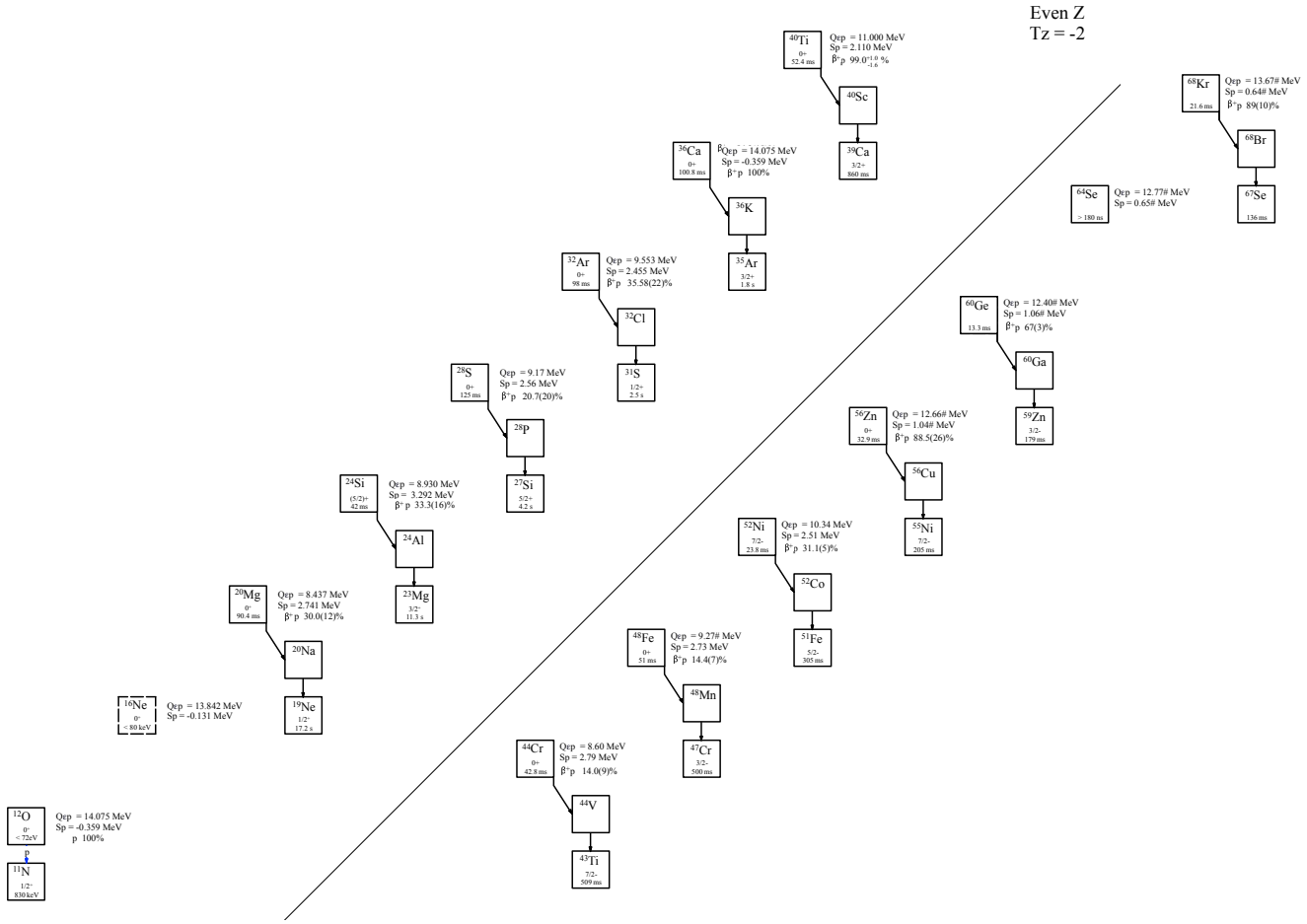

Fig. 1: Known experimental values for heavy particle emission of the even-Z T_z= -2 nuclei.

Last updated 3/17/23

Table 1
Observed and predicted β-delayed particle emission from the even Z, T_z = -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	$Q_{\varepsilon p}$	$BR_{\beta p}$	$Q_{\varepsilon 2p}$	$BR_{\beta 2p}$	$Q_{\varepsilon 3p}$	$Q_{\varepsilon \alpha}$	Experimental
^{12}O	0^+	< 72 keV	14.675(12)	14.075(12)		5.384(12)		-1.202(12)	6.666(12)	[**2012Ja11**]
^{16}Ne	0^+	< 80 keV	13.312(21)	13.842(20)		6.546(20)		-1.005(20)	4.224(20)	[**2008Mu13**]
^{20}Mg	0^+	90.4(6) ms	10.627(2)	8.437(2)	30.0(12)%	2.027(2)		-3.580(2)	4.378(5)	[**1995Pi03**, 2019Gl02, 2016Lu13, 2012Wa15]
^{24}Si	0^+	141.4(15) ms	10.794(19)	8.930(19)	33.3(16)%	1.349(19)		-5.390(19)	1.469(19)	[**2011Ic06**, 2020Lo05, 2016Su22, 2015Su15, 2001Ba07, 1998Cz01, 1997Cz02]
^{28}S	0^+	125(10) ms	11.22(16)	9.17(16)	20.7(20)%	1.702(160)		-4.604(160)	1.69(16)	[**1989Po10**]
^{32}Ar	0^+	98(2) ms	11.134(2)	9.553(2)	35.58(22)%	3.423(2)		-2.172(2)	2.523(2)	[**2021Bl02, 2008Bh08, 1985Bj01**, 2002Fy01, 2020Ar04, 1999Ad10, 1999Th09, 1993Sc16, 1985Bj01, 1977Ha29]
^{36}Ca	0^+	100.8(20) ms	10.970(40)	9.310(40)	54.3(18)%	3.412(40)		-1.731(40)	4.46(4)	[**2015Su01**, 2007Do17, 2001Lo11, 1997Tr05, 1995Tr02]
^{40}Ti	0^+	52.4(3) ms	11.530(70)	11.000(70)	99.0^{+10}_{-16}%	5.233(70)		0.091(70)	6.002(70)	[**2007Do17**, 2001Gi01, 1990De43, 1998Bh12, 1998Li46, 1998Le45, 1997Tr11, 1997Li25]
^{44}Cr	0^+	42.8(6) ms	10.390(50)	8.600(50)	14.0(9)%	4.123(50)		-0.149(50)	4.678(50)	[**2007Do17**, 2020Fu05, 2014Po05]
^{48}Fe	0^+	51(3) ms[b]	11.290(90)	9.270(90)#	14.4(7)%	4.488(90)		-0.867(90)	3.373(90)	[**2016Or03, 2014Po05**, 2016Ru04] [**2007Do17**, 1996Fa09]
^{52}Ni	0^+	42.8(3) ms	11.780(80)	10.340(80)	31.1(5)%	5.489(80)		0.905(80)	4.312(80)	[**2016Or03**, 2007Do17, 1994Fa06]
^{56}Zn	0^+	32.9(8) ms	13.24(40)#	12.66(40)#	88.5(26)%	8.04(40)	6.55(40)#	3.69(40)		[**2016Or03**, 2015Or02, 2014Or04, 2014Or03, 2007Do17]
^{60}Ge	0^+	25.0(3) ms	12.06(36)#	12.40(30)#	67(3)%	9.56(30)#	$<$14%	6.69(30)#	8.68(30)#	[**2021Or01**, 2016Ci01]
^{64}Se	0^+	$>$180 ns	12.67(54)#	12.77(50)#		10.55(50)#		7.62(50)#	10.31(54)#	[**2005St34**]
^{68}Kr	0^+	21.6(33) ms	13.17(56)#	13.67(51)#	89^{+11}_{-10}%	11.82(50)#		8.98(50)#	11.48(54)#	[**2017GoZT**, 2016Bl05]

Table 2
Particle emission from the even Z, T_z = -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}	BR_{2p}	Q_α	Experimental
^{12}O	-0.359(13)	-1.737(12)	100%	-5.476(22)	[**2012Ja11**]
^{16}Ne	-0.131(25)	-1.401(20)		-10.451(24)	
^{20}Mg	2.741(11)	2.418(2)	——	-8.934(21)	
^{24}Si	3.292(19)	3.433(19)	——	-9.157(20)	
^{28}S	2.56(16)	3.36(16)	——	-9.10(16)	
^{32}Ar	2.455(4)	2.719(2)	——	-8.70(16)	
^{36}Ca	2.57(4)	2.65(4)	——	-6.68(4)	
^{40}Ti	2.110(70)	1.510(70)	——	-4.970(80)	
^{44}Cr	2.790(70)	2.900(50)	——	-6.850(90)	
^{48}Fe	2.73(10)	3.110(90)	——	-7.010(110)	
^{52}Ni	2.51(10)	2.660(80)	——	-6.98(12)	
^{56}Zn	1.04(43)#	0.69(40)#	——	-5.26(41)#	
^{60}Ge	1.06(35)#	-0.19(30)#	——	-4.57(50)#	
^{64}Se	0.65(54)#	-0.70(52)#	——	-1.75(58)#	
^{68}Kr	0.64(40)#	-1.46(54)#	——	-1.19(71)#	

Table 3
β-p emission from ^{20}Mg[a], BR$_{\beta p}$ = 30.3(14)%*.

E_p(c.m.)	I_p(rel)%	I_p(abs)%	$E_{emitter}$ (^{20}Na)	$E_{daughter}$(^{19}Ne)[b]	coincident γ-rays[b]
0.805(2)[c]	100(3)	10.6(3)[c]	2.995(2)	0	——
1.067(18)[d]	6.6(9)	0.70(9)	4.793(18)	1.5360(4)	1.298, 0.238
1.210(250)[f]	0.14(3)	0.0149(35)	7.433(250)	4.0329(24)	4.033, 1.298, 0.238
1.423(16)[d]	0.4(1)	3.8(10)	3.855(10)	0.2383(1)	0.238
1.622(4)	18.0(28)	1.9(3)	4.087(4)	0.2751(1)	0.275
1.666(10)[c]	48(3)	5.1(3)[c]	3.855(10)	0	——
1.853(40)	0.3(2)	0.03(2)	5.533(17)	1.5360(4)	1.298, 0.238
1.905(5)	1.2(4)	0.13(4)	5.603(5)	1.5076(3)	1.232, 0.275
1.907(3)[c]	4.5(4)	0.48(4)[c]	4.097(3)	0	——
2.120(70)	1.03(7)	0.11(1)	5.817(19)	1.5076(3)	1.232, 0.275
2.335(14)[e]	5.2(7)	0.6(1)[e]	4.800(14)	0.2751(1)	0.275
2.344(18)	2.9(8)	0.31(8)	4.772(18)	0.2383(1)	0.238
2.560(14)	3.1(9)	0.33(9)	6.286(14)	1.5360(4)	1.298, 0.238
2.567(4)	21.7(19)	2.3(2)	4.758(4)	0	——
2.620(14)	3.8(19)	0.4(2)	6.318(14)	1.5076(3)	1.232, 0.275
2.700(230)[f]	2.0(1)	0.212(7)[f]	6.505(250)	1.6156(5)	1.616, 1.377, 1.341, 0.275, 0.238
2.782(13)	4.4(7)	0.47(7)	6.508(13)	1.5360(4)	1.298, 0.238
2.830(16)	0.95(28)	0.10(3)	6.528(16)	1.5076(3)	1.232, 0.275
3.033(12)	4.4(8)	0.46(8)	5.498(12)	0.2751(1)	0.275
3.096(17)	5.1(8)	0.54(8)	5.532(17)	0.2383(1)	0.238
3.389(19)	3.5(6)	0.37(6)	5.817(19)	0.2383(1)	0.238
3.389(18)	0.76(19)	0.08(2)	5.854(18)	0.2751(1)	0.275
3.813(14)[c]	2.7(8)	0.28(8)[c]	6.281(14)	0.2751(1)	0.275
3.820(12)	4.2(5)	0.44(5)	6.242(12)	0.2383(1)	0.238
4.033(12)	2.9(7)	0.31(7)	6.496(4)	0.2751(1)	0.275
4.051(2)	8.3(9)	0.9(1)[e]	6.242(4)	0	——
4.053(12)	2.8(19)	0.3(2)	6.481(12)	0.2383(1)	0.238
4.305(4)[c]	9.7(6)	1.02(7)[c]	6.496(4)	0	——
4.347(20)	2.6(8)	0.27(8)	6.775(20)	0.2383(1)	0.238
4.544(15)	3.0(1)	0.319(10)	6.734(15)	0	——
4.993(16)	0.75(28)	0.08(3)	7.183(16)	0	——

[a] Values taken from [2016Lu13], except where noted.
[b] Values from adopted levels in ENSDF [1995Ti07].
[c] Weighted average of [2016Lu13], [1995Pi03] and [2017Su05].
[d] Weighted average of [1995Pi03] and [2017Su05].
[e] Weighted average of [2016Lu13] and [2017Su05].
[f] [2019Gl02].

Table 4
β-p emission from ^{24}Si, $T_{1/2}$ = 141.4(15) ms*, $BR_{\beta p}$ = 33.3(16)%**.

E_p(c.m.)[a]	I_p(rel)%	I_p(abs)%[b]	$E_{emitter}$ (^{24}Al)	$E_{daughter}$(^{23}Mg)[c]	coincident γ-rays[c]
1.125(15)	50(4)	5.7(4)	2.989(15)	0	——
1.497(13)	100(7)	11.3(8)	3.361(13)	0	——
1.723(13)	38(4)	4.3(4)	5.944(13)	2.3570(7)	0.451, 1.906, 2.358
2.021(10)	9.2(9)	1.0(1)	6.242(10)	2.3570(7)	0.451, 1.906, 2.358
2.515(9)	5.8(7)	0.65(8)	4.379(9)	0	——
2.826(7)	12(2)	1.4(2)	4.691(7)	0	——
3.104(8)	8.7(9)	0.98(10)	4.968(8)	0	——
3.510(10)[d]	6(1)	0.68(10)[d]	5.374(10)	0	——
3.938(26)[b]	9.4(18)	1.1(2)	5.802(26)	0	——
4.082(7)	59(5)	6.6(6)	5.947(7)	0	——
4.370(9)	15(2)	1.7(2)	6.234(9)	0	——
4.615(11)[d]	2.3(4)	0.26(4)[d]	6.479(11)	0	——
4.863(11)[d]	0.6(2)	0.07(2)[d]	6.727(11)	0	——

* Weighted average of 143.4(22)ms [2015Su15] and 140.5(15)ms [2011Ic06].
** [2011Ic06]
[a] Weighted average of [2015Su22, 2015Su15], [2009Ic05, 2011Ic06], [1998Ba53] and [1998Cz01], except where noted.
[b] Weighted average of [2015Su12] and [2009Ic05], except where noted.
[c] Values from adopted levels in ENSDF [2021Ba01].
[d] Only reported in [1998Ba53]. No I_p or energy error bars on the energy are assigned in the paper.
[e] Only reported in [2009Ic05].

Table 5
β-p emission from ^{28}S*, $T_{1/2}$ = 125(10) ms, $BR_{\beta p}$ = 20.7(20)%.

E_p(c.m.)	I_p(rel)	I_p(abs)	$E_{emitter}$ (^{25}Al)**	$E_{daughter}$(^{24}Mg)[@]	coincident γ-rays[@]
1.260(25)	20(3)	1.4(4)			
1.510(25)	30(5)	2.1(6)			
1.695(30)	24(3)	1.7(4)			
1.892(30)	19(3)	1.3(3)			
2.195(30)	15(3)	1.0(3)			
2.630(25)	22(3)	1.6(4)			
2.872(30)***	25(3)	1.75(4)	5.779(30)	0.9574(2)	0.957
3.095(20)***	100	7.0(15)	5.817(20)	0.7809(2)	0.781
3.570(30)	13(2)	0.9(2)			
3.835(20)***	28(3)	2.0(4)	5.750(20)	0	——

* All values taken from [1989Po10], except where noted.
** Calculated from proton energies and S_p (^{28}P) = 2052.2(12) keV [2021Wa16].
*** [1989Po10] list these three transitions as depopulating a 5.900(21) MeV IAS.
[@] Values from adopted levels in ENSDF [2011Ba29].

Table 6
β-p emission from ^{32}Ar, $T_{1/2}$ = 98(2) ms*, $BR_{\beta p}$ = 35.58(22)%**

E_p(c.m.)[a]	I_p(rel)%	I_p(abs)%[g]	$E_{emitter}$ (^{32}Cl)	$E_{daughter}$(^{31}S)[b]	coincident γ-rays[b]
0.6273(46)	1.876(39)	0.385(8)	2.2084(46)	0	——
0.9416(50)[c]	0.070(40)[c]	0.014(8)	3.7716(50)	1.24887(9)	1.2489(1)
1.2501(42)	1.557(112)	0.319(23)	4.0801(42)	1.24887(9)	1.2489(1)
1.731(12)[d]	0.143(65)[d]	0.029(13)	4.561(12)	1.24887(9)	1.2489(1)
2.1906(37)[e]	17.66(30)[e]	3.62(7)	3.7717(37)	0	——
2.2152(36)[f]	1.286(41)[f]	0.264(9)	5.0452(36)	1.24887(9)	1.2489(1)
2.4729(32)[f]	0.58(11)[f]	0.119(22)	5.3029(32)	1.24887(9)	1.2489(1)
2.5016(37)[e]	35.28(47)[e]	7.24(11)	4.0827(37)	0	——
2.5935(30)	3.26(25)	0.668(51)	5.4235(30)	1.24887(9)	1.2489(1)
2.7006(86)[d]	0.247(63)[d]	0.051(13)	5.5306(86)	1.24887(9)	1.2489(1)
2.8656(54)	0.429(80)	0.088(16)	5.6956(54)	1.24887(9)	1.2489(1)
3.2178(43)[e]	0.136(12)[e]	0.028(2)	4.7989(43)	0	——
3.218(11)[d]	0.090(22)[d]	0.018(5)	6.0483(11)	1.24887(9)	1.2489(1)
3.4621(22)	100	20.51(17)	5.0432(22)	0	——
3.6996(44)	0.270(34)	0.055(7)	6.5296(44)	1.24887(9)	1.2489(1)
3.722.3(82)[d]	0.394(58)[d]	0.081(12)	5.3034(82)	0	——
3.7675(37)	0.325(23)	0.067(5)	6.5975(37)	1.24887(9)	1.2489(1)
3.8481(44)[e]	0.413(46)[e]	0.085(9)	5.4292(44)	0	——
3.9052(39)[f]	0.300(98)[f]	0.062(20)	6.7352(39)	1.24887(9)	1.2489(1)
4.1208(46)	0.926(50)	0.190(10)	5.7019(46)	0	——
4.4825(41)	0.138(33)	0.028(7)	7.3125(41)	1.24887(9)	1.2489(1)
4.4838(30)	0.496(18)	0.102(4)	6.0649(30)	0	——
4.6728(30)	0.457(21)	0.094(4)	6.2539(30)	0	——
4.7754(32)	0.165(30)	0.034(6)	7.6054(32)	1.24887(9)	12489(1)
5.0246(43)	0.259(24)	0.053(5)	7.8546(43)	1.24887(9)	1.2489(1)
5.1391(89)	0.063(17)	0.013(4)	6.7202(89)	0	——
5.7403(40)	0.547(25)	0.112(5)	7.3214(40)	0	——
5.8683(85)	0.022(8)	0.005(2)	7.4494(85)	0	——
6.0116(60)	0.423(32)	0.087(7)	7.592(60)	0	——
6.2677(88)	0.109(8)	0.022(2)	7.8488(88)	0	——
6.572(13)	0.057(7)	0.012(1)	8.153(13)	0	——

* [1985Bj01]
** [2008Bh08]
[a] Values are a weighted average of [2021Bl02], [2008Bh08], and [1985Bj01] except as indicated.
[b] Values from adopted levels in ENSDF [2013Ou01].
[c] [2008Bh08]
[d] [2021Bl02]
[e] Weighted average of [2021Bl02] and [1985Bj01]
[f] Weighted average of [2021Bl02] and [2008Bh08]
[g] Absolute values were determined by setting the sum of the relative intensities equal to the measured β-p branching ratio. Note that if there are a significant amount of unobserved transitions in the measured β-p branching ratio, these values will be lower.

Table 7
β-p emission from ^{36}Ca*, $T_{1/2}$ = 100.8(20) ms**, $BR_{\beta p}$ = 54.3(18)%

E_p(c.m.)[a]	I_p(rel)%	I_p(abs)%	$E_{emitter}$ (^{36}K)[b]	$E_{daughter}$(^{35}Ar)[c]	coincident γ-rays[c]
1.444(8)	<10.8	<4.1	4.290(23)	1.184	1.184
1.704(23)	25(3)	9.3(8)	3.358(23)	0	——
2.628(8)	100(3)	37(1)	4.290(23)	0	——
2.798(23)	9.7(14)	3.5(5)	4.457(23)	0	——
3.011(37)	2.8(8)	1.0(3)	4.644(46)	0	——
3.591(23)	1.7(6)	0.6(2)	5.250(23)[d]	0	——
4.102(69)	2.5(6)	0.9(2)	5.761(69)[d]	0	——
4.274(46)	4.7(8)	1.7(3)	5.919(46)	0	——
5.136(69)	0.8(3)	0.3(1)	6.791(69)	0	——

* All values from [2001Lo11], except where noted.
** Weighted average of 100.0(24) [2015Su01], 100.1(23) [2007Do11], and 102(2) [1997Tr05].
[a] Calculated using $E_{emitter}$ energies from [2001Lo11] and S_p(^{36}K) = 1.658.9(8) [2021Wa16].
[b] Values taken from a weighted average of [2001Lo11] and [1997Tr05] except where noted.
[c] Values from adopted levels in ENSDF [2011Ch48].
[d] [2011Lo11]

Table 8
β-p emission from ^{40}Ti*, $T_{1/2}$ = 52.4(3) ms**, $BR_{\beta p}$ = 95.8(13)%**

E_p(c.m.)	I_p(rel)%	I_p(abs)%	$E_{emitter}$ (^{40}Sc) [a]	$E_{daughter}$(^{39}Ca)[c]	coincident γ-rays[c]
0.248(80)[b]	4.4(14)	1.3(4)[b]	3.246(80)	2.4685(9)	2.469
0.410(60)[b]	2.4(10)	0.7(3)[b]	3.408(60)	2.4685(9)	2.469
0.766(36)	1.6(6)	0.5(2)	3.764(36)	2.4685(9)	2.469
0.975(86)[b]	2.7(11)	0.8(3)[b]	4.531(86)	3.026(3)	3.026
1.139(20)	1.8(6)	0.53(18)	4.138(20)	2.4685(9)	2.469
1.359(7)	12(2)	3.6(6)	4.357(8)	2.4685(9)	2.469
1.649(17)	1.3(6)	0.38(19)	4.647(17)	2.4685(9)	2.469
1.745(6)	80(2)	23.8(6)	2.274(7)	0	——
1.896(14)	4.8(13)	1.4(4)	4.895(14)	2.4685(9)	2.469
2.007(21)	2.9(14)	0.86(34)	5.005(21)	2.4685(9)	2.469
2.079(28)	1.5(6)	0.44(17)	5.077(28)	2.4685(9)	2.469
2.215(6)	100(2)	29.8(7)	2.754(7)	0	——
2.401(10)	6.5(13)	1.95(41)	2.931(10)	0	——
2.607(16)	3.1(7)	0.9(2)	3.137(16)	0	——
2.676(60)[b]	3.5(14)	1.1(4)[b]	3.205(60)	0	——
2.798(16)	2.0(6)	0.58(17)	3.328(16)	0	——
3.033(47)	0.4(4)	0.1(1)	3511(40)	0	——
3.117(8)	5.8(7)	1.7(2)	3.647(9)	0	——
3.251(8)	7.0(10)	2.1(3)	3.781(9)	0	——
3.325(41)[d]	0.4(4)	0.1(1)	3.855(41)	0	——
3.531(21)	1.4(5)	0.43(14)	4.061(21)	0	——
3.576(25)	1.1(5)	0.33(16)	4.106(25)	0	——
3.732(8)	6.9(7)	2.1(2)	4.262(9)	0	——
3.830(7)	73(3)	22(1)	4.359(8)	0	——
3.987(11)	6.2(9)	1.9(3)	4.516(11)	0	——
4.120(10)	5.3(11)	1.6(3)	4.650(10)	0	——
4.291(18)	2.4(7)	0.7(2)	4.821(18)	0	——
4.483(23)	1.8(9)	0.53(26)	5.013(23)	0	——
4.547(31)	1.4(9)	0.42(27)	5.076(31)	0	——
4.689(28)[d]	0.4(4)	0.1(1)	5.219(28)	0	——
4.823(60)[b]	1.8(7)	0.55(21)[b]	5.352(60)	0	——
5.035(40)[b]	0.7(3)	0.20(7)[b]	5.564(40)	0	——
5.163(22)	0.8(3)	0.24(9)	5.693(22)	0	——
5.473(19)	0.7(2)	0.21(7)	6.002(19)	0	——
5.588(60)[b]	0.6(4)	0.17(10)[b]	6.117(60)	0	——
5.887(60)[b]	0.34(20)	0.10(6)[b]	6.417(60)	0	——

* Values are from [1998Bh12] except where indicated. Values from [1998Bh12] were preferentially used because of the better energy resolution than [1998Li46].

** [2007Do17]

[a] Calculated from proton energies and S_p (^{40}Sc) = 529.6(29) keV [2021Wa16].

[b] [1998Li46]

[c] Values from adopted levels in ENSDF [2006Si02].

[d] Transition is questionable, as I_p is consistent with zero.

Table 9
β-p emission from ^{44}Cr[a], $T_{1/2}$ = 42.8(6) ms, $BR_{\beta p}$ = 14.0(9)%

E_p	I_p(rel)%	I_p(abs)%	$E_{emitter}$ (^{44}V)[e]	$E_{daughter}$(^{43}Ti)
0.759(26)[b]	31(12)	0.6(2)[b]		
0.908(11)	100(15)	2.0(3)[c]	2.689(14)[d]	0
1.384(12)	63(19)	1.3(3)[c]		
1.741(15)	28(18)	0.6(3)[c]		

[a] Values from [2007Do17] except where indicated. Many of the delayed protons have not been measured resulting in a total intensity for individual protons to be lower than the total β^+-p intensity. Other experimental β^+-p reference: [1992Bo37].

[b] [2014Po05]

[c] Weighted average of [2007Do17] and [2014Po05]

[d] Assigned as the IAS [2007Do17]

[e] Calculated from proton energy and S_p (^{44}V) = 1781(9) keV [2021Wa16].

Table 10
β-p emission from ^{48}Fe*, $T_{1/2}$ = 51(3) ms**,$BR_{\beta p}$ = 14.4(7)%**.

E_p(c.m.)	I_p(rel)%	I_p(abs)%	$E_{emitter}$ (^{48}Mn)***	$E_{daughter}$(^{47}Cr)	coincident γ-rays
1.018(10)	100	4.8(3)	3.041(12)	0	——
1.186(10)	21(6)	1.0(3)	3.209(12)	0	——
1.477(10)	38(6)	1.8(3)	3.500(12)	0	——
1.601(10)	19(6)	0.9(3)	3.624(12)$^{@}$	0$^{@}$	——
1.695(10)	27(4)	1.3(2)	3.718(12)	0	——
2.281(10)	25(6)	1.2(3)	4.304(12)$^{@}$	0$^{@}$	——
2.381(10)	19(8)	0.9(4)	4.404(12)	0	——
2.499(10)	27(10)	1.3(5)	4.522(12)	0	——
2.737(10)	17(3)	0.8(1)	4.760(12)	0	——

* All values taken from [2016Or03], except as noted.
** From [2016Or03]. Others: 15.9(6)% [2007Do17], $>$ 2.5% [1996Fa09].
*** Calculated from proton energy and S_p (^{48}Mn) = 2023(6) keV [2021Wa16].
$^{@}$ Possibly decaying to 98 keV state in ^{47}Cr, with resulting E_{level} (emitter) 98 keV higher [2016Or03].

Table 11
β-p emission from ^{52}Ni*, $BR_{\beta p}$ = 31.1(5)%.

E_p(c.m.)	I_p(rel)	I_p(abs)	$E_{emitter}$ (^{52}Co)**	$E_{daughter}$(^{51}Fe)	coincident γ-rays
1.048(10)	53.3(7)	7.30(9)	2.492(11)	0	——
1.352(10)	100	13.7(2)	2.796(11)	0	——
1.575(10)	8.5(3)	1.17(4)	3.019(11)	0	——
1.681(10)	11.0(3)	1.50(4)	3.125(11)	0	——
1.836(10)	3.1(2)	0.42(3)	3.280(11)	0	——
1.949(10)	9.3(2)	1.28(3)	3.393(11)	0	——
2.061(10)	8.3(2)	1.14(3)	3.505(11)	0	——
2.802(10)	7.4(2)	1.01(3)	4.246(11)	0	——
2.888(10)	1.3(2)	0.18(2)	4.332(11)	0	——
3.451(10)	0.80(7)	0.11(1)	4.895(11)	0	——

* All values taken from [2016Or03], except as noted.
** Calculated from proton energy and S_p (^{52}Co) = 1444(5) keV [2021Wa16].

Table 12
β-p emission from ^{56}Zn*, $BR_{\beta p}$ = 88.5(26)%.

E_p(c.m.)	I_p(rel)	I_p(abs)	$E_{emitter}$ (^{56}Cu)**	$E_{daughter}$(^{55}Ni)	coincident γ-rays
0.831(10)	13(2)	3.0(4)	1.414(12)	0	——
1.131(10)	100	23.8(11)	1.714(12)	0	——
1.977(10)	19(4)	4.6(8)	2.560(12)	0	——
2.101(10)	72(5)	17.1(9)	2.684(12)	0	——
2.863(10)	89(6)	21.2(10)	3.446(12)	0	——
2.948(10)	79(6)	18.8(10)	3.531(12)	0	——

* All values taken from [2016Or03], except where noted.
** Calculated from proton energy and S_p (^{56}Cu) = 583(6) keV [2021Wa16].

Table 13
β-p emission from ^{60}Ge*, $BR_{\beta p}$ = 67(3)%*.

E_p(c.m.)	I_p(rel)	I_p(abs)	$E_{emitter}$ (^{60}Ga)**	$E_{daughter}$(^{59}Zn)	coincident γ-rays
0.820(13)	8.5(12)	2.8(4)	0.910(20)	0	——
1.076(23)	12.1(15)	4.0(5)	1.166(27)	0	——
1.359(19)	15.5(12)	5.1(4)	1.449(24)	0	——
1.684 (17)	12.7(9)	4.2(3)	1.774(23)	0	——
2.067(15)	30.9(15)	10.2(5)	2.620(21)	0.4633(1)	0.4633(1)
2.522 (15)	100(3)	33(1)	2.612(21)	0	——
2.981(23)	9.7(9)	3.2(3)	3.071(27)	0	——
3.490(22)	5.8(6)	1.9(2)	3.580(27)	0	——

* All values taken from [2021Or01], except where noted.
** Calculated from proton energy and S_p (^{60}Ga) = 90(15) keV [2021Or01].

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