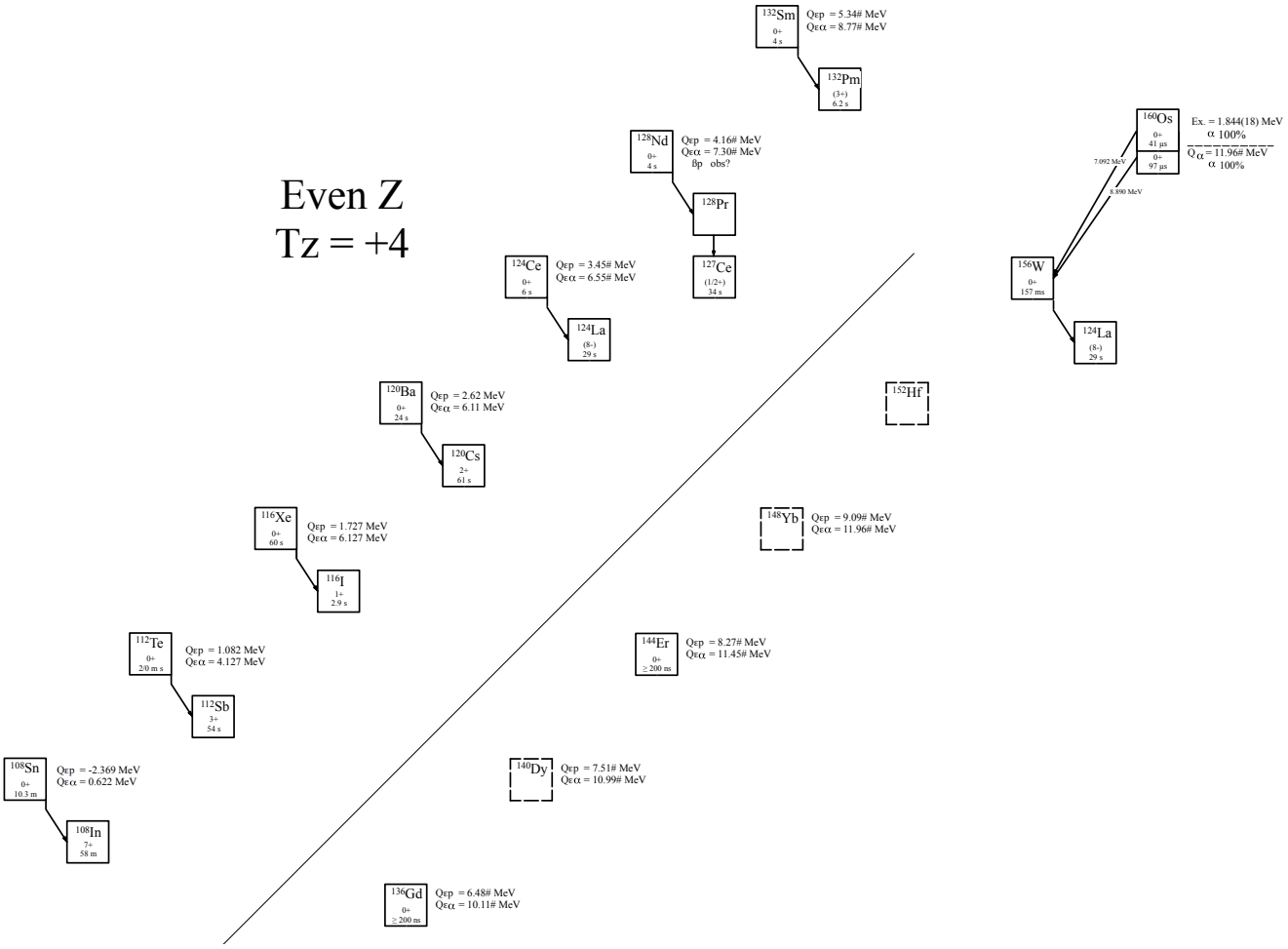

Fig. 1: Known experimental values for heavy particle emission of the even-Z, T_z= +4 nuclei.

Last updated 3/21/23

Table 1
Observed and predicted β-delayed particle emission from the even-Z, T_z = +4 nuclei. Unless otherwise stated, all Q-values are taken from [2021Wa16] or deduced from values therein. All J^π values are taken from ENSDF.

Nuclide	J^π	$T_{1/2}$	Q$_\varepsilon$	$Q_{\varepsilon p}$	$BR_{\beta p}$	$Q_{\varepsilon 2p}$	$Q_{\varepsilon\alpha}$	Experimental	
^{108}Sn		0^+	10.30(8) m	2.05(10)	-2.369(6)		-9.705(6)	0.622(7)	[**1978Hs01**]
^{112}Te		0^+	2.0(2) m	4.031(20)	1.082(10)		-5.675(14)	4.127(12)	[**1976Wi11**]
^{116}Xe		0^+	60(2) s	4.37(80)	1.727(31)		-3.128(24)	6.127(22)	[**1974Ha10**]
^{120}Ba		0^+	24(2) s	5.00(30)	2.62(30)		-2.50(30)	6.11(31)	[**1992Xu04**]
^{124}Ce		0^+	6(2) s	5.34(30)#	3.45(30)#		-1.35(30)#	6.55(30)#	[**1978Bo32**]
^{128}Nd		0^+	4(2) s	5.8(20)#	4.16(20)#	obs?*	-0.13(22)#	7.30(21)#	[**1983Ni05**]
^{132}Sm		0^+	4.0(3) s	6.49(34)#	5.34(30)#		1.46(31)#	8.77(30)#	[**1989McZU**]
^{136}Gd		0^+	$\geq$200 ns	7.15(36)#	6.48(34)#		3.10(30)#	10.11(33)#	[**2000So11**]
^{140}Dy		0^+		7.65(90)#	7.51(45)#		4.34(40)#	10.99(45)#	
^{144}Er		0^+	$\geq$200 ns	8.00(20)#	8.27(20)#		5.37(73)#	11.45(82)#	[**2000So11**]
^{148}Yb		0^+		8.54(40)#	9.09(40)#		6.43(40)#	11.96(40)#	
^{152}Hf		0^+							
^{156}W		0^+	157^{+57}_{-34} ms						[**2023Br10**]
^{160}Os		0^+	97^{+97}_{-32} μs						[**2023Br10**]
^{160m}Os	1.844(18)	(8^+)	41^{+15}_{-9} μs						[**2023Br10**]

* Uncertain, may be from ^{128}Pr [1983Ni05]

Table 2
Particle emission from the even-Z, T_z = +4 nuclei. Unless otherwise stated, all Q-values and separation energies are taken from [2021Wa16] or deduced from values therein.

Nuclide	S$_p$	BR$_p$	S$_{2p}$	Q$_\alpha$	BR$_\alpha$	Experimental
^{108}Sn	5.792(11)	——	9.516(5)	-0.526(6)		
^{112}Te	4.020(12)	——	6.303(16)	2.078(10)		
^{116}Xe	3.998(32)	——	5.735(27)	2.096(15)		
^{120}Ba	3.87(30)	——	5.39(30)	1.73(30)		
^{124}Ce	3.55(36)#	——	4.89(30)#	1.55(42)#		
^{128}Nd	3.28(28)#	——	4.29(20)#	1.96(36)#		
^{132}Sm	2.66(36)#	——	3.12(30)#	2.97(36)#		
^{136}Gd	2.23(36)#	——	2.29(36)#	3.63(42)#		
^{140}Dy	1.99(50)#	——	1.75(45)#	3.84(50)#		
^{144}Er	1.85(36)#	——	1.07(75)#	3.80(45)#		
^{148}Yb	1.54(40)#	——	0.49(40)#	3.95(45)#		
^{152}Hf						
^{156}W						
^{160}Os				7.724(15)*	100%	[**2023Br10**]
^{160m}Os				9.18(10)*	100%	[**2023Br10**]

* Deduced from α energy [2023Br10].

Table 3
direct α emission from ^{160}Os*, $J^\pi = 0^+$, $T_{1/2} = 97^{+97}_{-32}$ μs, BR_α = 100%.

E_α(c.m.)	E_α(lab)	I_α(abs)%	J^π_f	$E_{daughter}$(^{156}W)	coincident γ-rays	R$_0$ (fm)]	HF
7.274(15)	7.092(15)	100%	0^+	0.0	——	1.5597(29)	$1.8^{+1.8}_{-0.6}$

* All values from [2003BrXX].

Table 4
direct α emission from ^{160m}Os*, Ex. = 1.844(18) MeV, $J^\pi = 8^+$, $T_{1/2} = 41^{+15}_{-9}$, BR_α = 100%.

E_α(c.m.)	E_α(lab)	I_α(abs)%	J^π_f	$E_{daughter}$(^{156}W)	coincident γ-rays	R$_0$ (fm)]	HF
9.118(10)	8.890(10)	100%	0^+	0.0	——	1.5597(29)	$2.6(10) \times 10^4$

* All values from [2003BrXX].

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