

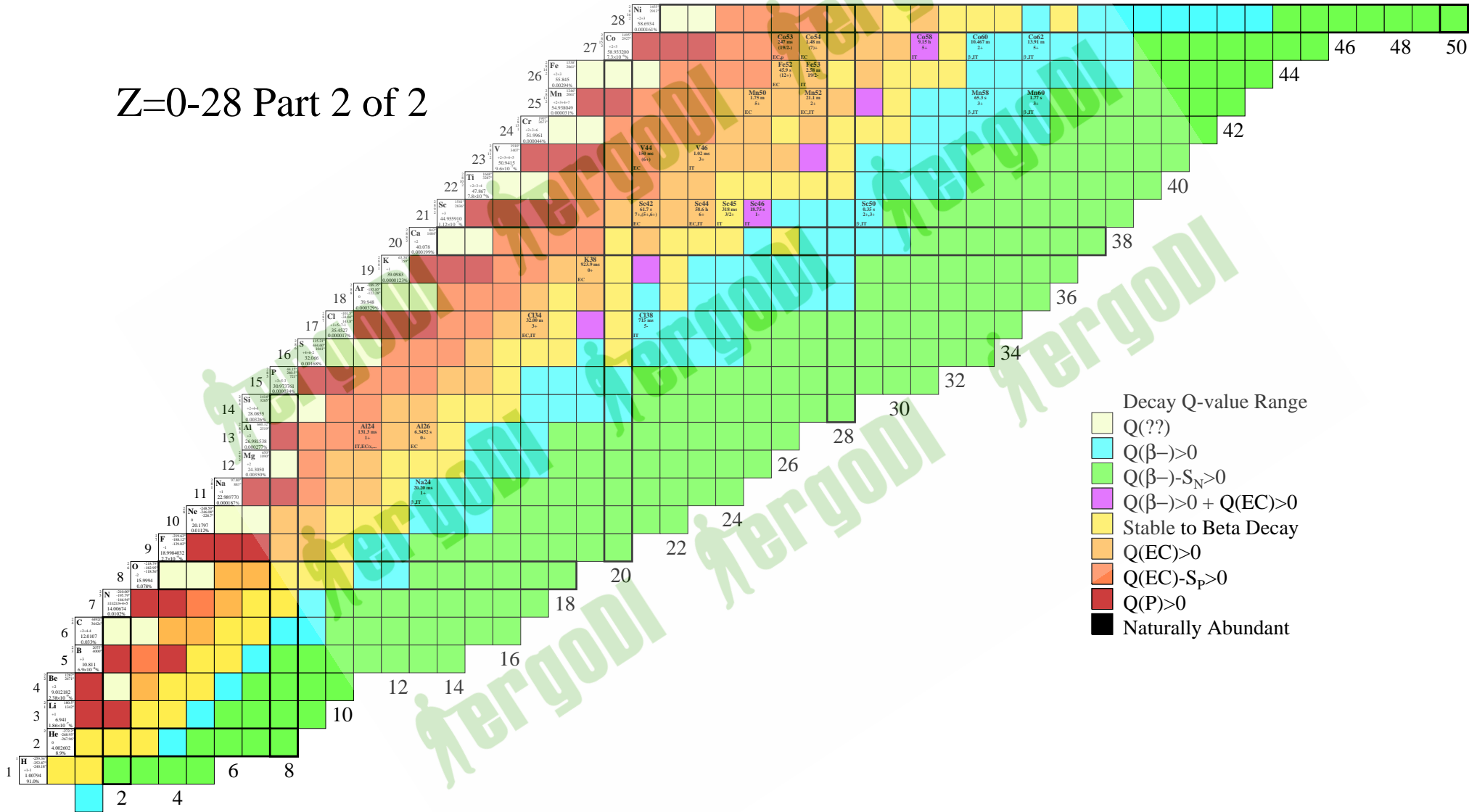
# Table of Isotopes (1998)

Z=0-28 Part 1 of 2

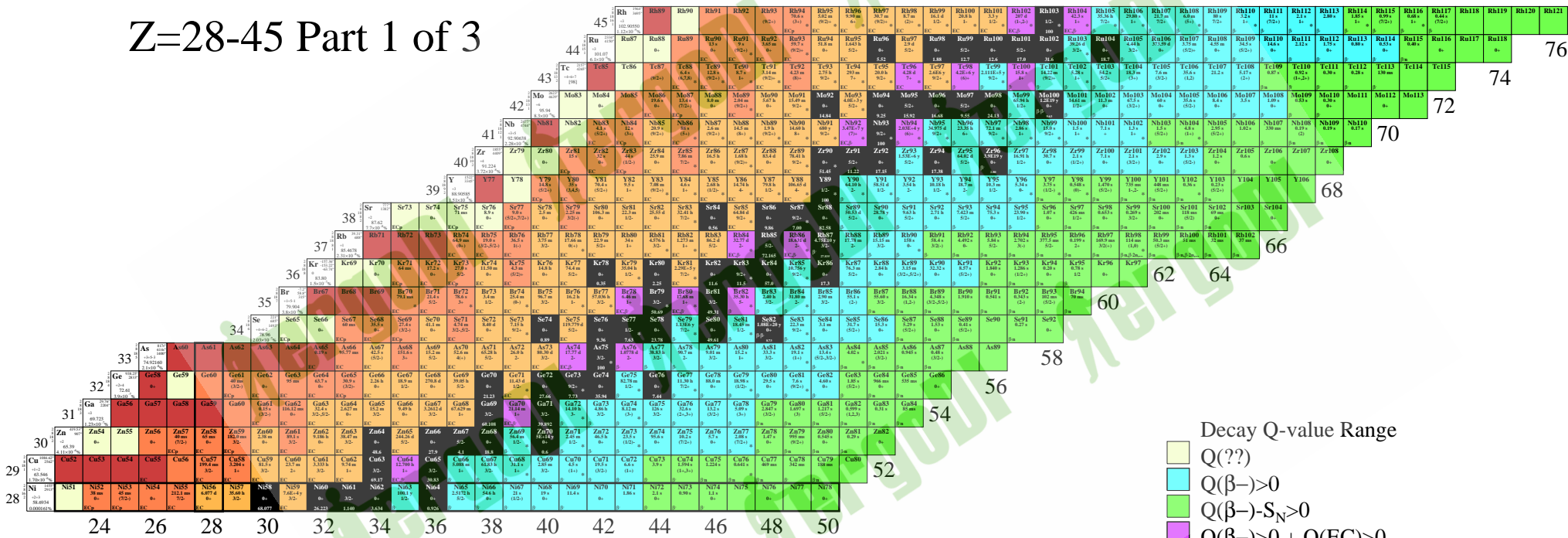
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		Ni																Co																Fe																Mn																Cr																V																Ti																Sc																Ca																K																Ar																Cl																S																P																Si																Al																Mg																Na																Ne																F																O																N																C																B																Be																Li																He																H															
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- Decay Q-value Range
- Q(??)
  - Q(β-) > 0
  - Q(β-) - S<sub>N</sub> > 0
  - Q(β-) > 0 + Q(EC) > 0
  - Stable to Beta Decay
  - Q(EC) > 0
  - Q(EC) - S<sub>p</sub> > 0
  - Q(P) > 0
  - Naturally Abundant

Z=0-28 Part 2 of 2

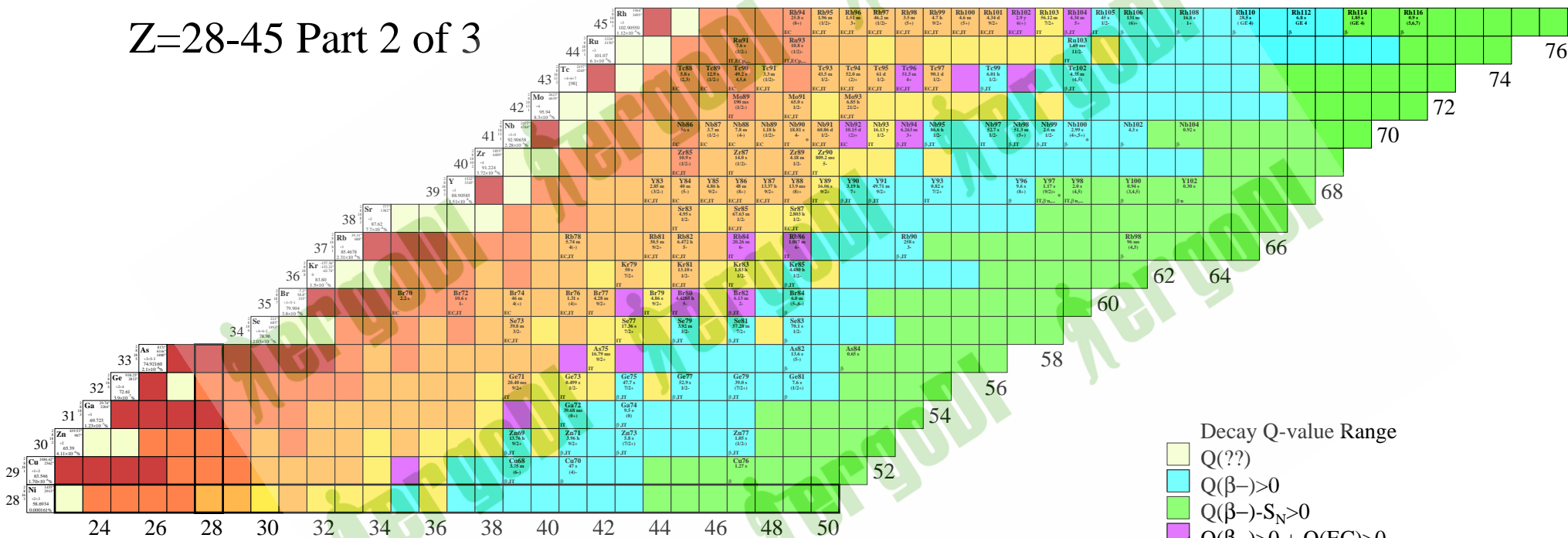


# Z=28-45 Part 1 of 3



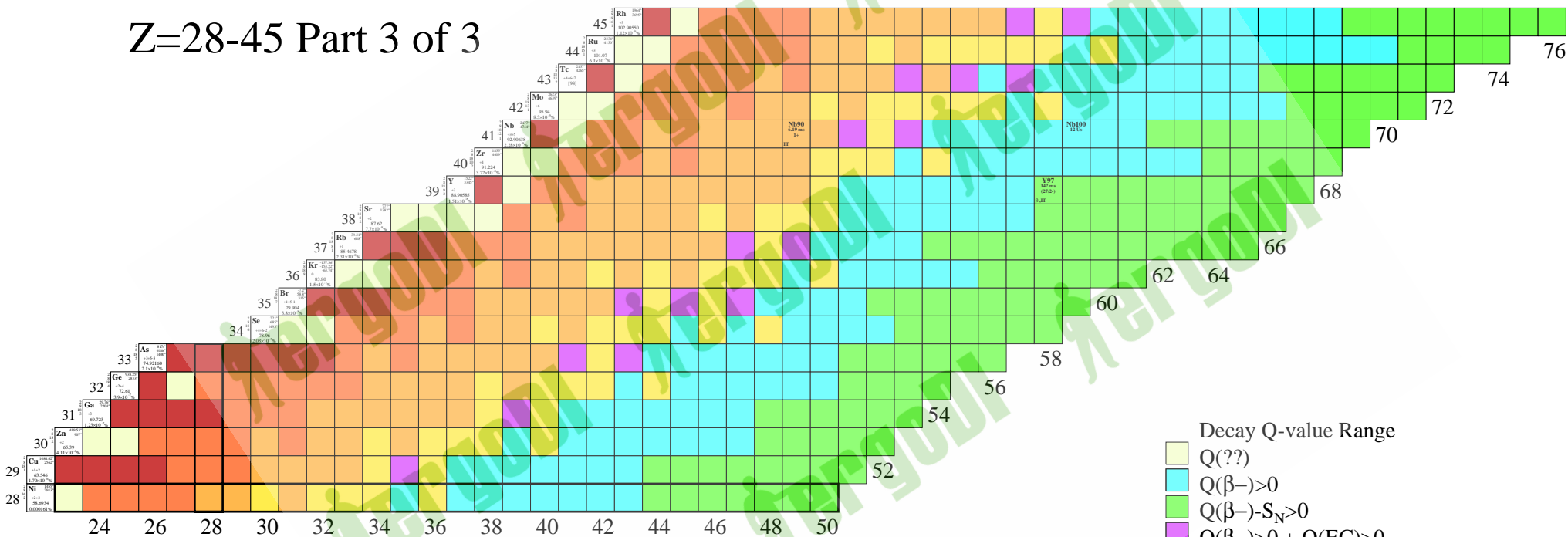
- Decay Q-value Range
- Q(β-) > 0
  - Q(β-) - S<sub>N</sub> > 0
  - Q(β-) > 0 + Q(EC) > 0
  - Stable to Beta Decay
  - Q(EC) > 0
  - Q(EC) - S<sub>p</sub> > 0
  - Q(P) > 0
  - Naturally Abundant

Z=28-45 Part 2 of 3



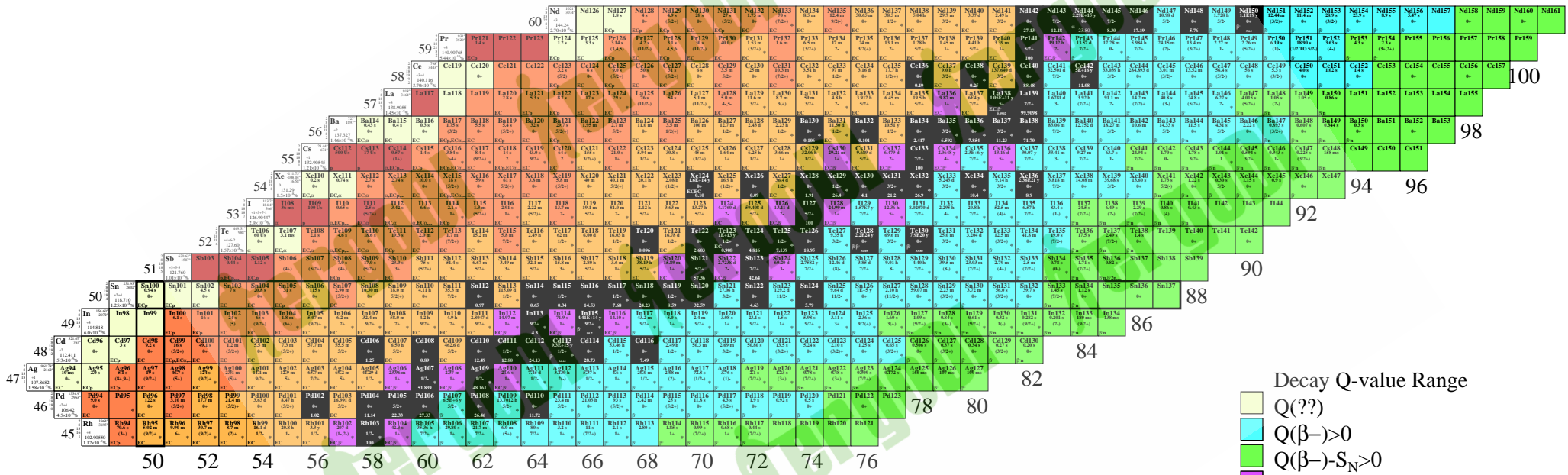
- Decay Q-value Range
- Q(??)
  - $Q(\beta^-) > 0$
  - $Q(\beta^-) - S_N > 0$
  - $Q(\beta^-) > 0 + Q(EC) > 0$
  - Stable to Beta Decay
  - $Q(EC) > 0$
  - $Q(EC) - S_p > 0$
  - $Q(P) > 0$
  - Naturally Abundant

Z=28-45 Part 3 of 3



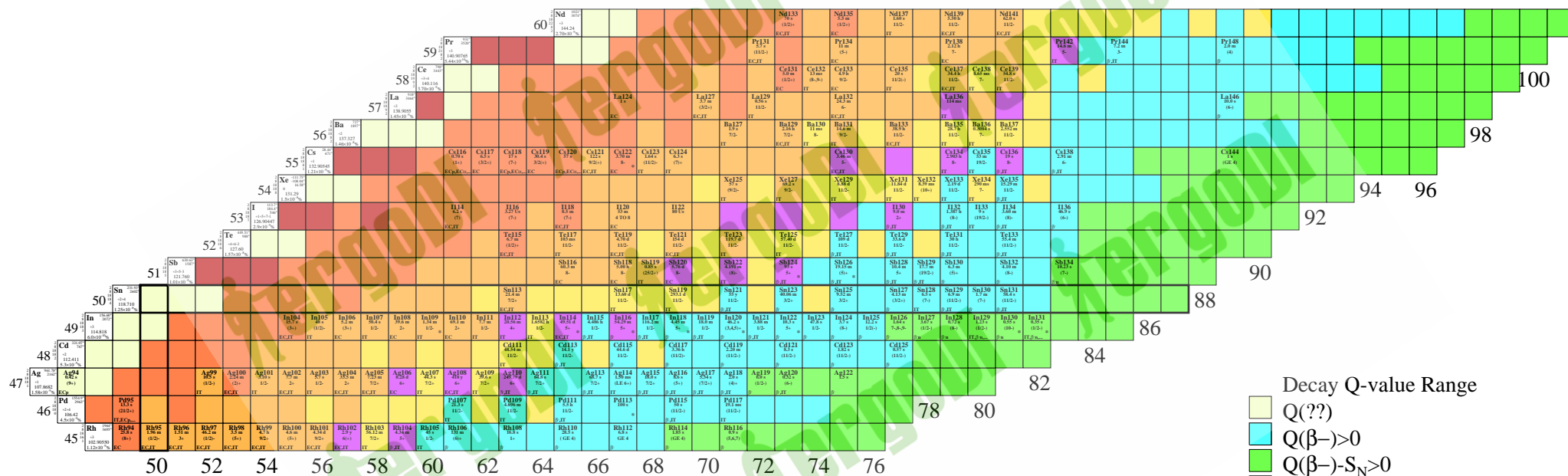
- Decay Q-value Range
- Q(??)
  - $Q(\beta^-) > 0$
  - $Q(\beta^-) - S_N > 0$
  - $Q(\beta^-) > 0 + Q(EC) > 0$
  - Stable to Beta Decay
  - $Q(EC) > 0$
  - $Q(EC) - S_p > 0$
  - $Q(P) > 0$
  - Naturally Abundant

# Z=45-60 Part 1 of 3



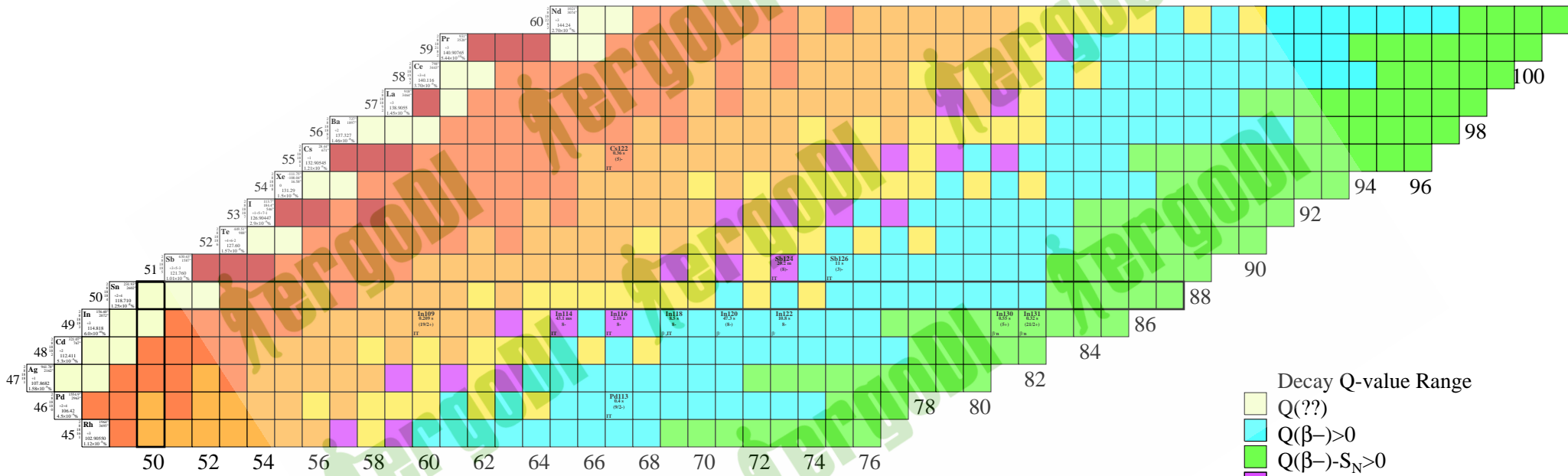
- Decay Q-value Range
- Q(?)
  - $Q(\beta^-) > 0$
  - $Q(\beta^-) - S_N > 0$
  - $Q(\beta^-) > 0 + Q(EC) > 0$
  - Stable to Beta Decay
  - $Q(EC) > 0$
  - $Q(EC) - S_p > 0$
  - $Q(P) > 0$
  - Naturally Abundant

Z=45-60 Part 2 of 3



- Decay Q-value Range
- Q(??)
  - $Q(\beta^-) > 0$
  - $Q(\beta^-) - S_N > 0$
  - $Q(\beta^-) > 0 + Q(EC) > 0$
  - Stable to Beta Decay
  - $Q(EC) > 0$
  - $Q(EC) - S_p > 0$
  - $Q(P) > 0$
  - Naturally Abundant

Z=45-60 Part 3 of 3



- Decay Q-value Range
- Q(?)
  - $Q(\beta^-) > 0$
  - $Q(\beta^-) - S_N > 0$
  - $Q(\beta^-) > 0 + Q(\text{EC}) > 0$
  - Stable to Beta Decay
  - $Q(\text{EC}) > 0$
  - $Q(\text{EC}) - S_p > 0$
  - $Q(\text{P}) > 0$
  - Naturally Abundant

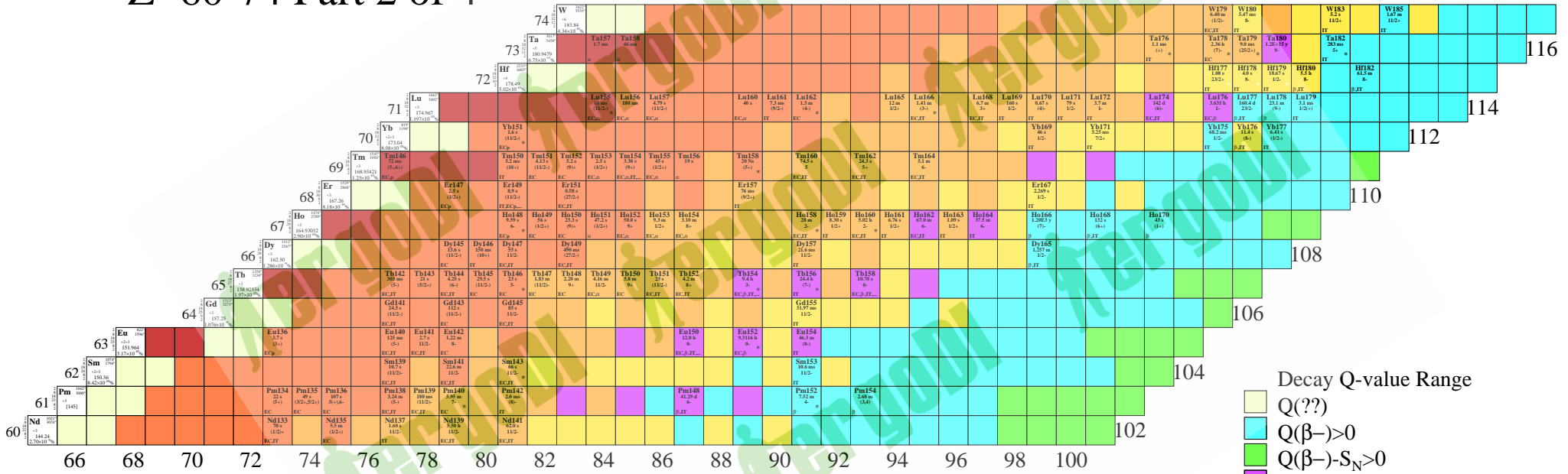


# Z=60-74 Part 1 of 4

60	Nd	Nd126	Nd128	Nd129	Nd130	Nd131	Nd132	Nd133	Nd134	Nd135	Nd136	Nd137	Nd138	Nd139	Nd140	Nd141	Nd142	Nd143	Nd144	Nd145	Nd146	Nd147	Nd148	Nd149	Nd150	Nd151	Nd152	Nd153	Nd154	Nd155	Nd156	Nd157	Nd158	Nd159	Nd160	Nd161	Nd162	Nd163	Nd164	Nd165	Nd166	Nd167	Nd168	Nd169	Nd170	Nd171	Nd172	Nd173	Nd174	Nd175	Nd176	Nd177	Nd178	Nd179	Nd180	Nd181	Nd182	Nd183	Nd184	Nd185	Nd186	Nd187	Nd188	Nd189	Nd190
61	Pm	Pm127	Pm128	Pm129	Pm130	Pm131	Pm132	Pm133	Pm134	Pm135	Pm136	Pm137	Pm138	Pm139	Pm140	Pm141	Pm142	Pm143	Pm144	Pm145	Pm146	Pm147	Pm148	Pm149	Pm150	Pm151	Pm152	Pm153	Pm154	Pm155	Pm156	Pm157	Pm158	Pm159	Pm160	Pm161	Pm162	Pm163	Pm164	Pm165	Pm166	Pm167	Pm168	Pm169	Pm170	Pm171	Pm172	Pm173	Pm174	Pm175	Pm176	Pm177	Pm178	Pm179	Pm180	Pm181	Pm182	Pm183	Pm184	Pm185	Pm186	Pm187	Pm188	Pm189	Pm190
62	Sm	Sm130	Sm131	Sm132	Sm133	Sm134	Sm135	Sm136	Sm137	Sm138	Sm139	Sm140	Sm141	Sm142	Sm143	Sm144	Sm145	Sm146	Sm147	Sm148	Sm149	Sm150	Sm151	Sm152	Sm153	Sm154	Sm155	Sm156	Sm157	Sm158	Sm159	Sm160	Sm161	Sm162	Sm163	Sm164	Sm165	Sm166	Sm167	Sm168	Sm169	Sm170	Sm171	Sm172	Sm173	Sm174	Sm175	Sm176	Sm177	Sm178	Sm179	Sm180	Sm181	Sm182	Sm183	Sm184	Sm185	Sm186	Sm187	Sm188	Sm189	Sm190			
63	Eu	Eu133	Eu134	Eu135	Eu136	Eu137	Eu138	Eu139	Eu140	Eu141	Eu142	Eu143	Eu144	Eu145	Eu146	Eu147	Eu148	Eu149	Eu150	Eu151	Eu152	Eu153	Eu154	Eu155	Eu156	Eu157	Eu158	Eu159	Eu160	Eu161	Eu162	Eu163	Eu164	Eu165	Eu166	Eu167	Eu168	Eu169	Eu170	Eu171	Eu172	Eu173	Eu174	Eu175	Eu176	Eu177	Eu178	Eu179	Eu180	Eu181	Eu182	Eu183	Eu184	Eu185	Eu186	Eu187	Eu188	Eu189	Eu190						
64	Gd	Gd137	Gd138	Gd139	Gd140	Gd141	Gd142	Gd143	Gd144	Gd145	Gd146	Gd147	Gd148	Gd149	Gd150	Gd151	Gd152	Gd153	Gd154	Gd155	Gd156	Gd157	Gd158	Gd159	Gd160	Gd161	Gd162	Gd163	Gd164	Gd165	Gd166	Gd167	Gd168	Gd169	Gd170	Gd171	Gd172	Gd173	Gd174	Gd175	Gd176	Gd177	Gd178	Gd179	Gd180	Gd181	Gd182	Gd183	Gd184	Gd185	Gd186	Gd187	Gd188	Gd189	Gd190										
65	Tb	Tb138	Tb139	Tb140	Tb141	Tb142	Tb143	Tb144	Tb145	Tb146	Tb147	Tb148	Tb149	Tb150	Tb151	Tb152	Tb153	Tb154	Tb155	Tb156	Tb157	Tb158	Tb159	Tb160	Tb161	Tb162	Tb163	Tb164	Tb165	Tb166	Tb167	Tb168	Tb169	Tb170	Tb171	Tb172	Tb173	Tb174	Tb175	Tb176	Tb177	Tb178	Tb179	Tb180	Tb181	Tb182	Tb183	Tb184	Tb185	Tb186	Tb187	Tb188	Tb189	Tb190											
66	Dy	Dy140	Dy141	Dy142	Dy143	Dy144	Dy145	Dy146	Dy147	Dy148	Dy149	Dy150	Dy151	Dy152	Dy153	Dy154	Dy155	Dy156	Dy157	Dy158	Dy159	Dy160	Dy161	Dy162	Dy163	Dy164	Dy165	Dy166	Dy167	Dy168	Dy169	Dy170	Dy171	Dy172	Dy173	Dy174	Dy175	Dy176	Dy177	Dy178	Dy179	Dy180	Dy181	Dy182	Dy183	Dy184	Dy185	Dy186	Dy187	Dy188	Dy189	Dy190													
67	Ho	Ho142	Ho143	Ho144	Ho145	Ho146	Ho147	Ho148	Ho149	Ho150	Ho151	Ho152	Ho153	Ho154	Ho155	Ho156	Ho157	Ho158	Ho159	Ho160	Ho161	Ho162	Ho163	Ho164	Ho165	Ho166	Ho167	Ho168	Ho169	Ho170	Ho171	Ho172	Ho173	Ho174	Ho175	Ho176	Ho177	Ho178	Ho179	Ho180	Ho181	Ho182	Ho183	Ho184	Ho185	Ho186	Ho187	Ho188	Ho189	Ho190															
68	Er	Er144	Er145	Er146	Er147	Er148	Er149	Er150	Er151	Er152	Er153	Er154	Er155	Er156	Er157	Er158	Er159	Er160	Er161	Er162	Er163	Er164	Er165	Er166	Er167	Er168	Er169	Er170	Er171	Er172	Er173	Er174	Er175	Er176	Er177	Er178	Er179	Er180	Er181	Er182	Er183	Er184	Er185	Er186	Er187	Er188	Er189	Er190																	
69	Tm	Tm146	Tm147	Tm148	Tm149	Tm150	Tm151	Tm152	Tm153	Tm154	Tm155	Tm156	Tm157	Tm158	Tm159	Tm160	Tm161	Tm162	Tm163	Tm164	Tm165	Tm166	Tm167	Tm168	Tm169	Tm170	Tm171	Tm172	Tm173	Tm174	Tm175	Tm176	Tm177	Tm178	Tm179	Tm180	Tm181	Tm182	Tm183	Tm184	Tm185	Tm186	Tm187	Tm188	Tm189	Tm190																			
70	Yb	Yb148	Yb149	Yb150	Yb151	Yb152	Yb153	Yb154	Yb155	Yb156	Yb157	Yb158	Yb159	Yb160	Yb161	Yb162	Yb163	Yb164	Yb165	Yb166	Yb167	Yb168	Yb169	Yb170	Yb171	Yb172	Yb173	Yb174	Yb175	Yb176	Yb177	Yb178	Yb179	Yb180	Yb181	Yb182	Yb183	Yb184	Yb185	Yb186	Yb187	Yb188	Yb189	Yb190																					
71	Lu	Lu150	Lu151	Lu152	Lu153	Lu154	Lu155	Lu156	Lu157	Lu158	Lu159	Lu160	Lu161	Lu162	Lu163	Lu164	Lu165	Lu166	Lu167	Lu168	Lu169	Lu170	Lu171	Lu172	Lu173	Lu174	Lu175	Lu176	Lu177	Lu178	Lu179	Lu180	Lu181	Lu182	Lu183	Lu184	Lu185	Lu186	Lu187	Lu188	Lu189	Lu190																							
72	Hf	Hf154	Hf155	Hf156	Hf157	Hf158	Hf159	Hf160	Hf161	Hf162	Hf163	Hf164	Hf165	Hf166	Hf167	Hf168	Hf169	Hf170	Hf171	Hf172	Hf173	Hf174	Hf175	Hf176	Hf177	Hf178	Hf179	Hf180	Hf181	Hf182	Hf183	Hf184	Hf185	Hf186	Hf187	Hf188	Hf189	Hf190																											
73	Ta	Ta156	Ta157	Ta158	Ta159	Ta160	Ta161	Ta162	Ta163	Ta164	Ta165	Ta166	Ta167	Ta168	Ta169	Ta170	Ta171	Ta172	Ta173	Ta174	Ta175	Ta176	Ta177	Ta178	Ta179	Ta180	Ta181	Ta182	Ta183	Ta184	Ta185	Ta186	Ta187	Ta188	Ta189	Ta190																													
74	W	W158	W159	W160	W161	W162	W163	W164	W165	W166	W167	W168	W169	W170	W171	W172	W173	W174	W175	W176	W177	W178	W179	W180	W181	W182	W183	W184	W185	W186	W187	W188	W189	W190																															

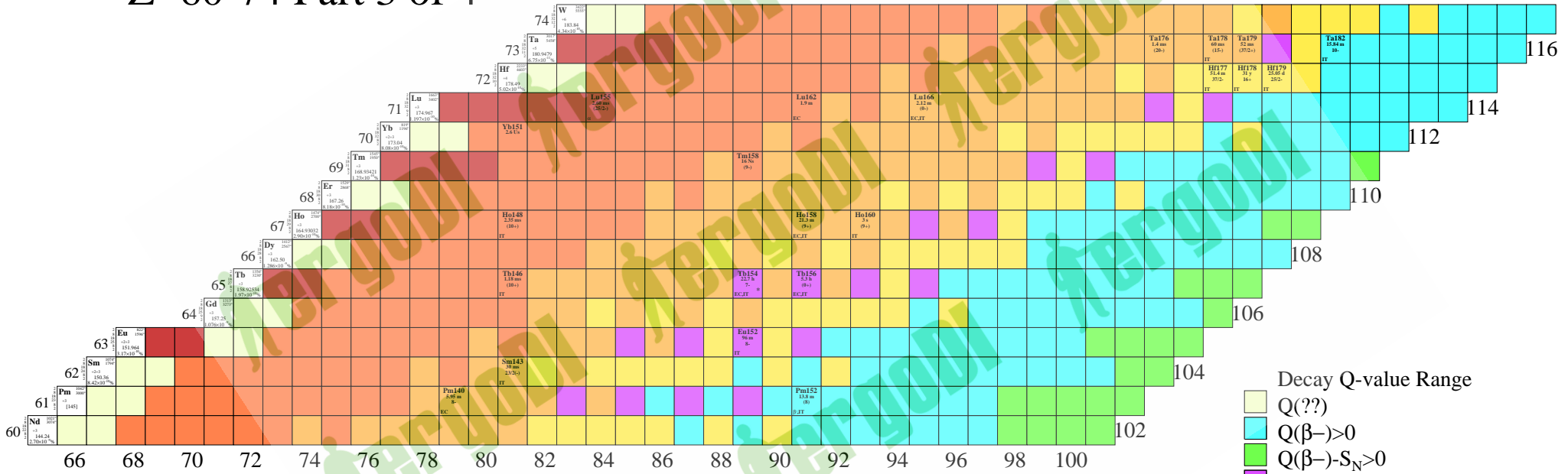
- Q(?)
- Q(β-) > 0
- Q(β-) - S<sub>N</sub> > 0
- Q(β-) > 0 + Q(EC) > 0
- Stable to Beta Decay
- Q(EC) > 0
- Q(EC) - S<sub>p</sub> > 0
- Q(P) > 0
- Naturally Abundant

# Z=60-74 Part 2 of 4



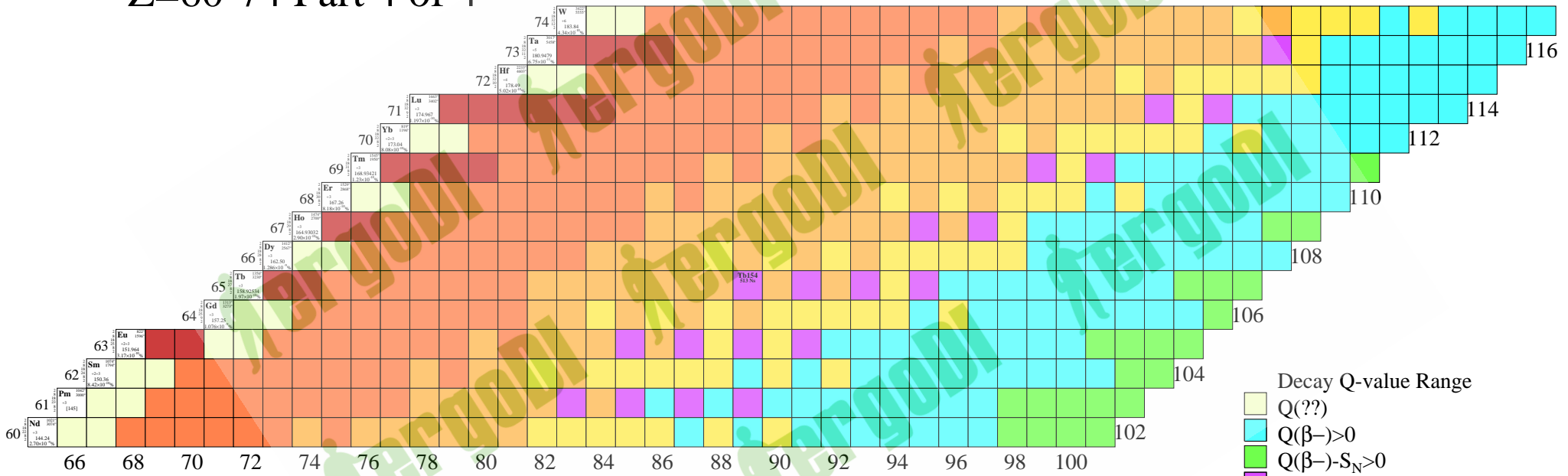
- Decay Q-value Range
- Q(?)
  - $Q(\beta^-) > 0$
  - $Q(\beta^-) - S_N > 0$
  - $Q(\beta^-) > 0 + Q(EC) > 0$
  - Stable to Beta Decay
  - $Q(EC) > 0$
  - $Q(EC) - S_p > 0$
  - $Q(P) > 0$
  - Naturally Abundant

Z=60-74 Part 3 of 4



- Decay Q-value Range
- Q(?)
  - $Q(\beta^-) > 0$
  - $Q(\beta^-) - S_N > 0$
  - $Q(\beta^-) > 0 + Q(EC) > 0$
  - Stable to Beta Decay
  - $Q(EC) > 0$
  - $Q(EC) - S_p > 0$
  - $Q(P) > 0$
  - Naturally Abundant

Z=60-74 Part 4 of 4



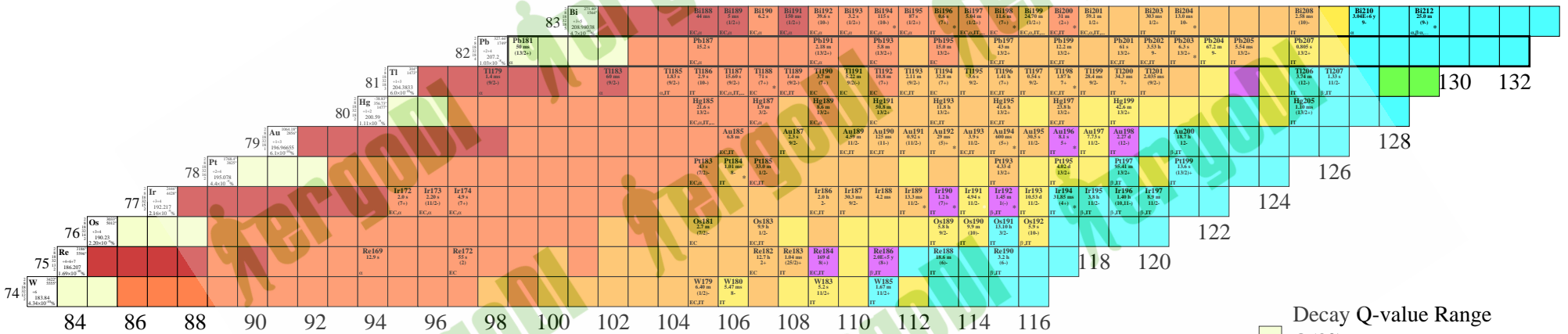
- Decay Q-value Range
- Q(?)
  - $Q(\beta^-) > 0$
  - $Q(\beta^-) - S_N > 0$
  - $Q(\beta^-) > 0 + Q(EC) > 0$
  - Stable to Beta Decay
  - $Q(EC) > 0$
  - $Q(EC) - S_p > 0$
  - $Q(P) > 0$
  - Naturally Abundant

# Z=74-83 Part 1 of 3

84	86	88	90	92	94	96	98	100	102	104	106	108	110	112	114	116	118	120	122	124	126	128	130	132	
W 183.84 EC $\beta$	Re 186.207 EC $\beta$	Os 186.94 EC $\beta$	Ir 186.907 EC $\beta$	Pt 195.078 EC $\beta$	Au 196.96655 EC $\beta$	Hg 200.59 EC $\beta$	Tl 204.3873 EC $\beta$	Pb 207.2 EC $\beta$	Bi 208.980393 EC $\beta$	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

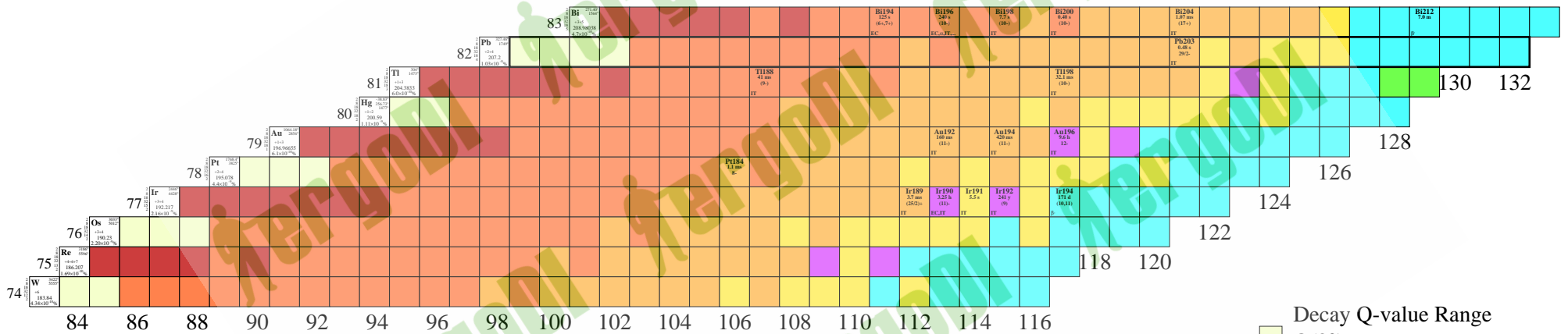
- Decay Q-value Range
- Q(?)
  - Q( $\beta^-$ )>0
  - Q( $\beta^-$ )-S<sub>N</sub>>0
  - Q( $\beta^-$ )>0 + Q(EC)>0
  - Stable to Beta Decay
  - Q(EC)>0
  - Q(EC)-S<sub>p</sub>>0
  - Q(P)>0
  - Naturally Abundant

# Z=74-83 Part 2 of 3



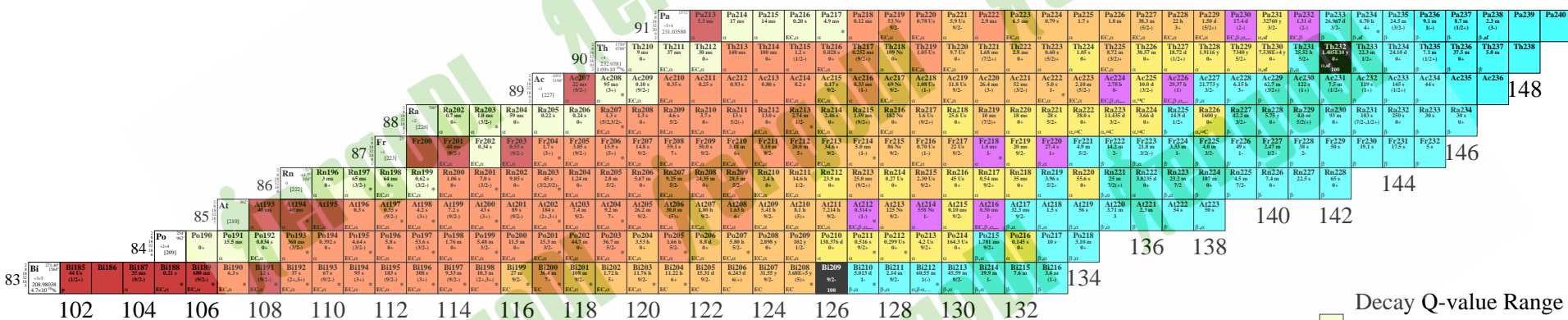
- Decay Q-value Range
- Q(?)
  - $Q(\beta^-) > 0$
  - $Q(\beta^-) - S_N > 0$
  - $Q(\beta^-) > 0 + Q(EC) > 0$
  - Stable to Beta Decay
  - $Q(EC) > 0$
  - $Q(EC) - S_p > 0$
  - $Q(P) > 0$
  - Naturally Abundant

# Z=74-83 Part 3 of 3



- Decay Q-value Range
- Q(?)
  - $Q(\beta^-) > 0$
  - $Q(\beta^-) - S_N > 0$
  - $Q(\beta^-) > 0 + Q(EC) > 0$
  - Stable to Beta Decay
  - $Q(EC) > 0$
  - $Q(EC) - S_p > 0$
  - $Q(P) > 0$
  - Naturally Abundant

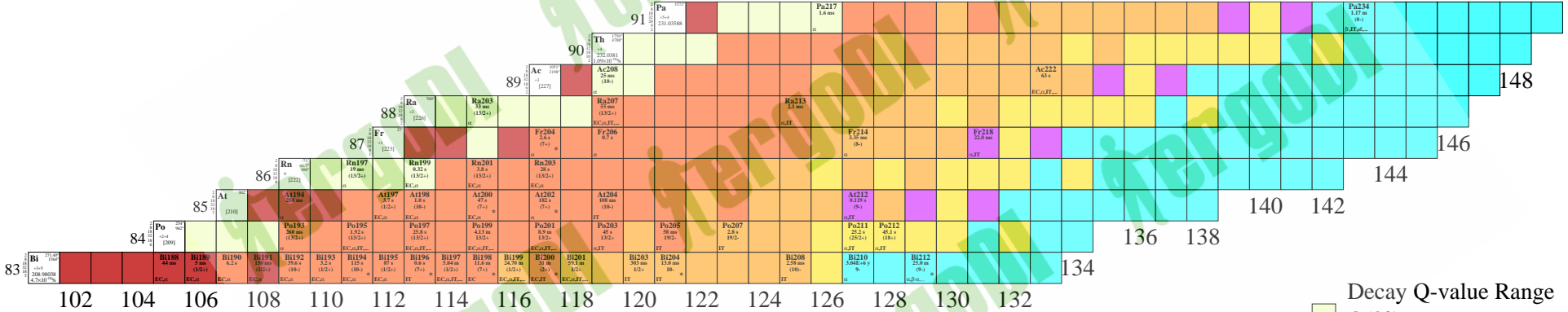
Z=83-91 Part 1 of 3



- Decay Q-value Range
- Q(β⁻) > 0
  - Q(β⁻) - S<sub>N</sub> > 0
  - Q(β⁻) > 0 + Q(EC) > 0
  - Stable to Beta Decay
  - Q(EC) > 0
  - Q(EC) - S<sub>p</sub> > 0
  - Q(P) > 0
  - Naturally Abundant

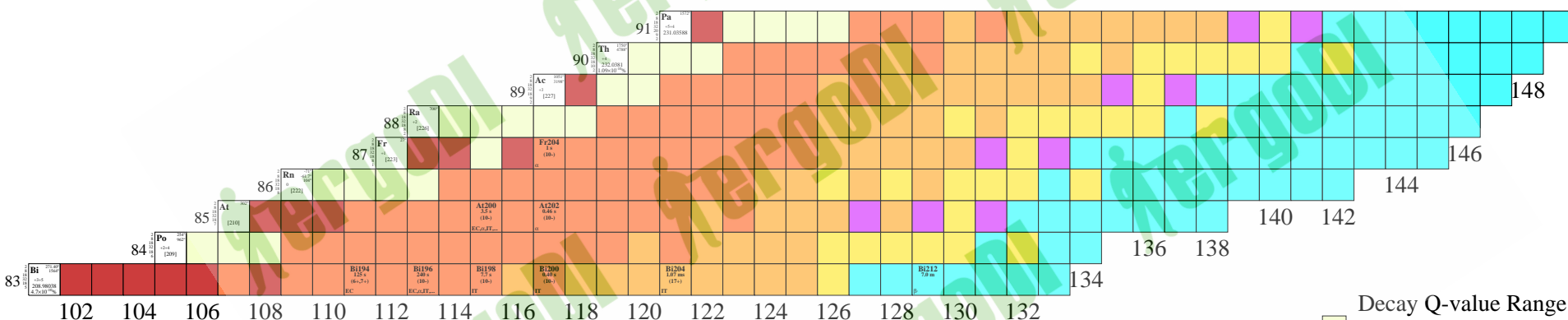


Z=83-91 Part 2 of 3



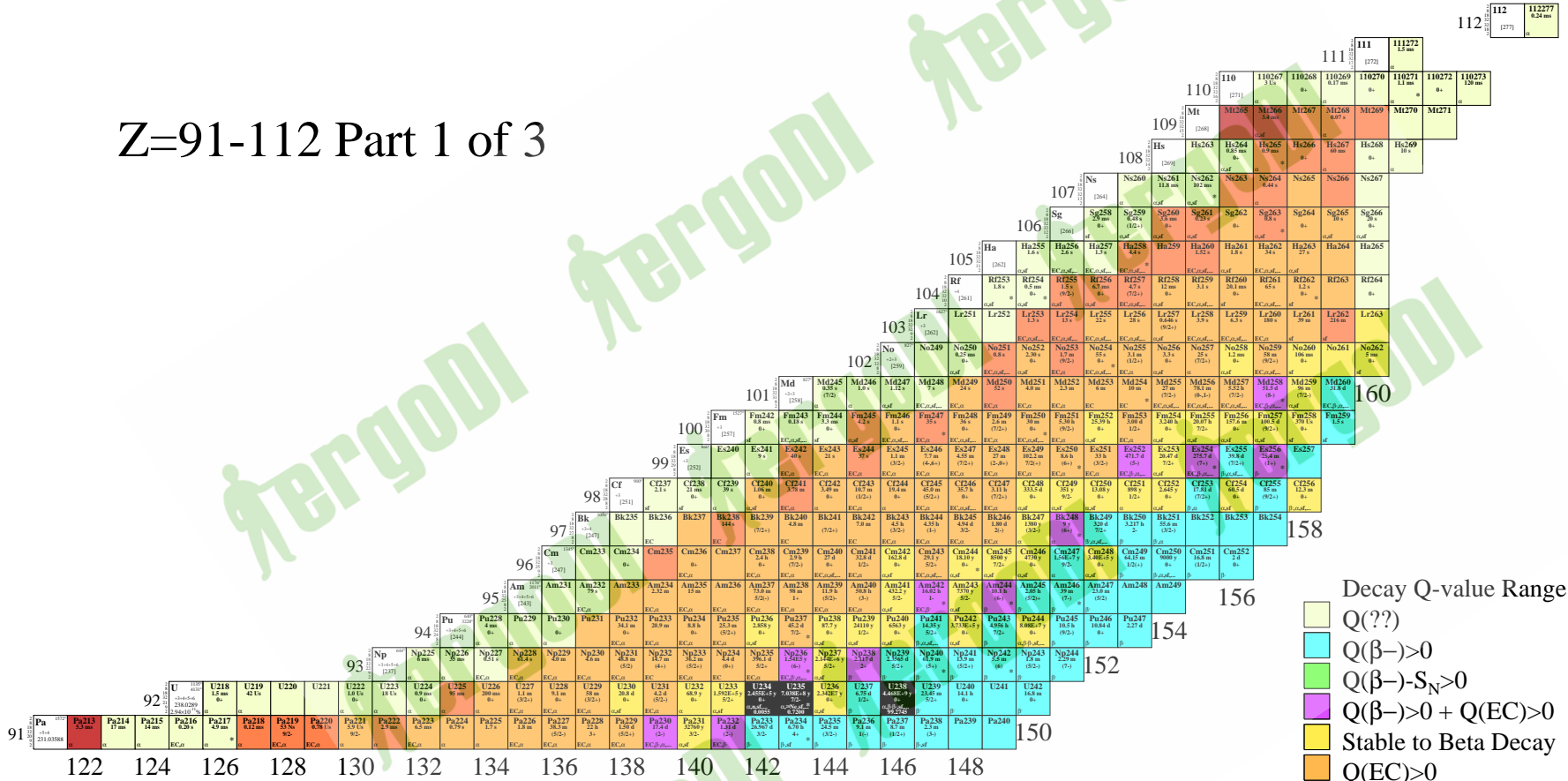
- Decay Q-value Range
- Q(?)
  - $Q(\beta^-) > 0$
  - $Q(\beta^-) - S_N > 0$
  - $Q(\beta^-) > 0 + Q(EC) > 0$
  - Stable to Beta Decay
  - $Q(EC) > 0$
  - $Q(EC) - S_p > 0$
  - $Q(P) > 0$
  - Naturally Abundant

# Z=83-91 Part 3 of 3



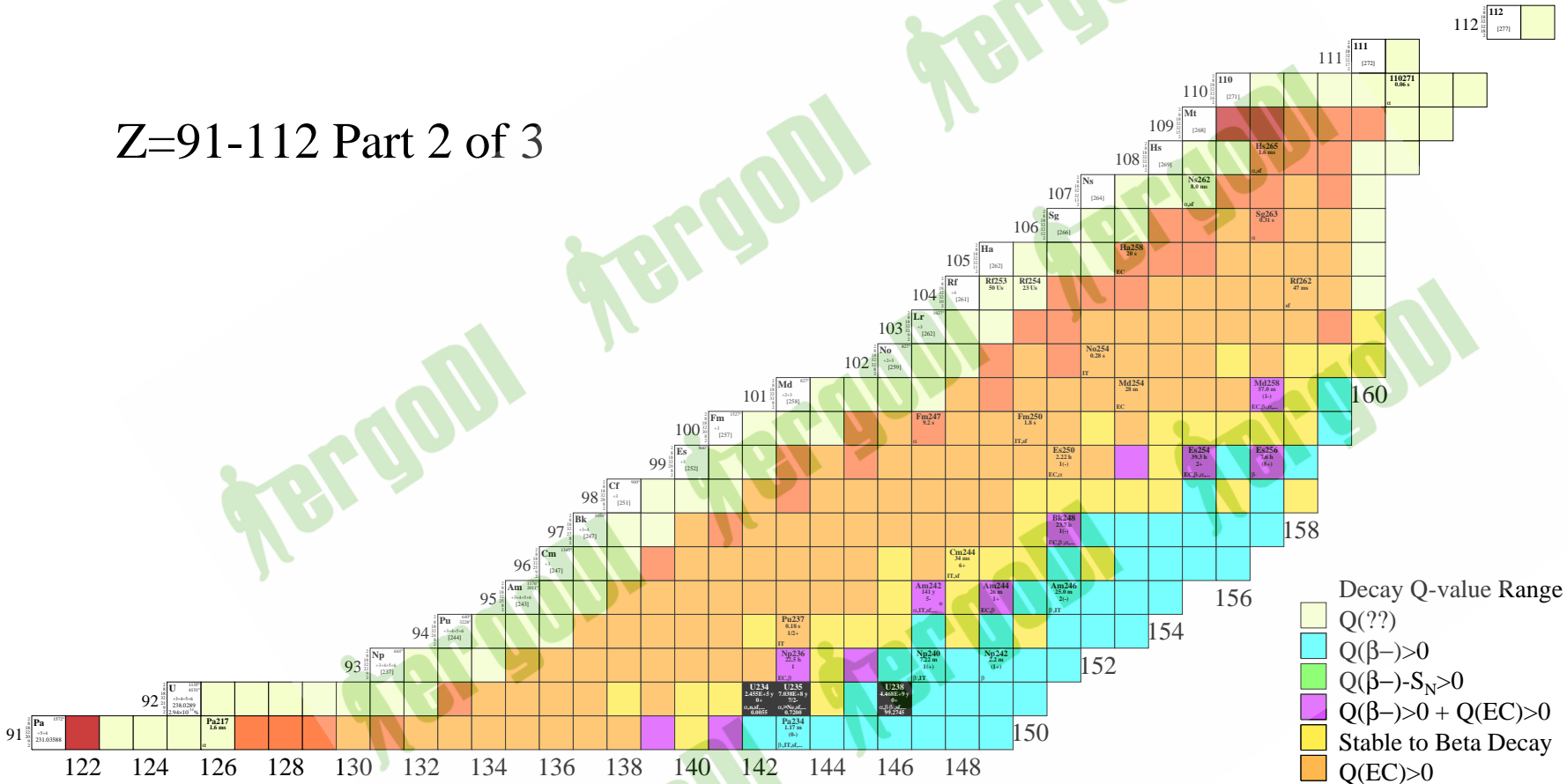
- Decay Q-value Range
- Q(??)
  - $Q(\beta^-) > 0$
  - $Q(\beta^-) - S_N > 0$
  - $Q(\beta^-) > 0 + Q(EC) > 0$
  - Stable to Beta Decay
  - $Q(EC) > 0$
  - $Q(EC) - S_p > 0$
  - $Q(P) > 0$
  - Naturally Abundant

Z=91-112 Part 1 of 3



- Decay Q-value Range
- Q(?)
  - $Q(\beta^-) > 0$
  - $Q(\beta^-) - S_N > 0$
  - $Q(\beta^-) > 0 + Q(EC) > 0$
  - Stable to Beta Decay
  - $Q(EC) > 0$
  - $Q(EC) - S_p > 0$
  - $Q(P) > 0$
  - Naturally Abundant

# Z=91-112 Part 2 of 3



- Decay Q-value Range
- Q(?)
- Q(β<sup>-</sup>)>0
- Q(β<sup>-</sup>)-S<sub>N</sub>>0
- Q(β<sup>-</sup>)>0 + Q(EC)>0
- Stable to Beta Decay
- Q(EC)>0
- Q(EC)-S<sub>p</sub>>0
- Q(P)>0
- Naturally Abundant

Z=91-112 Part 3 of 3

