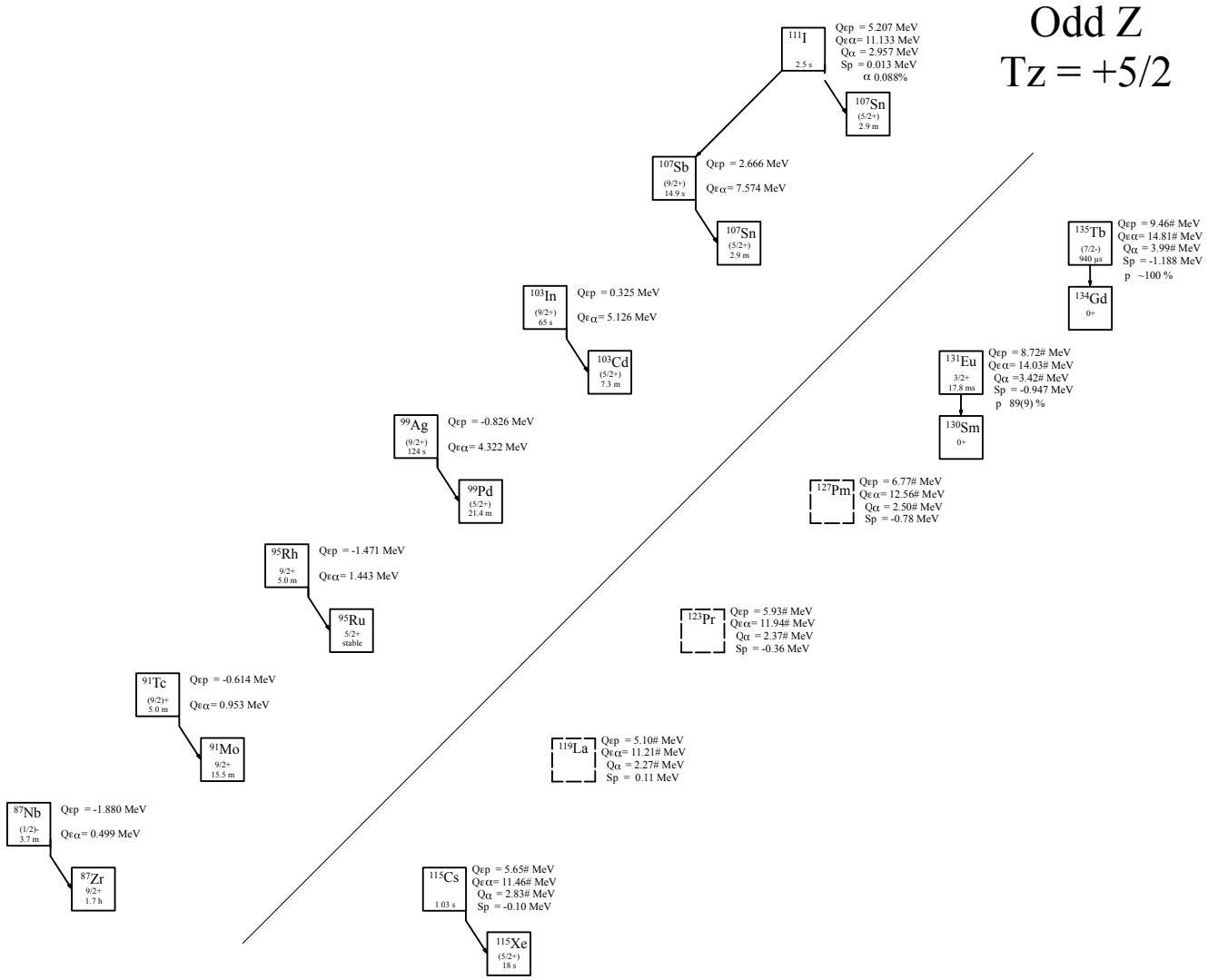

Fig. 1: Known experimental values for heavy particle emission of the odd-Z T_z= +5/2 nuclei.

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Table 1
Observed and predicted β-delayed particle emission from the odd-Z, T_z = +5/2 nuclei. Unless otherwise stated, all Q-values are taken from [2021Wa16] or deduced from values therein.

Nuclide	J^π	$T_{1/2}$	Q_ε	$Q_{\varepsilon p}$	$BR_{\beta p}$	$Q_{\varepsilon 2p}$	$Q_{\varepsilon\alpha}$	$BR_{\varepsilon\alpha}$	Experimental
^{87}Nb	$(1/2)^-$	3.7(1) m	5.473(8)	-1.880(16)	——	-7.349(8)	0.499(10)		[**1974Vo03**]
^{91}Tc	$(9/2)^+$	3.14(2) m	6.222(7)	-0.614(4)	——	-5.887(4)	0.953(5)		[**1976De37**]
^{95}Rh	$9/2^+$	5.02(10) m	5.117(10)	-1.471(6)	——	-6.112(4)	1.443(7)		[**1975We03**]
^{99}Ag	$(9/2)^+$	124(3) s	5.470(8)	-0.826(13)	——	-5.169(7)	4.322(12)		[**1981Hu03**]
^{103}In	$(9/2^+)$	65(7) s	6.019(9)	0.325(12)		-3.778(10)	5.126(10)		[**1978Lh01**]
^{107}Sb	$5/2^+$	4.0(2) s	7.859(7)	2.666(13)		-0.897(4)	7.574(4)		[**2002Re14**]
^{111}I		2.5(2) s	8.634(8)	5.207(8)		3.098(9)	11.133(7)		[**1977Ki11**]
^{115}Cs		1.03(10) s	8.96(10)#	5.65(10)#	0.2(1)%	4.07(10)#	11.46(10)#	0.010(5)%	[**2023DaXX**, 2020DaZX, 1978Da07]
^{119}La			9.57(36)#	5.10(30)#		4.59(30)#	11.21(30)#		
^{123}Pr			10.06(50)#	7.02(50)#		5.93(42)#	11.94(45)#		
^{127}Pm			10.60(50)#	7.73(45)#		6.77(45)#	12.56(50)#		
^{131}Eu	$3/2^+$	17.8(19) ms	10.82(57)#	8.72(45)#		8.34(45)#	14.03(50)#		[**1999So17**]
^{135}Tb	$(7/2^-)$	$0.94^{+0.33}_{-0.22}$ ms	11.20(57)#	9.46(50)#		9.60(50)#	14.81(57)#		[**2004Wo07**]

Table 2
Particle emission from the odd-Z, T_z = +5/2 nuclei. Unless otherwise stated, all Q-values and separation energies are taken from [2021Wa16] or deduced from values therein.

Nuclide	S_p	BR_{1p}	S_{2p}	Q_α	BR_α	Experimental
^{87}Nb	3.194(8)	——	10.610(20)	-4.094(20)	——	
^{91}Tc	3.103(4)	——	9.939(24)	-4.537(7)	——	
^{95}Rh	3.046(5)	——	9.312(4)	-4.779(5)	——	
^{99}Ag	2.680(8)	——	8.690(40)	-0.797(7)	——	
^{103}In	2.262(9)	——	7.876(10)	-0.345(11)	——	
^{107}Sb	0.589(7)	——	5.591(11)	1.554(10)		
^{111}I	0.013(8)	——	4.192(12)	3.270(10)*	0.088%	[**1979Sc22**, 1978Ro19, 1977Ki11, 1993HaZS, 1981Sc17]
^{115}Cs	-0.10(10)#		3.16(10)#	2.83(10)#		
^{119}La	0.11(36)#		3.10(31)#	2.26(32)#		
^{123}Pr	-0.36(57)#		2.62(50)#	2.37(50)#		
^{127}Pm	-0.78(50)#		1.82(50)#	2.50(57)#		
^{131}Eu	-0.947(5)	89(9)%	0.86(50)#	3.42(57)#		[**1999So17**, 1998Da03, 2000SeZX]
^{135}Tb	-1.188(7)	≈100%	0.40(50)#	3.99(57)#		[**2004Wo07**, 2005Se21, 2003SeZZ, 2002DaZV]

* Deduced from α-decay; 2.957(12) MeV in [2021Wa16].

Table 3
direct α emission from ^{111}I*, J^π = , $T_{1/2}$ = 2.5(2) s**, BR_α = ≈ 0.088%.

E_α(c.m.)	E_α(lab)	I_α(rel)	I_α(abs)	J^π_f	$E_{daughter}$(^{107}Sb)	coincident γ-rays	R_0 (fm)	HF
3.270(10)	3.152(10)	100%	0.088%	$5/2^+$	0	——	1.655(91)	20^{+5}_{-2}

* All values from [1979Sc22], except where noted.
** [1977Ki11]

Table 4
direct p emission from ^{131}Eu*, $T_{1/2}$ = 17.8(19) ms, BR_p = 89(9)%.

E_p(c.m.)	E_p(lab)	I_p(rel)	I_p(abs)	$E_{daughter}$(^{130}Sm)	coincident γ-rays
0.817(7)	0.811(7)	32(6)%	28(7)%	0.212	0.212
0.939(7)	0.932(7)	100(6)%	89(11)%	0.0	——

* All values from [1999So17].

Table 5
direct p emission from ^{135}Tb*, $T_{1/2} = 0.94^{+0.33}_{-0.22}$ ms, $BR_p = \approx 100\%$.

E_p(c.m.)	E_p(lab)	I_p(rel)	I_p(abs)	$E_{daughter}$(^{134}Gd)	coincident γ-rays
1.188(7)	1.179(7)	100%	$\approx$ 100%	0.0	——

* All values from [2004Wo07].

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