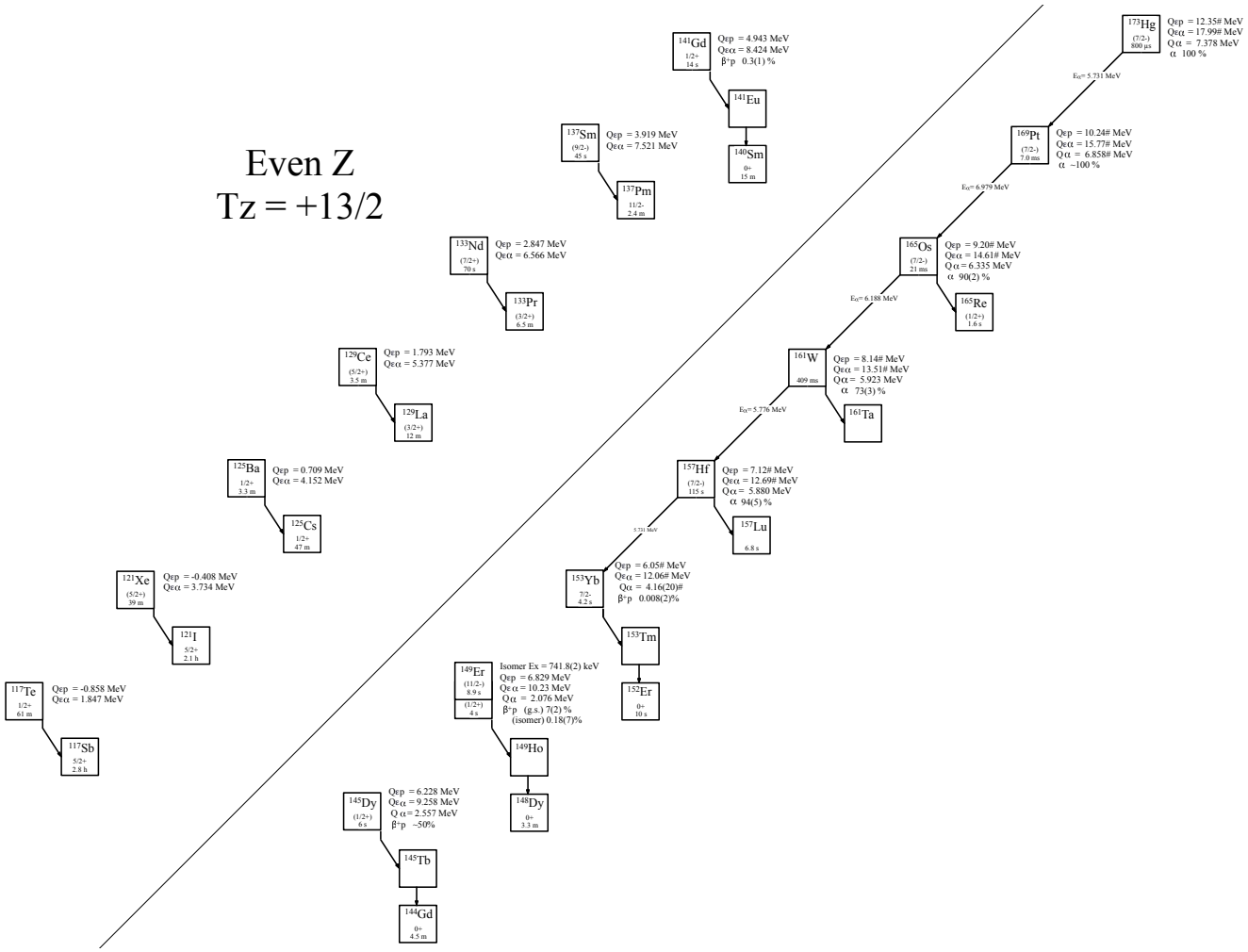

Fig. 1: Known experimental values for heavy particle emission of the even-Z T_z= +13/2 nuclei.

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Table 1
Observed and predicted β-delayed particle emission from the even-Z, T_z = +13/2 nuclei. Unless otherwise stated, all Q-values are taken from [2021Wa16] or deduced from values therein.

Nuclide	Ex	J^π	$T_{1/2}$	Q_ε	$Q_{\varepsilon p}$	$BR_{\beta p}$	$Q_{\varepsilon 2p}$	$Q_{\varepsilon\alpha}$	Experimental
^{117}Te		$1/2^+$	61(2) m	3.544(13)	-0.858(13)	——	-10.137(13)	1.847(13)	[**1961Fi05**]
^{121}Xe		$(5/2^+)$	38.8(6) m	3.765(11)	-0.408(10)	——	-7.583(12)	3.734(13)	[**1969Bu07**]
^{125}Ba		$1/2^+$	3.3(4) m*	4.421(13)	0.709(11)		-6.304(12)	4.152(12)	[**1975Ar31, 1968Da09**]
^{129}Ce		$(5/2^+)$	3.5(3) m	5.040(40)	1.793(28)		-4.625(28)	5.377(29)	[**1993Al03**]
^{133}Nd		$(7/2^+)$	70(10) s	5.610(50)	2.847(51)		-3.141(54)	6.566(51)	[**1977Bo02**]
^{137}Sm		$(9/2^-)$	45(1) s	6.080(30)	3.919(31)		-1.634(31)	7.521(31)	[**1983AlZO**]
^{141}Gd		$1/2^+$	14(4) s	6.701(23)	4.943(23)	0.3(1)%	-0.301(24)	8.424(24)	[**1989Gi06**, 1986Wi15]
^{145}Dy		$(1/2^+)$	6(2) s	8.16(11)	6.228(29)	≈50%	1.421(13)	9.258(14)	[**1993To04**, 1984ScZT]
^{149}Er		$(1/2^+)$	4(2) s	7.900(30)	6.829(29)	7(2)%	2.423(29)	10.23(11)	[**1989Fi01**, 1984ScZT]
^{149m}Er*	0.7418(2)	$(11/2^-)$	8.9(2) s	8.642(30)	7.571(29)	0.18(7)%	3.165(29)	10.97(11)	[**1989Fi01**, 1984To07, 1984ScZT]
^{153}Yb		$7/2^-$	4.2(2) s	6.81(20)#	6.05(20)#	0.008(2)%	1.89(20)#	12.06(20)#	[**1988Wi05**]
^{157}Hf		$(7/2^-)$	115(1) s	7.59(20)#	7.12(20)#		3.19(20)#	12.69(20)#	[**1996Pa01**]
^{161}W			409(18) ms	8.27(20)#	8.14(20)#		4.62(20)#	13.51(20)#	[**1996Pa01**]
^{165}Os		$(7/2^-)$	21(1) ms	8.91(20)#	9.20(20)#		6.21(20)#	14.61(20)#	[**1996Pa01**]
^{169}Pt		$(7/2^-)$	7.0(2) ms	9.63(20)#	10.24(20)#		7.79(20)#	15.77(20)#	[**2004Ke04**]
^{173}Hg		$(7/2^-)$	0.80(8) ms	10.17(20)#	11.16(20)#		9.17(20)#	17.001(20)#	[**2012Od01**]

* Weighted average of 3.5(4) m [1975Ar31] and 3.0(5) m 1968Da09].

Table 2
Particle emission from the even-Z, T_z = +13/2 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
^{117}Te	5.562(14)	9.640(13)	0.808(14)		
^{121}Xe	6.023(18)	9.876(13)	0.190(17)		
^{125}Ba	5.217(14)	8.999(15)	0.387(15)		
^{129}Ce	4.951(61)	8.047(30)	0.957(30)		
^{133}Nd	4.394(55)	7.202(57)	1.530(54)		
^{137}Sm	4.111(75)	6.356(34)	1.916(55)		
^{141}Gd	3.527(55)	5.422(23)	2.343(35)		
^{145}Dy	3.163(29)	4.59(20)	2.557(21)		
^{149}Er	3.039(88)	4.12(29)	2.076(29)		
^{149m}Er	3.781(88)	4.86(29)	2.818(29)		
^{153}Yb	2.73(21)#	3.47(20)#	4.16(20)#		
^{157}Hf	2.44(21)#	2.93(20)#	5.880(3)	94(5)%*	[**1996Pa01. 1979Ho10**, 1989Wo02, 1981HoZM] 1973Ea01, 1965Ma14]
^{161}W	1.972(208)#	2.23(20)#	5.923(4)	73(3)%	[**1996Pa01. 1981Ho10**, 1989Ho02, 1981HoZM]
^{165}Os	1.563(208)#	1.42(21)#	6.335(6)	90(2)%	[**2008Bi15, 1996Pa01**. 2013Dr06, 2002Pa03 [1997Da07, 1991Se01, 1981Ho10, 1978Ca11, 1978CaZF, 1977Ca23]
^{169}Pt	1.087(208)#	0.54(22)#	6.858(5)	≈ 100%	[**2004Ke06, 1999Se14**, 2012Od01, 2009Go16] [2008Bi15, 1996Pa01, 1981Ho10]
^{173}Hg	0.632(208)#	-0.23(22)#	7.378(4)	100%	[**2012Od01**, 2009Sa27, 2004Ke04, 1999Se14] [1998NiZW]

* Weighted average of 95(5)% [1996Pa01] and 91(7)% [1979Ho10].

Table 3
direct α emission from ^{157}Hf, $T_{1/2}$= 115(1) s*, BR_α = 94(5)%**.

E_α(c.m.)	E_α(lab)	I_α(abs)	$E_{daughter}$(^{153}Yb)	coincident γ-rays	R_0 (fm)	HF
5.881(4)	5.731(4)***	94(5)%**	0.0	——	1.5573(31)	1643(14)

* [1996Pa01]
** Weighted average of 95(5)% [1996Pa01] and 91(7)% [1979Ho10].
** Weighted average of 5.729(4) MeV [1996Pa01] and 5.735(5) MeV [1979Ho10].

Table 4
direct α emission from ^{161}W*, $T_{1/2}$= 409(18) ms, BR_α = 73(3)%.

E_α(c.m.)	E_α(lab)	I_α(abs)	$E_{daughter}$(^{157}Hf)	coincident γ-rays	R_0 (fm)	HF
5.923(5)	5.776(5)**	73(3)%	0.0	——	1.5636(62)	$1.80^{+0.28}_{-0.24}$

* All values from [1996Pa01], except where noted.
** Weighted average of 5.775(5) MeV [1996Pa01] and 5.777(5) MeV [1979Ho10], adjusted to 5.776(5) in [1991Ry01].

Table 5
direct α emission from ^{165}Os*, $T_{1/2}$= 21(1) ms, BR_α = 90(2)%**.

E_α(c.m.)	E_α(lab)	I_α(abs)	$E_{daughter}$(^{161}W)	coincident γ-ray	R_0 (fm)	HF
6.342(7)	6.188(7)	90(2)%**	0.0	——	1.5570(38)	0.41(4)

* All values from [1996Pa01], except where noted.
** [2008Bi15].

Table 6
direct α emission from ^{169}Pt*, $T_{1/2}$= 7.0(2) ms, BR_α = $\approx$ 100%**.

E_α(c.m.)	E_α(lab)	I_α(abs)	$E_{daughter}$(^{165}Os)	coincident γ-rays	R_0 (fm)	HF
6.853(3)	6.691(3)	$\approx$ 100%**	0.0	——	1.5602(24)	1.37(8)

* All values from [2004Ke06], except where noted.
** [1999Se14].

Table 7
direct α emission from ^{173}Hg*, $T_{1/2}$= 800(80) μs, BR_α = 100%**.

E_α(c.m.)	E_α(lab)	I_α(abs)	$E_{daughter}$(^{169}Pt)	coincident γ-rays	R_0 (fm)	HF
7.379(5)	7.208(5)	100%	0.0	——	1.5524(75)	$1.22^{+0.23}_{-0.21}$

* All values from [2010Od01].

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