99.9%, α 0.1%
		203	9/2-	-12.16	7.4 m 2	ϵ 69%, α 31%
		204	7+	-11.88	9.12 m 11	ϵ 96.09%, α 3.91%
		204m	10-	-11.29	108 ms 10	IT
		205	9/2-	-12.97	26.9 m 8	ϵ 90%, α 10%
206	(5+)	-12.43	30.6 m 8	ϵ 99.1%, α 0.9%		
207	9/2-	-13.23	1.81 h 3	ϵ 91.4%, α 8.6%		
208	6+	-12.469	1.63 h 3	ϵ 99.45%, α 0.55%		
209	9/2-	-12.882	5.41 h 5	ϵ 95.9%, α 4.1%		
210	(5+)	-11.972	8.1 h 4	ϵ 99.82%, α 0.18%		
211	9/2-	-11.648	7.214 h 7	ϵ 58.2%, α 41.8%		
212	(1-)	-8.628	0.314 s 2	α, ϵ < 0.03%, $\beta-$ < 2.0 \times 10 ⁻⁶ %		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$				
Z	El	A	(MeV)	Abundance	Decay Mode			
85	At	212m	(9-)	-8.405	0.119 s 3	$\alpha > 99\%$, IT < 1%		
		213	9/2-	-6.580	125 ns 6	α		
		214	1-	-3.380	558 ns 10	α		
		215	9/2-	-1.255	0.10 ms 2	α		
		216	1-	2.254	0.30 ms 3	α , $\beta^- < 6.0 \times 10^{-3}\%$, $\epsilon < 3.0 \times 10^{-7}\%$		
		217	9/2-	4.395	32.3 ms 4	α 99.99%, $\beta^- 7.0 \times 10^{-3}\%$		
		218		8.10	1.5 s 3	α 99.9%, $\beta^- 0.1\%$		
		219		10.397	56 s 3	$\alpha \approx 97\%$, $\beta^- \approx 3\%$		
		220	3	14.35	3.71 m 4	$\beta^- 92\%$, $\alpha 8\%$		
		221		16.8s	2.3 m 2	β^-		
		222		20.6s	54 s 10	β^-		
		223		23.4s	50 s 7	β^-		
		224		27.71	76 s + 138-23	$\beta^- ?$		
		225		30.2s	>300 ns	β^-		
		226		34.2s	>300 ns	β^-		
		227		37.2s	>300 ns	β^-		
		228		41.4s	>300 ns	β^-		
		229		44.6s	>300 ns	β^- , β^-n		
		86	Rn	193	(3/2-)	9.05	1.15 ms 27	α
				194	0+	5.72	0.78 ms 16	α
				195	3/2-	5.06	6 ms +3-2	α
				195m	13/2+	5.12	5 ms +3-2	α
196	0+			1.97	4.4 ms +13-9	α 99.9%, $\epsilon \approx 0.1\%$		
197	(3/2-)			1.48	53 ms +7-5	α		
197m	(13/2+)			1.48	25 ms +3-2	α		
198	0+			-1.23	65 ms 3	α , ϵ		
199	(3/2-)			-1.51	0.59 s 3	α 94%, ϵ 6%		
199m	(13/2+)			-1.33	0.31 s 2	α 97%, ϵ 3%		
200	0+			-4.01	1.03 s +20-11	α 86%, ϵ 14%		
201	(3/2-)			-4.07	7.0 s 4	α , ϵ		
201m	(13/2+)			-4.07	3.8 s 1	ϵ , α		
202	0+			-6.28	9.7 s 1	α 78%, ϵ 22%		
203	(3/2-)			-6.16	44 s 2	α 66%, ϵ 34%		
203m	(13/2+)			-5.80	26.9 s 5	α 75%, ϵ 25%		
204	0+			-7.98	74.5 s 14	α 72.4%, ϵ 27.6%		
205	5/2-			-7.71	170 s 4	ϵ 75.4%, α 24.6%		
206	0+			-9.12	5.67 m 17	α 62%, ϵ 38%		
207	5/2-			-8.634	9.25 m 17	ϵ 79%, α 21%		
208	0+			-9.66	24.35 m 14	α 62%, ϵ 38%		
209	5/2-			-8.93	28.5 m 10	ϵ 83%, α 17%		
210	0+			-9.601	2.4 h 1	α 96%, ϵ 4%		
211	1/2-			-8.756	14.6 h 2	ϵ 72.6%, α 27.4%		
212	0+	-8.660	23.9 m 12	α				
213	(9/2+)	-5.699	19.5 ms 1	α				
214	0+	-4.320	0.27 μ s 2	α				
215	9/2+	-1.169	2.30 μ s 10	α				
216	0+	0.254	45 μ s 5	α				
217	9/2+	3.657	0.54 ms 5	α				
218	0+	5.216	35 ms 5	α				
219	5/2+	8.831	3.96 s 1	α				

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or		
Z	El	A	(MeV)	Abundance	Decay Mode	
86	Rn	220	0+	10.607	55.6 s 1	α
		221	7/2+	14.473	25 m 2	β^- 78%, α 22%
		222	0+	16.373	3.8235 d 3	α
		223	7/2	20.40	24.3 m 4	β^-
		224	0+	22.43	107 m 3	β^-
		225	7/2-	26.56	4.66 m 4	β^-
		226	0+	28.74	7.4 m 1	β^-
		227		32.87	20.8 s 7	β^-
		228	0+	35.25	65 s 2	β^-
		229		39.36	12.0 s +12-13	β^-
		230	0+	42.1s	>300 ns	β^-
		231		46.5s	>300 ns	β^-
	87	Fr	199		6.76	12 ms +10-4
		200	(3+)	6.12	49 ms 4	α
		201	(9/2-)	3.60	62 ms 5	α
		201m	(1/2+)	3.60	19 ms +19-6	α
		202	(3+)	3.16	0.30 s 5	α
		202m	(10-)	3.16	0.29 s 5	α
		203	(9/2-)	0.877	0.55 s 1	$\alpha \leq 100\%$
		204	(3+)	0.61	1.8 s 3	α 92%, ϵ 8%
		204m	(7+)	0.65	1.6 s +5-3	α 90%, ϵ 10%
		204m	(10-)	0.92	0.8 s 2	α 74%, ϵ 26%
		205	(9/2-)	-1.309	3.97 s 4	α 98.5%, ϵ 1.5%
		206	(2+,3+)	-1.24	≈ 16 s	$\alpha \approx 84\%$, $\epsilon \approx 16\%$
		206m	(7+)	-1.24	≈ 16 s	$\alpha \approx 84\%$, $\epsilon \approx 16\%$
		206m	(10-)	-0.71	0.7 s 1	IT 95%, α 5%
		207	9/2-	-2.84	14.8 s 1	α 95%, ϵ 5%
		208	7+	-2.67	59.1 s 3	α 89%, ϵ 11%
		209	9/2-	-3.77	50.5 s 7	α 89%, ϵ 11%
		210	6+	-3.33	3.18 m 6	α 71%, ϵ 29%
		211	9/2-	-4.14	3.10 m 2	α 87%, ϵ 13%
		212	5+	-3.515	20.0 m 6	ϵ 57%, α 43%
		213	9/2-	-3.553	34.82 s 14	α 99.44%, ϵ 0.56%
		214	(1-)	-0.959	5.0 ms 2	α
		214m	(8-)	-0.837	3.35 ms 5	α
		215	9/2-	0.317	86 ns 5	α
		216	(1-)	2.970	700 ns 20	α
		217	9/2-	4.313	19 μ s 3	α
		218	1-	7.058	1.0 ms 6	α
		218m		7.144	22.0 ms 5	$\alpha \leq 100\%$, IT
		219	9/2-	8.617	20 ms 2	α
	220	1+	11.480	27.4 s 3	α 99.65%, β^- 0.35%	
	221	5/2-	13.278	286.1 s 10	α , β^- <0.1%	
	222	2-	16.35	14.2 m 3	β^-	
	223	3/2(-)	18.384	22.00 m 7	β^- 99.99%, α $6.0 \times 10^{-3}\%$	
	224	1-	21.65	3.33 m 10	β^-	
	225	3/2-	23.82	3.95 m 14	β^-	
	226	1-	27.4	49 s 1	β^-	
	227	1/2+	29.7	2.47 m 3	β^-	
	228	2-	33.3s	38 s 1	$\beta^- \leq 100\%$	
	229	(1/2+)	35.82	50.2 s 20	β^-	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
87	Fr	230	39.50	19.1 s 5	β^-	
		231	(1/2+)	42.3s	17.6 s 6	β^-
		232	(5)	46.1s	5.5 s 6	β^-
		233		49.2s	>300 ns	β^-
88	Ra	201m	(13/2+)	11.8s	1.6 ms +77-7	α, ϵ
		202	0+	9.09	16 ms +30-7	α
		203	(3/2-)	8.66	31 ms +17-9	α
		203m	(13/2+)	8.66	24 ms +6-4	α
		204	0+	6.06	57 ms +11-5	α
		205	(3/2-)	5.84	210 ms +60-40	$\alpha \leq 100\%, \epsilon$
		205m	(13/2+)	5.84	170 ms +60-40	$\alpha \leq 100\%, \epsilon$
		206	0+	3.56	0.24 s 2	α
		207	(3/2-, 5/2-)	3.54	1.35 s -13+22	$\alpha \approx 86\%, \epsilon \approx 14\%$
		207m	(13/2+)	4.09	59 ms 4	IT $\geq 85\%, \alpha \leq 15\%$
		208	0+	1.71	1.3 s 2	$\alpha 95\%, \epsilon 5\%$
		209	5/2-	1.85	4.6 s 2	$\alpha \approx 90\%, \epsilon \approx 10\%$
		210	0+	0.46	3.7 s 2	$\alpha \approx 96\%, \epsilon \approx 4\%$
		211	5/2(-)	0.832	13 s 2	$\alpha > 93\%, \epsilon < 7\%$
		212	0+	-0.20	13.0 s 2	$\alpha \approx 85\%, \epsilon \approx 15\%$
		213	1/2-	0.36	2.73 m 5	$\alpha 80\%, \epsilon 20\%$
		213m	(17/2-)	2.13	2.20 ms 5	IT = 99.4%, $\alpha \approx 0.6\%$
		214	0+	0.095	2.46 s 3	$\alpha 99.94\%, \epsilon 0.06\%$
		215	(9/2+)	2.532	1.55 ms 7	α
		216	0+	3.290	182 ns 10	$\alpha, \epsilon < 1.0 \times 10^{-8}\%$
		217	(9/2+)	5.886	1.6 μ s 2	α
		218	0+	6.65	25.2 μ s 3	α
		219	(7/2+)	9.393	10 ms 3	α
		220	0+	10.272	18 ms 2	α
		221	5/2+	12.963	28 s 2	$\alpha, {}^{14}\text{C} 1 \times 10^{-12}\%$
		222	0+	14.320	38.0 s 5	$\alpha, {}^{14}\text{C} 3.0 \times 10^{-8}\%$
		223	3/2+	17.234	11.43 d 5	$\alpha, {}^{14}\text{C} 8.9 \times 10^{-8}\%$
224	0+	18.821	3.6319 d 23	$\alpha, {}^{14}\text{C} 4.0 \times 10^{-9}\%$		
225	1/2+	21.995	14.9 d 2	β^-		
226	0+	23.668	1600 y 7	$\alpha, {}^{14}\text{C} 3.2 \times 10^{-9}\%$		
227	3/2+	27.178	42.2 m 5	β^-		
228	0+	28.946	5.75 y 3	β^-		
229	5/2+	32.56	4.0 m 2	β^-		
230	0+	34.52	93 m 2	β^-		
231	(5/2+)	38.22	104.1 s 8	β^-		
232	0+	40.50	4.2 m 8	β^-		
233		44.6s	30 s 5	β^-		
234	0+	47.2s	30 s 10	β^-		
235		51.4s				
89	Ac	206	(3+)	13.53	22 ms +9-5	α
		206m	(10-)	13.53	33 ms +22-9	α
		207	(9/2-)	11.15	27 ms +11-6	α
		208	(3+)	10.76	95 ms +24-16	$\alpha \approx 99\%, \epsilon \approx 1\%$
		208m	(10-)	11.27	25 ms +9-5	$\alpha \approx 90\%, \epsilon \approx 10\%$
		209	(9/2-)	8.84	0.10 s 5	$\alpha \approx 99\%, \epsilon \approx 1\%$
		210		8.79	0.35 s 5	$\alpha 91\%, \epsilon \approx 9\%$
		211		7.20	0.21 s 3	α
		212		7.27	0.93 s 5	$\alpha \approx 57\%, \epsilon \approx 43\%$

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
89	Ac	213	6.16	738 ms 16	$\alpha \leq 100\%$	
		214	(5+)	6.44	8.2 s 2	$\alpha \geq 89\%, \epsilon \leq 11\%$
		215	9/2-	6.03	0.17 s 1	$\alpha 99.91\%, \epsilon 0.09\%$
		216	(1-)	8.14	440 μ s 16	α
		216m	(9-)	8.19	441 μ s 7	α
		217	9/2-	8.70	69 ns 4	$\alpha, \epsilon \leq 2\%$
		218	(1-)	10.84	1.08 μ s 9	α
		219	9/2-	11.57	11.8 μ s 15	α
		220	(3-)	13.742	26.4 ms 2	$\alpha, \epsilon 5.0 \times 10^{-4}\%$
		221	(3/2-)	14.52	52 ms 2	α
		222	1-	16.620	5.0 s 5	$\alpha 99\%, \epsilon 1\%$
		222m		16.620	63 s 3	$\alpha \geq 88\%, IT \leq 10\%,$ $\epsilon \geq 0.7\%$
		223	(5/2-)	17.826	2.10 m 5	$\alpha 99\%, \epsilon 1\%$
		224	0-	20.231	2.78 h 17	$\epsilon 90.9\%, \alpha 9.1\%,$ $\beta- < 1.6\%$
		225	(3/2-)	21.638	10.0 d 1	$\alpha, {}^{14}\text{C} 4 \times 10^{-12}\%$
		226	(1)	24.309	29.37 h 12	$\beta- 83\%, \epsilon 17\%,$ $\alpha 6.0 \times 10^{-3}\%$
		227	3/2-	25.851	21.772 y 3	$\beta- 98.62\%, \alpha 1.38\%$
		228	3+	28.900	6.15 h 2	$\beta-$
		229	(3/2+)	30.75	62.7 m 5	$\beta-$
		230	(1+)	33.8	122 s 3	$\beta-, \beta\text{-F} 1.2 \times 10^{-6}\%$
		231	(1/2+)	35.9	7.5 m 1	$\beta-$
		232	(1+)	39.2	119 s 5	$\beta-$
		233	(1/2+)	41.5s	145 s 10	$\beta-$
234		45.0s	44 s 7	$\beta-$		
235		47.6s	60 s 4	$\beta-$		
236		51.27		$\beta- ?$		
237		54.3s				
90	Th	208	0+	16.68	1.7 ms +17-6	α
		209	(5/2-)	16.54	2.5 ms +17-7	α
		210	0+	14.06	16 ms 4	$\alpha 99\%, \epsilon \approx 1\%$
		211		13.90	0.04 s +3-1	α
		212	0+	12.10	31.7 ms 13	$\alpha, \epsilon \approx 0.3\%$
		213		12.12	144 ms 21	$\alpha \leq 100\%$
		214	0+	10.71	87 ms 10	α
		215	(1/2-)	10.921	1.2 s 2	α
		216	0+	10.29	26.0 ms 2	$\alpha, \epsilon \approx 0.01\%$
		216m	8+	12.33	134 μ s 4	$\alpha 2.8\%, IT$
		217	(9/2+)	12.22	0.241 ms 5	α
		218	0+	12.37	117 ns 9	α
		219		14.47	1.05 μ s 3	α
		220	0+	14.67	9.7 μ s 6	$\alpha, \epsilon 2.0 \times 10^{-7}\%$
		221	(7/2+)	16.937	1.68 ms 6	α
		222	0+	17.20	2.8 ms 3	α
		223	(5/2+)	19.384	0.60 s 2	α
224	0+	20.00	0.81 s 10	α		
225	(3/2+)	22.309	8.75 m 4	$\alpha \approx 90\%, \epsilon \approx 10\%$		
226	0+	23.196	30.57 m 10	α		
227	1/2+	25.806	18.68 d 9	α		
228	0+	26.766	1.9116 y 16	$\alpha, {}^{20}\text{O} 1 \times 10^{-11}\%$		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$				
Z	El	A	(MeV)	Abundance	Decay Mode			
90	Th	229	5/2+	29.587	7932 y 28	α		
		229m	(3/2+)	29.587	2 m 1	IT?		
		230	0+	30.863	7.54×10^4 y 3	α , ^{24}Ne $6 \times 10^{-11}\%$, SF $\leq 4 \times 10^{-12}\%$		
		231	5/2+	33.816	25.52 h 1	β^- , $\alpha = 4 \times 10^{-11}\%$		
		232	0+	35.452	1.40×10^{10} y 1	α , SF $1.1 \times 10^{-9}\%$		
		233	1/2+	38.737	21.83 m 4	β^-		
		234	0+	40.615	24.10 d 3	β^-		
		235	(1/2+)	44.26	7.2 m 1	β^-		
		236	0+	46.5s	37.3 m 15	β^-		
		237	(5/2+)	50.2s	4.7 m 6	β^-		
		238	0+	52.6s	9.4 m 20	β^-		
		239		56.6s				
		91	Pa	212		21.61	5.1 ms +61-19	α
				213		19.66	5.3 ms +40-16	α
214				19.49	17 ms 3	$\alpha \leq 100\%$		
215				17.87	14 ms 2	α		
216				17.80	0.15 s +6-4	$\alpha \approx 98\%$, $\epsilon \approx 2\%$		
217				17.07	3.6 ms 8	α		
217m				18.92	1.2 ms 2	α 73%, IT 27%		
218				18.68	113 μ s 10	α		
219m	9/2-			18.54	53 ns 10	α		
220m				20.40	0.78 μ s 16	α , ϵ $3.0 \times 10^{-7}\%$		
221	9/2-			20.38	5.9 μ s 17	α		
222				22.11s	2.9 ms +6-4	α		
223				22.32	5.1 ms 6	α		
224				23.861	0.85 s 2	α		
225				24.34	1.7 s 2	α		
226				26.03	1.8 m 2	α 74%, ϵ 26%		
227	(5/2-)			26.831	38.3 m 3	α 85%, ϵ 15%		
228	3+			28.921	22.4 h 10	ϵ 98.15%, α 1.85%		
229	(5/2+)			29.898	1.50 d 5	ϵ 99.52%, α 0.48%		
230	(2-)			32.173	17.4 d 5	ϵ 92.2%, β^- 7.8%, α $3.2 \times 10^{-3}\%$		
231	3/2-			33.425	3.276×10^4 y 11	α , SF $\leq 2 \times 10^{-11}\%$		
232	(2-)			35.941	1.32 d 2	β^- , ϵ		
233	3/2-			37.491	26.975 d 13	β^-		
234	4+	40.342	6.70 h 5	β^-				
234m	(0-)	40.416	1.159 m 11	β^- 99.84%, IT 0.16%				
235	(3/2-)	42.33	24.44 m 11	β^-				
236	1(-)	45.3	9.1 m 1	β^-				
237	(1/2+)	47.6	8.7 m 2	β^-				
238	(3-)	50.77	2.27 m 9	β^-				
239	(3/2)	53.3s	1.8 h 5	β^-				
240		56.8s		β^- ?				
241		59.7s						
92	U	217		22.71	16 ms +21-6	$\alpha \leq 100\%$		
		218	0+	21.91	0.51 ms +17-10	α		
		218m	(8+)	24.02	0.56 ms +26-14	α		
		219		23.30	42 μ s +34-13	α		
		220	0+	23.0s		$\alpha?$, $\epsilon?$		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
92	U	221	(9/2+)	24.6s	700 ns	
		222	0+	24.3s	1.0 μ s +12-4	α
		223		25.84	18 μ s +10-5	α, ϵ 0.2%
		224	0+	25.71	0.9 ms 3	α
		225		27.38	95 ms 15	α
		226	0+	27.33	0.35 s 15	α
		227	(3/2+)	29.02	1.1 m 1	α
		228	0+	29.22	9.1 m 2	α > 95%, ϵ < 5%
		229	(3/2+)	31.209	58 m 3	ϵ \approx 80%, α \approx 20%
		230	0+	31.613	20.8 d	$\alpha, \text{ SF} < 1 \times 10^{-10}\%$, $^{22}\text{Ne } 5 \times 10^{-12}\%$
		231	(5/2-)	33.807	4.2 d 1	$\epsilon, \alpha \approx 4.0 \times 10^{-3}\%$
		232	0+	34.604	68.9 y 4	$\alpha, \text{ SF } 3 \times 10^{-12}\%$
		233	5/2+	36.921	1.592 $\times 10^5$ y 2	$\alpha, ^{24}\text{Ne } 9 \times 10^{-10}\%$, $\text{SF} < 6 \times 10^{-11}\%$, $^{28}\text{Mg} < 1. \times 10^{-13}\%$
		234	0+	38.148	2.455 $\times 10^5$ y 6 0.0054% 5	$\alpha,$ $\text{SF } 1.6 \times 10^{-9}\%$, $\text{Mg } 1 \times 10^{-11}\%$, $\text{Ne } 9 \times 10^{-12}\%$
		235	7/2-	40.921	7.04 $\times 10^8$ y 1 0.7204% 6	$\alpha,$ $\text{SF } 7.0 \times 10^{-9}\%$, $^{28}\text{Mg } 8. \times 10^{-10}\%$, $\text{Ne} \approx 8. \times 10^{-10}\%$
		235m	1/2+	40.921	\approx 26 m	IT
		236	0+	42.447	2.342 $\times 10^7$ y 4	$\alpha, \text{ SF } 9.4 \times 10^{-8}\%$
		237	1/2+	45.393	6.75 d 1	β^-
		238	0+	47.310	4.468 $\times 10^9$ y 3 99.2742% 10	$\alpha,$ $\text{SF } 5.5 \times 10^{-5}\%$
		239	5/2+	50.575	23.45 m 2	β^-
		240	0+	52.716	14.1 h 1	β^-
		241		56.2s		$\beta^-?$
		242	0+	58.6s	16.8 m 5	β^-
243		62.4s				
93	Np	225	(9/2-)	31.59		α
		226		32.74s	35 ms 10	α
		227		32.56	0.51 s 6	α
		228		33.59	61.4 s 14	ϵ 60%, α 40%
		229		33.78	4.0 m 2	α 68%, ϵ 32%
		230		35.24	4.6 m 3	$\epsilon \leq 97\%$, $\alpha \geq 3\%$
		231	(5/2)	35.62	48.8 m 2	ϵ 98%, α 2%
		232	(4+)	37.4s	14.7 m 3	$\epsilon, \alpha 2.0 \times 10^{-4}\%$
		233	(5/2+)	37.95	36.2 m 1	$\epsilon, \alpha \leq 1.0 \times 10^{-3}\%$
		234	(0+)	39.957	4.4 d 1	ϵ
		235	5/2+	41.045	396.1 d 12	$\epsilon, \alpha 2.6 \times 10^{-3}\%$
		236	(6-)	43.37	153 $\times 10^3$ y 5	ϵ 86.3%, β^- 13.5%, α 0.16%
		236m	1	43.37	22.5 h 4	β^- 50%, ϵ 50%
		237	5/2+	44.874	2.144 $\times 10^6$ y 7	$\alpha, \text{ SF} \leq 2 \times 10^{-10}\%$
		238	2+	47.457	2.117 d 2	β^-
239	5/2+	49.313	2.356 d 3	β^-		
240	(5+)	52.32	61.9 m 2	β^-		

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	
Z	El	A	(MeV)	Abundance	Decay Mode
93 Np	240m	(1+)	52.32	7.22 m 2	β^- 99.88%, IT 0.12%
	241	5/2+	54.26	13.9 m 2	β^-
	242	(1+)	57.4	2.2 m 2	β^-
	242m	(6+)	57.4	5.5 m 1	β^-
	243	(5/2-)	59.88s	1.85 m 15	β^-
	244	(7-)	63.2s	2.29 m 16	β^-
	245		65.9s		
94 Pu	228	0+	36.08	1.1 s +20-5	α
	229	(3/2+)	37.39	67 s +41-19	ϵ 50%, α 50%, SF < 7%
	230	0+	36.93	102 s 10	$\alpha \leq 100\%$
	231	(3/2+)	38.28	8.6 m 5	$\epsilon \leq 99.8\%$, $\alpha > 0.2\%$
	232	0+	38.36	33.8 m 7	ϵ 90%, α 10%
	233		40.05	20.9 m 4	ϵ 99.88%, α 0.12%
	234	0+	40.348	8.8 h 1	$\epsilon \approx 94\%$, $\alpha \approx 6\%$
	235	(5/2+)	42.18	25.3 m 5	ϵ , α $2.8 \times 10^{-3}\%$
	236	0+	42.896	2.858 y 8	α , SF $1.9 \times 10^{-7}\%$
	237	7/2-	45.094	45.64 d 4	ϵ , α $4.2 \times 10^{-3}\%$
	237m	1/2+	45.240	0.18 s 2	IT
	238	0+	46.166	87.7 y 1	α , SF $1.9 \times 10^{-7}\%$
	239	1/2+	48.591	24110 y 30	α , SF $3. \times 10^{-10}\%$
	240	0+	50.128	6561 y 7	α , SF $5.7 \times 10^{-6}\%$
	241	5/2+	52.958	14.325 y 6	β^- , α $2.5 \times 10^{-3}\%$, SF < $2 \times 10^{-14}\%$
	242	0+	54.719	3.75×10^5 y 2	α , SF $5.5 \times 10^{-4}\%$
	243	7/2+	57.756	4.956 h 3	β^-
	244	0+	59.806	8.00×10^7 y 9	α 99.88%, SF 0.12%
245	(9/2-)	63.18	10.5 h 1	β^-	
246	0+	65.40	10.84 d 2	β^-	
247		69.1s	2.27 d 23	β^-	
95 Am	230			≈ 17 s	ϵ
	231		42.4s		$\alpha?$, $\epsilon?$
	232		43.4s	79 s 2	$\epsilon \approx 97\%$, $\alpha \approx 3\%$
	233		43.2s	3.2 m 8	$\alpha > 3\%$, ϵ
	234		44.5s	2.32 m 8	ϵ , α
	235	5/2-	44.62	10.3 m 6	ϵ 99.6%, α 0.4%
	236	5-	46.0s	3.6 m 2	α , ϵ
	236m	(1-)	46.0s	2.9 m 2	α , ϵ
	237	5/2(-)	46.57s	73.6 m 8	ϵ 99.97%, α 0.03%
	238	1+	48.42	98 m 2	ϵ , α $1.0 \times 10^{-4}\%$
	239	(5/2)-	49.393	11.9 h 1	ϵ 99.99%, α 0.01%
	240	(3-)	51.51	50.8 h 3	ϵ , α $1.9 \times 10^{-4}\%$
	240m		54.51	0.94 ms 4	SF $\leq 100\%$
	241	5/2-	52.937	432.6 y 6	α , SF $4 \times 10^{-10}\%$
	242	1-	55.471	16.02 h 2	β^- 82.7%, ϵ 17.3%
	242m	5-	55.520	141 y 2	IT 99.55%, α 0.45%, SF < $4.7 \times 10^{-9}\%$
	242m	(2+,3-)	57.671	14.0 ms 10	SF, IT, $\alpha < 5.0 \times 10^{-3}\%$
243	5/2-	57.177	7370 y 40	α , SF $3.7 \times 10^{-9}\%$	
244	(6-)	59.882	10.1 h 1	β^-	
244m		59.882	0.90 ms 15	SF $\leq 100\%$	
244m	1+	59.968	26 m 1	β^- 99.96%, ϵ 0.04%	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	
Z	El	A	(MeV)	Abundance	Decay Mode
95 Am	245	(5/2)+	61.901	2.05 h 1	β^-
	246	(7-)	65.00	39 m 3	β^-
	246m	2(-)	65.00	25.0 m 2	β^- , IT<0.02%
	247	(5/2)	67.2s	23.0 m 13	β^-
	248		70.6s	\approx 10 m	β^-
	249		73.1s		β^- ?
96 Cm	233	(3/2+)	47.29	23 s +13-6	ϵ 80%, α 20%
	234	0+	46.72	51 s 12	α = 40%, SF = 40%, ϵ = 20%
	235		47.9s		α ?, ϵ ?
	236	0+	47.86		ϵ , α
	237		49.25		ϵ , α < 1%
	238	0+	49.44	2.4 h 1	ϵ \geq 90%, α \leq 10%
	239	(7/2-)	51.15	\approx 2.9 h	ϵ , α < 0.1%
	240	0+	51.719	27 d 1	SF 3.9 $\times 10^{-6}\%$, α > 99.5%, ϵ < 0.5%
	241	1/2+	53.704	32.8 d 2	ϵ 99%, α 1%
	242	0+	54.806	162.8 d 2	α , SF 6.2 $\times 10^{-6}\%$, ^{34}Si 1. $\times 10^{-14}\%$
	243	5/2+	57.184	29.1 y 1	α 99.71%, ϵ 0.29%, SF 5.3 $\times 10^{-9}\%$
	244	0+	58.455	18.1 y 1	α , SF 1.4 $\times 10^{-4}\%$
	244m	6+	59.495	34 ms 2	IT
	245	7/2+	61.006	8423 y 74	α , SF 6.1 $\times 10^{-7}\%$
	246	0+	62.619	4706 y 40	α 99.97%, SF 0.03%
	247	9/2-	65.535	1.56 $\times 10^7$ y 5	α
	248	0+	67.393	3.48 $\times 10^5$ y 6	α 91.61%, SF 8.39%
	249	1/2+	70.751	64.15 m 3	β^-
	250	0+	72.99	\approx 8.3 $\times 10^3$ y	SF = 74%, α = 18%, β^- = 8%
	251	(1/2+)	76.65	16.8 m 2	β^-
	252	0+	79.1s	<2 d	
	97 Bk	234			1.4 $\times 10^2$ s +14-5
235			52.7s		ϵ ?, α ?
236			53.4s		
237			53.1s	\approx 1 m	ϵ ?, α ?
238			54.3s	144 s 5	ϵ , ϵ SF 0.048%
239m(7/2+,3/2-)			54.3s		ϵ > 99%, α < 1%, SF < 1%
240			55.7s	4.8 m 8	ϵ , ϵ SF 2.0 $\times 10^{-3}\%$
241		(7/2+)	56.1s	4.6 m 4	α , ϵ
242			57.7s	7.0 m 13	ϵ \leq 100%
243		(3/2-)	58.692	4.5 h 2	ϵ = 99.85%, α = 0.15%
244		(4-)	60.72	4.35 h 15	ϵ 99.99%, α 6.0 $\times 10^{-3}\%$
245		3/2-	61.816	4.95 d 3	ϵ 99.88%, α 0.12%
246m		2(-)	63.97	1.80 d 2	ϵ
247		(3/2-)	65.491	1380 y 250	α \leq 100%
248			68.08s	>9 y	α
248m		1(-)	68.08s	23.7 h 2	β^- 70%, ϵ 30%
249	7/2+	69.850	330 d 4	β^- , α 1.4 $\times 10^{-3}\%$, SF 4.7 $\times 10^{-8}\%$	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode			
Z	El	A	(MeV)	Abundance				
97	Bk	250	2-	72.952	3.212 h 5	β^-		
		251	(3/2-)	75.23	55.6 m 11	β^-		
		252		78.5s				
		253		80.9s		$\beta^-?$		
		254		84.4s				
98	Cf	237	(3/2+)	57.94	0.8 s 2	SF 70%, α 30%		
		238	0+	57.2s	21 ms 2	SF		
		239		58.1s	39 s +37-12	ϵ, α		
		240	0+	58.01	64 s 9	α 98.5%, SF 1.5%		
		241	(7/2-)	59.3s	3.78 m 70	$\epsilon \approx 75%, \alpha \approx 25%$		
		242	0+	59.38	3.7 m 5	α 80%, ϵ 20%, SF $\leq 0.01%$		
		243	(1/2+)	60.9s	10.7 m 5	$\epsilon \approx 86%, \alpha \approx 14%$		
		244	0+	61.473	19.4 m 6	$\alpha \leq 100%$		
		245	1/2+	63.388	45.0 m 15	ϵ 64.7%, α 35.3%		
		246	0+	64.093	35.7 h 5	$\alpha, \epsilon < 4.0 \times 10^{-3}\%$, SF $2.4 \times 10^{-4}\%$		
		246m		66.593	45 ns 10	SF $\leq 100%$		
		247	(7/2+)	66.10	3.11 h 3	ϵ 99.97%, α 0.04%		
		248	0+	67.241	333.5 d 28	$\alpha, \text{ SF } 2.9 \times 10^{-3}\%$		
		249	9/2-	69.726	351 y 2	$\alpha, \text{ SF } 5.0 \times 10^{-7}\%$		
		250	0+	71.173	13.08 y 9	α 99.92%, SF 0.08%		
		251	1/2+	74.137	898 y 44	$\alpha, \text{ SF}$		
		252	0+	76.035	2.645 y 8	α 96.91%, SF 3.09%		
		253	(7/2+)	79.302	17.81 d 8	β^- 99.69%, α 0.31%		
		254	0+	81.34	60.5 d 2	SF 99.69%, α 0.31%		
		255	(7/2+)	84.8s	85 m 18	β^-		
		256	0+	87.0s	12.3 m 12	SF, $\beta^- < 1%$, $\alpha \approx 1.0 \times 10^{-6}\%$		
		99	Es	240		64.2s		$\alpha?, \epsilon?$
				241		63.8s	8 s +6-5	ϵ, α
242				64.9s	17.8 s 16	α 57%, ϵ 43%		
243	(7/2+)			64.7s	23 s 3	α 61%, ϵ 39%, SF < 1%		
244				66.0s	37 s 4	ϵ 96%, α 4%		
245	(3/2-)			66.4s	1.1 m 1	ϵ 60%, α 40%		
246m				67.9s	7.5 m 5	ϵ 90.1%, α 9.9%		
247	(7/2+)			68.58	4.55 m 26	$\epsilon \approx 93%, \alpha \approx 7%$		
247m				68.58	625 d 84	α		
248	(2-, 0+)			70.30s	27 m 5	ϵ 99.7%, $\alpha \approx 0.25%$		
249	7/2+			71.18s	102.2 m 6	ϵ 99.43%, α 0.57%		
250	(6+)			73.2s	8.6 h 1	$\epsilon > 97%, \alpha < 3%$		
250m	1(-)			73.2s	2.22 h 5	$\epsilon \leq 100%$		
251	(3/2-)			74.513	33 h 1	ϵ 99.5%, α 0.5%		
252	(5-)			77.29	471.7 d 19	α 78%, ϵ 22%		
253	7/2+			79.015	20.47 d 3	SF $8.7 \times 10^{-6}\%$, α		
254	(7+)			81.993	275.7 d 5	$\alpha, \beta^- 1.7 \times 10^{-4}\%$, SF $< 3.0 \times 10^{-6}\%$		
254m	2+	82.077	39.3 h 2	β^- 98%, IT < 3%, α 0.32%, ϵ 0.08%, SF < 0.05%				
255	(7/2+)	84.09	39.8 d 12	β^- 92%, α 8%, SF $4.1 \times 10^{-3}\%$				

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}$, Γ , or	Decay Mode
Z	El	A	(MeV)	Abundance	
99 Es	256	(1+,0-)	87.2s	25.4 m 24	β^-
	256m	(8+)	87.2s	7.6 h	β^-
	257		89.4s	7.7 d 2	β^- , SF
	258		92.7s		$\alpha?$, $\epsilon?$
100 Fm	241			0.73 ms 6	SF > 78%, α < 14%, ϵ < 12%
	242	0+	68.4s	< 4 μ s	SF \leq 100%
	243	(7/2+)	69.3s	231 ms 9	α 91%, SF 9%, ϵ < 10%
	244	0+	69.0s	3.12 ms 8	SF > 97%, ϵ < 2%, α < 1%
	245		70.2s	4.2 s 13	α \leq 100%
	246	0+	70.19	1.54 s 4	α 93.2%, SF 6.8%, ϵ \leq 1.3%
	247	(7/2+)	71.6s	31 s 1	α \geq 84%, ϵ \leq 16%
	247m	(1/2+)	71.6s	5.1 s 2	α 84%
	248	0+	71.894	36 s 2	α 93%, ϵ 7%, SF 0.1%
	249	(7/2+)	73.521	2.6 m 7	ϵ 67%, α 33%
	250	0+	74.074	30 m 3	α > 90%, ϵ < 10%, SF 6.9 $\times 10^{-3}\%$
	250m		74.074	1.93 s 15	IT
	251	(9/2-)	75.95	5.30 h 8	ϵ 98.2%, α 1.8%
	252	0+	76.818	25.39 h 4	SF 2.3 $\times 10^{-3}\%$, α
	253	(1/2+)	79.349	3.00 d 12	ϵ 88%, α 12%
	254	0+	80.905	3.240 h 2	α 99.94%, SF 0.06%
	255	7/2+	83.801	20.07 h 7	α , SF 2.4 $\times 10^{-5}\%$
	256	0+	85.487	157.6 m 13	SF 91.9%, α 8.1%
	257	(9/2+)	88.590	100.5 d 2	α 99.79%, SF 0.21%
	258	0+	90.4s	370 μ s 43	SF \leq 100%
	259		93.7s	1.5 s 3	SF
	260	0+	95.8s	\approx 4 ms	SF
	101 Md	245	(1/2-)	75.3s	0.90 ms 25
245m		(7/2)	75.6s	0.35 s +23-16	ϵ , α
246m			76.2s	0.9 s 2	α
246m			76.2s	4.4 s 8	ϵ > 77%, α < 23%
246m			76.2s	0.9 s 2	SF?, $\epsilon?$
247		(7/2-)	75.9s	1.2 s 1	α 99.9%, SF < 0.1%
247m		(1/2-)	75.9s	0.25 s 4	α 79%, SF 21%
248			77.1s	13 s +15-4	α 58%, ϵ 42%
249		(7/2-)	77.3s	21.7 s 20	α > 60%, ϵ \leq 40%
249m		(1/2-)	77.3s	1.9 s 9	$\alpha?$
250			78.6s	25 s +10-5	ϵ 93%, α 7%
251		(7/2-)	78.97	4.3 m 6	ϵ 90%, α 10%
252			80.5s	2.3 m 8	ϵ \leq 100%
253		(7/2-)	81.18s	6 m +12-3	ϵ \leq 100%, α
254m			83.5s	28 m 8	ϵ \leq 100%
254m			83.5s	10 m 3	ϵ \leq 100%
255		(7/2-)	84.844	27 m 2	ϵ 92%, α 8%, SF < 0.15%
256		(1-)	87.61	77 m 2	ϵ 90.8%, α 9.2%, SF < 3%
257	(7/2-)	88.997	5.52 h 5	ϵ 85%, α 15%, SF < 1%	
258		91.689	51.5 d 3	α , SF	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode	
Z	El	A	(MeV)	Abundance		
101 Md	258m		91.689	57.0 m 9	$\epsilon \geq 70\%$, SF	
	259		93.6s	96 m 3	SF, $\alpha < 1.3\%$	
	260		96.6s	31.8 d 5	SF $\geq 42\%$, $\alpha \leq 25\%$, $\epsilon \leq 23\%$, $\beta^- \leq 10\%$	
	261		98.6s		$\alpha?$	
	262		101.6s		SF?, $\alpha?$	
	102 No	248	0+	80.6s	<2 μ s	SF?
		249		81.8s		
		250	0+	81.6s	4.2 μ s +12-9	SF, $\alpha < 2\%$
		251	(7/2+)	82.8s	0.80 s 1	$\alpha 84\%$, SF < 0.3%, ϵ
		251m	(1/2+)	82.9s	1.02 s 3	α
252		0+	82.867	2.47 s 2	$\alpha 70.7\%$, SF 29.3%, $\epsilon < 1.1\%$	
252m		(8-)	82.867	110 ms 10	IT	
253		(9/2-)	84.360	1.62 m 15	$\alpha \approx 80\%$, ϵ	
254		0+	84.72	51 s 10	$\alpha 90\%$, $\epsilon 10\%$, SF 0.17%	
254m		0+	84.72	0.28 s 4	IT > 80%	
255		1/2+	86.81	3.52 m 21	$\epsilon 70\%$, $\alpha 30\%$	
256		0+	87.825	2.91 s 5	$\alpha 99.47\%$, SF 0.53%	
257		(7/2+)	90.251	25 s 3	$\alpha \leq 100\%$, SF $\leq 1.5\%$	
258		0+	91.5s	1.2 ms 2	SF $\leq 100\%$	
259			94.1s	58 m 5	$\alpha 75\%$, $\epsilon 25\%$, SF < 10%	
260		0+	95.6s	106 ms 8	SF	
261		(3/2+)	98.5s		$\alpha?$	
262		0+	100.1s	≈ 5 ms	SF	
263		103.1s		$\alpha?$, SF?		
264	0+	105.2s		$\alpha?$		
103 Lr	251		87.9s		$\epsilon?$, $\alpha?$	
	252		88.7s	0.27 s +18-8	α , ϵ	
	253	(7/2-)	88.7s	0.57 s +7-6	$\alpha \approx 98.7\%$, SF $\approx 1.3\%$	
	253m	(1/2-)	88.7s	1.49 s +30-21	$\alpha 92\%$, SF 8%	
	254		89.9s	18.4 s 18	$\alpha 71.7\%$, $\epsilon 28.3\%$	
	255	1/2-	89.95	31.1 s 13	$\alpha 85\%$, $\epsilon 15\%$	
	255m	7/2-	89.98	2.53 s 13	IT 60%, $\alpha 40\%$	
	256		91.75	27 s 3	$\alpha 85\%$, $\epsilon 15\%$, SF < 0.03%	
	257		92.61s	≈ 4 s	$\alpha \leq 100\%$	
	258		94.8s	4.1 s 3	$\alpha > 95\%$, SF < 5%	
	259		95.85s	6.2 s 3	$\alpha 78\%$, SF 22%	
	260		98.3s	180 s 30	$\alpha 80\%$, $\epsilon < 40\%$, SF < 10%	
	261		99.6s	39 m 12	SF	
	262		102.0s	≈ 4 h	SF < 10%, ϵ , α	
	263		103.7s		$\alpha?$	
	264		106.4s		SF?, $\alpha?$	
265		108.3s		SF?, $\alpha?$		
266		111.4s		$\alpha?$, SF?		
104 Rf	253m		93.8s	48 μ s +17-10	SF $\leq 100\%$, α	
	253m		93.8s	≈ 1.8 s	$\alpha \approx 50\%$, SF $\approx 50\%$	

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	
Z	El	A	(MeV)	Abundance	Decay Mode
104 Rf	254	0+	93.2s	23 μ s 3	SF \leq 100%
	255	(9/2-)	94.2s	2.3 s +8-5	α 52%, SF 48%, ϵ ? 1%
	256	0+	94.22	6.4 ms 2	SF 99.68%, α 0.32%
	257	(1/2+)	95.87	4.7 s 3	α < 100%, SF \leq 1.4%, ϵ > 0%
	257m	(11/2-)	95.87	4.1 s 7	α < 100%, SF \leq 1.4%, ϵ > 0%
	258	0+	96.34	14.7 ms +12-10	SF 69%, α 31%
	259		98.36s	3.2 s 6	α 92%, SF 8%
	259m		98.36s	2.5 s +4-3	ϵ 15%
	260	0+	99.2s	21 ms 1	SF \leq 100%, α ?
	261m		101.32	1.9 s 4	SF 73%, α 27%
	261m		101.32	78 s +11-6	α > 74%, ϵ < 15%, SF < 11%
	262	0+	102.4s	2.3 s 4	SF \leq 100%, α < 3%
	263		104.8s	10 m 2	SF, α
	264	0+	106.2s		α ?
	265m		108.8s		SF
	266	0+	110.2s		SF ?, α ?
	267		113.4s		
268	0+	115.4s		α ?, SF ?	
105 Db	255		99.7s	1.6 s +6-4	α 80%, SF \approx 20%
	256		100.5s	1.9 s 4	α \approx 70%, ϵ \approx 30%, SF = 0.02%
	257	(9/2+)	100.3s	1.82 s +27-21	α 94%, SF \approx 6%
	257m		100.3s	0.58 s +13-9	α , SF
	258		101.8s	4.2 s +4-3	α 65%, ϵ 35%, SF < 1%
	258m		101.8s	20 s 10	ϵ
	259		101.99	0.51 s 16	α
	260		103.36	1.52 s 13	α \geq 90.4%, SF \leq 9.6%, ϵ < 2.5%
	261		104.2s	1.8 s 4	α \geq 82%, SF \leq 18%
	262		106.3s	35 s 5	α \approx 67%, SF
	263		107.1s	27 s +10-7	SF 55%, α 41%, ϵ 3%
	264		109.4s		α ?
	265		110.5s		α ?
	266		112.7s		α ?, SF ?
	267m		114.2s	73 m +350-33	SF
	268m		117.0s	32 h +11-7	SF
	269		119.1s		α ?, SF ?
270m		122.0s	23 h	SF, α	
106 Sg	258	0+	105.3s	2.9 ms +13-7	SF \leq 100%, α ?
	259	(1/2+)	106.5s	0.32 s +8-6	α 96%, SF 4%
	259m		106.5s	0.28 s 5	
	260	0+	106.54	3.6 ms 9	SF 50%, α 50%
	260m		106.54	4.95 ms 33	SF 71%, α 29%
	261		108.01	0.23 s 6	α , SF < 1%
	262	0+	108.4s	6.9 ms +38-18	SF \geq 78%, α \leq 22%
	263		110.19s	1.0 s 2	α > 70%, SF < 30%
	263m		110.19s	0.12 s	IT, α
	264	0+	110.8s	37 ms +27-11	SF, α < 36%
	265m		112.8s	16.2 s +47-35	α \geq 65%, SF \leq 35%

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	
Z	El	A	(MeV)	Abundance	Decay Mode
106 Sg	265m		113.0s	8.9 s +27-19	
	266	0+	113.7s	21 s +20-12	SF > 50%, α > 18%
	267		115.9s		
	268	0+	116.9s		SF?, α ?
	269		120.0s		
	270	0+	121.3s		α ?, SF?
	271m		124.4s	2.4 m +43-10	α = 50%, SF = 50%
	272	0+	126.4s		α ?, SF?
	273		129.8s		SF?
	107 Bh	260		113.3s	35 ms +19-9
261			113.2s	11.8 ms +39-24	α
262m			114.5s	22 ms 4	α < 100%
262m			114.5s	83 ms 14	α < 100%
263			114.5s		α ?
264			115.7s	0.44 s +60-16	α \leq 100%
265			116.4s	0.9 s +7-3	α
266m			118.2s	1.7 s +82-8	α
267m			118.9s	17 s +14-6	α
268			120.9s		
269			121.7s		
270?			124.2s	6×10^1 s +29-3	α
271?			125.8s		α ?
272m			128.6s	10 s +12-4	α
273			130.5s		α ?, SF?
274			133.3s	0.9 m +42-4	α , SF
275			135.4s		SF?
108 Hs	263		120.0s	0.74 ms +48-21	α \leq 100%, SF < 8.4%
	264	0+	119.56	= 0.8 ms	SF = 50%, α = 50%
	265		121.17	1.9 ms 2	α < 100%, SF \leq 1%
	265m		121.47	0.3 ms +2-1	α < 100%
	266	0+	121.1s	2.3 ms +13-6	α , SF < 1.4%
	267 (3/2+)		122.65s	52 ms +13-8	α \geq 80%, SF < 20%
	267m		122.65s	0.8 s +38-4	α
	268	0+	122.8s	0.4 s +18-2	α
	269		124.6s	3.6 s +8-14	α
	269m		124.6s	9.7 s +97-33	α
	270	0+	125.1s	22 s	α
	271		127.8s		α ?, SF?
	272	0+	129.1s		SF?, α ?
	273		132.1s		α
	274	0+	133.3s		SF?, α ?
	275m		136.3s	0.15 s +27-6	α
	276	0+	138.0s		α ?, SF?
277		141.1s			
109 Mt	265		126.6s		α ?
	266m		128.0s	1.7 ms +18-16	α \leq 100%
	267		127.8s		α ?
	268m		128.9s	21 ms +8-5	α
	269		129.3s		
	270m		130.8s	5.0 ms +24-3	α
	271		131.5s		α ?

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$		
Z	El	A	(MeV)	Abundance	Decay Mode	
109 Mt	272		133.7s		$\alpha?$, SF?	
	273		134.8s		$\alpha?$, SF?	
	274m		137.1s	0.44 s +81-17	α , SF	
	275?		138.4s	9.7 ms +460-44	α	
	276m		140.9s	0.72 s +87-25	α	
	277		142.5s			
	278m		145.1s	8 s +37-4	α , SF	
	279		146.8s		$\alpha?$, SF?	
	110 Ds	267m		134.3s	2.8 μ s +133-12	α
268?		0+	133.6s	1	α	
269m			135.03	179 μ s +245-66	α	
270		0+	134.7s	0.10 ms +14-4	α , SF < 0.2%	
270m			135.9s	6.0 ms +82-22	α > 70%, IT \leq 30%	
271			135.95s	1.63 ms +44-29	α	
271m			135.95s	69 ms +56-21	α > 0%, IT?	
272		0+	136.0s		SF	
273			138.4s	0.17 ms +17-6	α	
274?		0+	138.9s		SF?, $\alpha?$	
275?			141.2s		$\alpha?$	
276?		0+	142.2s		SF?, $\alpha?$	
277?			145.3s		$\alpha?$	
278?		0+	145.8s		SF?, $\alpha?$	
279m			148.6s	0.18 s +5-3	SF = 90%, α = 10%	
280		0+	149.6s			
281			152.4s	20 s +20-7	SF 85%, α 15%	
281m			152.4s	9.6 s +50-25	SF	
111 Rg	272m		142.8s	3.8 ms +14-8	α	
	273		143.1s		$\alpha?$	
	274m		144.7s	6.4 ms +307-29	α	
	275?		145.4s		$\alpha?$	
	276?		147.4s		$\alpha?$, SF?	
	277?		148.4s		SF?, $\alpha?$	
	278m		150.4s	4.2 ms +76-17	α , SF	
	279m		151.3s	0.17 s +81-8	α	
	280m		153.4s	3.6 s +43-13	α	
	281m		154.6s	26 s +25-8	SF, α	
	282m		156.7s	0.5 s +25-2	α , SF	
	283?		158.1s		SF?, $\alpha?$	
	112 Cn	276	0+	150.6s		
		277		152.4s		
278?		0+	152.7s		$\alpha?$, SF?	
279?			154.7s		SF?, $\alpha?$	
280?		0+	155.4s		$\alpha?$, SF?	
281m			158.1s		α	
282m			158.2s	0.50 ms +33-14	SF	
283m			160.7s	4.0 s +13-7	$\alpha \geq 90%$, SF $\leq 10%$	
283m			160.7s	6.9 s +69-23	SF 50%, α 50%	
284m			161.5s	101 ms +41-22	SF	
285			164.1s	30 s +30-10	α	
113	278m		159.0s	0.24 ms +114-11	α	
	279		159.5s			

Nuclear Wallet Cards

Nuclide			Δ	$T_{1/2}, \Gamma, \text{ or}$	Decay Mode
Z	El	A	(MeV)	Abundance	
113	280		161.2s		
	281		161.9s		
	282m		163.6s	0.07 s +13-3	α
	283m		164.0s	100 ms +490-45	α
	284m		166.0s	0.48 s +58-17	α
	285m		166.9s	5.5 s +50-18	$\alpha, \text{ SF}$
	286m		168.9s	20 s +94-9	$\alpha, \text{ SF}$
	287?		170.1s		$\alpha?, \text{ SF?}$
114	285m		171.2s		α
	286m	0+	171.0s	0.16 s +7-3	$\text{SF} \approx 60\%, \alpha \approx 40\%$
	287		173.2s	0.51 s +18-10	α
	288	0+	174.0s	0.52 s +22-13	α
	289		176.5s	0.97 s +97-32	α
	289m		176.5s	2.7 s +14-7	α
115	287?		177.2s	32 ms +155-14	α
	288m		179.0s	87 ms +105-30	α
	289		179.8s	0.22 s +26-8	$\alpha, \text{ SF}$
	290		181.6s	16 ms +76-7	$\alpha, \text{ SF}$
	291?		182.8s		$\alpha?, \text{ SF?}$
116	289		184.8s		
	290	0+	184.4s	15 ms +26-6	α
	291		186.6s	6.3 ms +116-25	α
	292	0+	187.2s	18 ms +16-6	α
	293		189.6s	53 ms +62-19	α
117	291?		191.0s		$\text{SF?}, \alpha?$
	292?		192.7s		$\text{SF?}, \alpha?$
	293		193.4s	14 ms +11-4	$\alpha, \text{ SF}$
	294		195.1s	0.08 s +37-4	α
118	294		198.7s	0.9 ms +11-3	$\alpha, \text{ SF} \leq 50\%$
	295		200.7s		