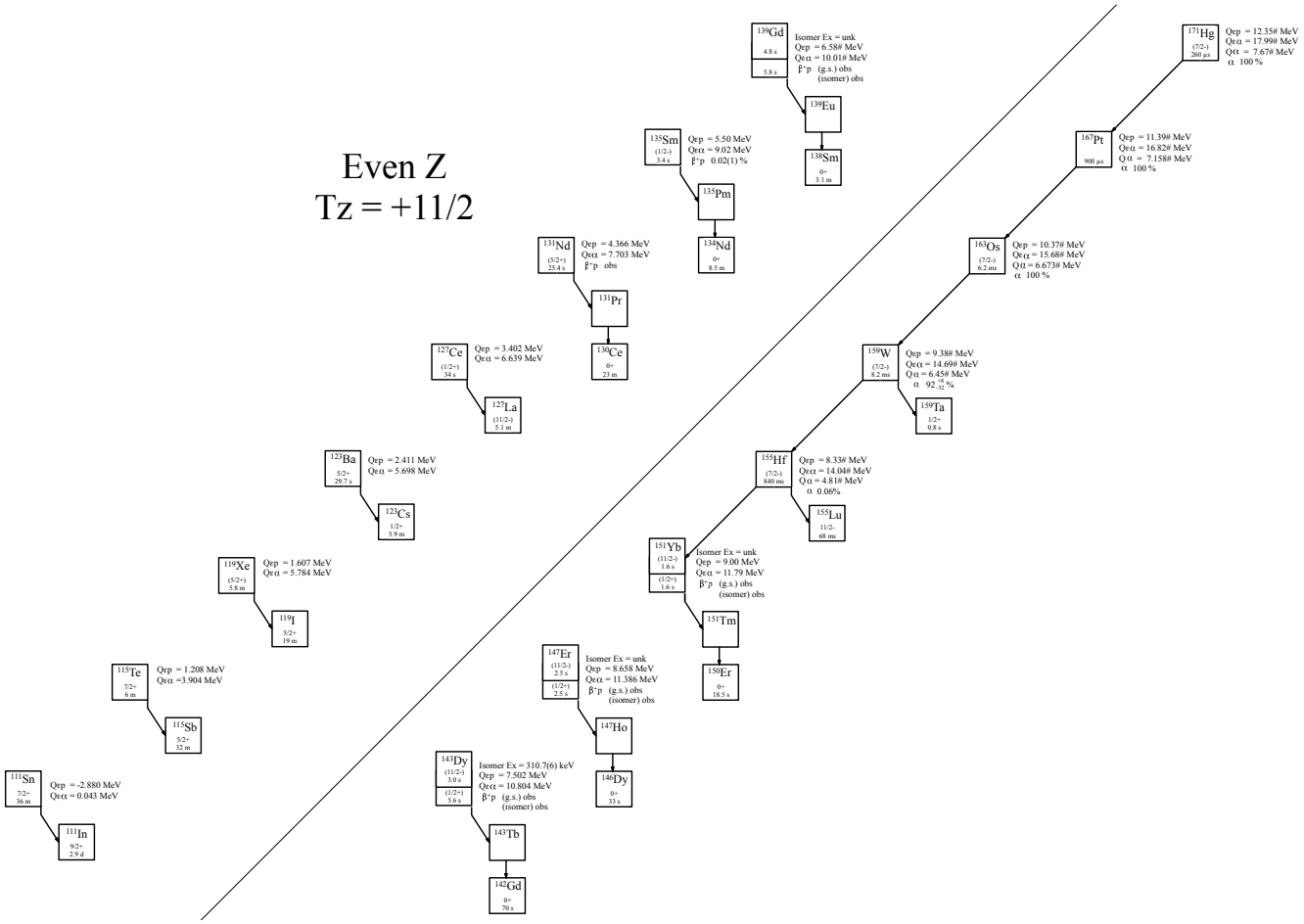

Fig. 1: Known experimental values for heavy particle emission of the even-Z T_z= +11/2 nuclei.

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Table 1
Observed and predicted β-delayed particle emission from the even-Z, T_z = +11/2 nuclei. Unless otherwise stated, all Q-values are taken from [2021Wa16] or deduced from values therein. J^π values for ^{111}Sn, ^{115}Te, ^{119}Xe, ^{123}Ba, ^{127}Ce are taken from ENSDF.

Nuclide	Ex	J^π	$T_{1/2}$	Q_ε	$Q_{\varepsilon p}$	$BR_{\beta p}$	$Q_{\varepsilon 2p}$	$Q_{\varepsilon \alpha}$	Experimental
^{111}Sn		$7/2^+$	35.8(8) m	2.453(6)	-2.880(5)	—	-11.797(5)	0.043(6)	[**1969Sh11**]
^{115}Te		$7/2^+$	6.0(1) m	4.940(30)	1.208(28)		-7.274(28)	3.904(28)	[**1972Sh37**]
^{119}Xe		$(5/2^+)$	5.8(3) m	4.983(24)	1.607(21)		-4.733(13)	5.784(19)	[**1976Be61**]
^{123}Ba		$(5/2^+)$	2.4(4) m*	5.389(17)	2.411(16)		-3.987(13)	5.698(25)	[**1975Ar31, 1962Pr09**]
^{127}Ce		$(1/2^+)$	34(2) s	5.920(40)	3.402(31)		-2.468(30)	6.639(31)	[**1996Ge07**]
^{131}Nd		$(5/2^+)$	25.5(10) s**	6.530(50)	4.366(39)	obs	-1.022(35)	7.703(38)	[**1986Wi15, 1999Ga41, 1993Al03**,1977Bo02]
^{135}Sm		$(3/2^+, 5/2^+)$	10.3(5) s	7.21(18)	5.50(16)	0.02(1)%	0.50(16)	9.02(16)	[**1989Vi04**, 1977Bo02]
^{139}Gd			5.8(9) s	7.77(20)#	6.58(20)#	obs	1.86(20)#	10.01(21)#	[**1999Xi04, 1983Ni05**]
^{139m}Gd	x		4.8(9) s	7.77(20)#+x	6.58(20)#+x	obs	1.86(20)#+x	10.01(21)#+x	[**1999Xi04, 1983Ni05**]
^{143}Dy		$(1/2^+)$	5.6(10) s	8.250(50)	7.502(31)	obs	3.179(18)	10.804(19)	[**2003Xu04**, 1984Ni03, 1983Ni05]
^{143m}Dy	0.3107(6)	$(11/2^-)$	3.0(3) s	8.561(50)	7.833(31)	obs	3.1490(18)	11.115(19)	[**2003Xu04**]
^{147}Er		$(1/2^+)$	≈2.5 s	9.150(40)	8.658(39)	obs	5.21(12)	11.386(64)	[**2010Ma20**, 2011MaZL, 2010Ma27,1988WiZN, 1987ToZU, 1984ScZT]
^{147m}Er	x	$(11/2^-)$	2.5(2) s	9.150(40)+x	8.658(39)+x	obs	5.21(12)+x	11.386(64)+x	[**2010Ma20**, 2011MaZL, 2010Ma27, 1988WiZN, 1987ToZU, 1984ScZT]
^{151}Yb		$(1/2^+)$	1.6(1) s	9.23(30)	9.00(30)	obs	5.53(30)	11.79(30)	[**1989Ni02**, 1986To12]
^{151m}Yb	x	$(11/2^-)$	1.6(1) s	9.23(30)+x	9.00(30)+x	obs	5.53(30)+x	11.79(30)+x	[**1989Ni02**, 1986To12]
^{155}Hf		$(7/2^-)$	840(30) ms	8.24(30)#	8.33(30)#		5.09(30)#	14.04(30)#	[**1981HoZM, 2011Sa59**]
^{159}W		$(7/2^-)$	8.2(7) ms	9.01(30)#	9.38(30)#		6.43(30)#	14.69(30)	[**1996Pa01**]
^{163}Os		$(7/2^-)$	$6.2^{+1.3}_{-0.9}$ms	9.67(30)#	10.37(30)#		7.86(30)#	15.68(30)#	[**2019Hi06**
^{167}Pt			0.90(13) ms***	10.32(31)#	11.39(31)#		9.33(31)#	16.82(31)	[**2019Hi06, 1996Pa01, 1996Bi07**]
^{171}Hg			59^{+36}_{-16} μs	10.90(31)#	12.35(31)#		10.86(31)#	17.99(31)	[2004Ke06]

* Weighted average of 2.7(4) m [1975Ar31] and 2.0(5) m [1962Pr09].
** Weighted average of 26.6(17) s [1999Ga41], and 25.0(12) s [1993Al03].
*** Weighted average of 1.1(2) ms [2019Hi06], 0.9(3) ms [2004Ke06], and 0.91(16) ms [1996Bi07].

Table 2
Particle emission from the even-Z, T_z = +11/2 nuclei. Unless otherwise stated, all Q-values and separation energies are taken from [2021Wa16] or deduced from values therein.

Nuclide	S_p	S_{2p}	Q_α	BR_α	Experimental
^{111}Sn	6.758(13)	12.012(6)	-1.373(6)	—	
^{115}Te	4.855(34)	8.313(28)	1.451(28)		
^{119}Xe	5.112(22)	8.277(17)	0.843(30)		
^{123}Ba	4.799(36)	7.752(16)	0.715(16)		
^{127}Ce	4.295(95)	6.888(31)	1.251(31)		
^{131}Nd	3.882(70)	6.058(39)	1.786(40)		
^{135}Sm	3.38(16)	5.10(16)	2.49(16)		
^{139}Gd	3.17(20)#	4.22(20)#	2.80(25)#		
^{139m}Gd	3.17(20)#-x	4.22(20)#-x	2.80(25)#+x		
^{143}Dy	2.90(70)	3.52(24)	3.04(20)#		
^{143m}Dy	2.59(70)	3.21(24)	3.35(20)#		
^{147}Er	2.659(39)	2.94(39)	3.136(40)		
^{147m}Er	2.659(39)-x	2.94(39)-x	3.136(40)+x		
^{151}Yb	2.34(36)#	2.38(30)	2.64(30)		
^{151m}Yb*	2.34(36)#-x	2.38(30)-x	2.64(30)+x		
^{155}Hf	1.93(36)#	1.73(36)#	4.81(43)#	0.06%	[**1981HoZM**]
^{159}W	1.605(36)#	1.16(36)#	6.451(4)	92^{+8}_{-23}%	[**1996Pa01, 1981Ho10**, 2019Hi06, 2011Sa59, 1981HoZM]
^{163}Os	1.17(36)#	0.41(36)#	6.673(7)	100%	[**2019Hi06, 1996Pa01**, 1996Bi07, 1981Ho10, 2004Ke06]
^{167}Pt	0.74(37)#	-0.42(37)#	7.160(60)	100%	[**2019Hi06, 1996Pa01, 1996Bi07**, 1981Ho10
^{171}Hg	0.245(37)#	-1.23(37)#	7.668(15)	100%	[**2004Ke06**]

Table 3
direct α emission from ^{155}Hf*, J^{π} = (7/2$^-$), $T_{1/2}$ = 840(30) ms**, BR_{α} = 0.06 %.

E_{α}(c.m.)	E_{α}(lab)	I_{α}(abs)	J^{π}_f	$E_{daughter}$(^{151}Yb)	coincident γ-rays	R_0 (fm)	HF
4.900	4.774	0.06%	(1/2$^+$)	0.0	——		

* All values from [1981HoZM], except where noted.
** [2011Sa59].

Table 4
direct α emission from ^{159}W*, J^{π} = (7/2$^-$), $T_{1/2}$ = 8.2(7) ms, $BR_{\alpha} = 92^{+8}_{-23}$ %.

E_{α}(c.m.)	E_{α}(lab)	I_p(abs)	J^{π}_f	$E_{daughter}$(^{155}Hf)	coincident γ-rays	R_0 (fm)	HF
6.457(5)	6.295(5)**	92^{+8}_{-23} %	(7/2$^-$)	0.0	——	1.5566(82)	$2.2^{+0.5}_{-0.4}$

* All values from [1996Pa01].
** Weighted average of 6.292(5) MeV [1996Pa01] and 6.299(6) MeV [1981Ho10].

Table 5
direct α emission from ^{163}Os*, J^{π} = (7/2$^-$), $T_{1/2} = 6.2^{+1.3}_{-0.9}$ms, BR_{α} = 100%.

E_{α}(c.m.)	E_{α}(lab)	I_p(abs)	J^{π}_f	$E_{daughter}$(^{159}W)	coincident γ-rays	R_0 (fm)	HF
6.666(12)	6.503(12)	100%	(7/2$^-$)	0.0	——	1.5537(37)	1.28(31)

* All values from [2019Hi06].
** Weighted average of 6.512(19) MeV [1996Pa01] and 6.499(12) keV [2019Hi06].

Table 6
direct α emission from ^{167}Pt, J^{π} = , $T_{1/2}$ = 0.90(13) ms**, BR_{α} = 100%.

E_{α}(c.m.)	E_{α}(lab)	I_p(abs)	J^{π}_f	$E_{daughter}$(^{163}Os)	coincident γ-rays	R_0 (fm)	HF
7.163(7)	6.983(7)**	100%	(7/2$^-$)	0.0	——	1.555(10)	$1.5^{+0.4}_{-0.3}$

* Weighted average of 1.1(2) ms [2019Hi06], 0.9(3) ms [2004Ke06], and 0.91(16) ms [1996Bi07].
** Weighted average of 6.985(8) MeV [2019Hi06], 6.979(7) [2004Ke06], and 6.988(10) MeV [1996Bi07].

Table 7
direct α emission from ^{171}Hg*, J^{π} = , $T_{1/2} = 59^{+36}_{-16}$ μs, BR_{α} = 100 %.

E_{α}(c.m.)	E_{α}(lab)	I_p(abs)	J^{π}_f	$E_{daughter}$(^{167}Pt)	coincident γ-rays	R_0 (fm)	HF
7.667(12)	7.488(12)	100%		0.0	——	1.541(24)	$0.5^{+0.5}_{-0.4}$

* All values from [2004Ke06].

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