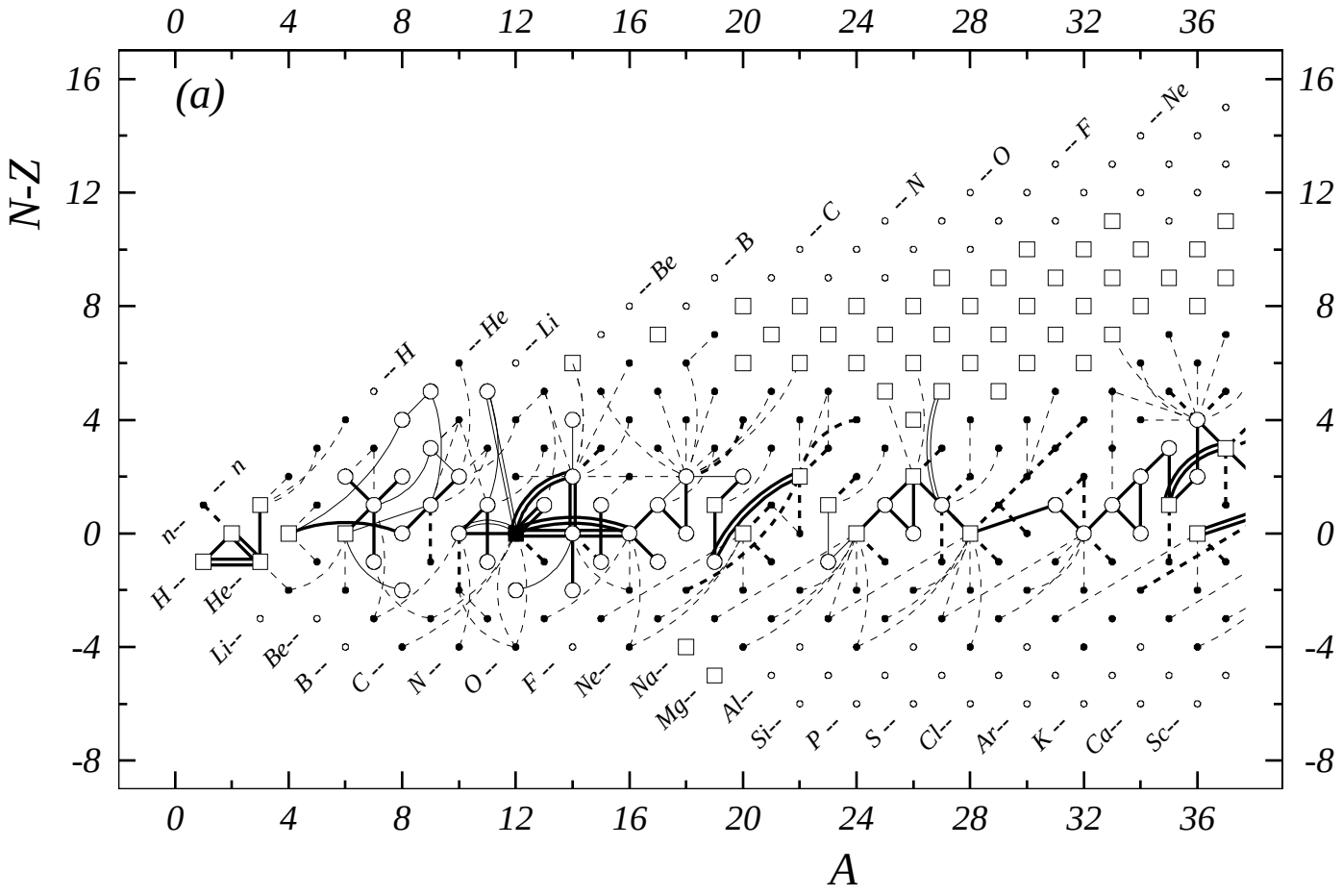
(a)
N-Z
A
0
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24
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32
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12
8
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0
-4
-8
n
H
He
Li
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B
C
N
O
F
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Al
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P
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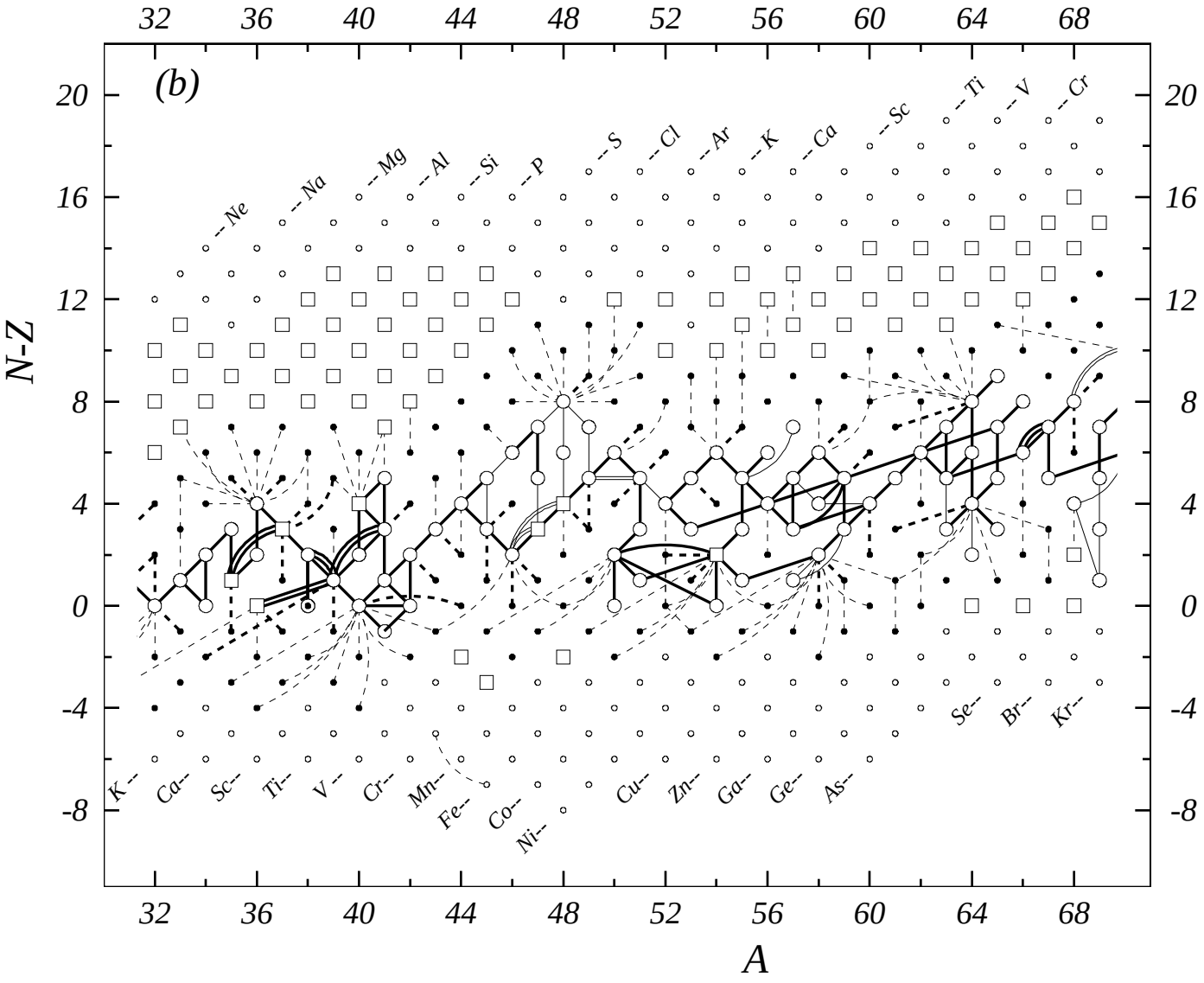
Ar
K
Ca
Sc


(b)
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48
52
56
60
64
68
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16
12
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4
0
-4
-8
Ne
Na
Mg
Al
Si
P
S
Cl
Ar
K
Ca
Sc
Ti
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Cr
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Ni
Cu
Zn
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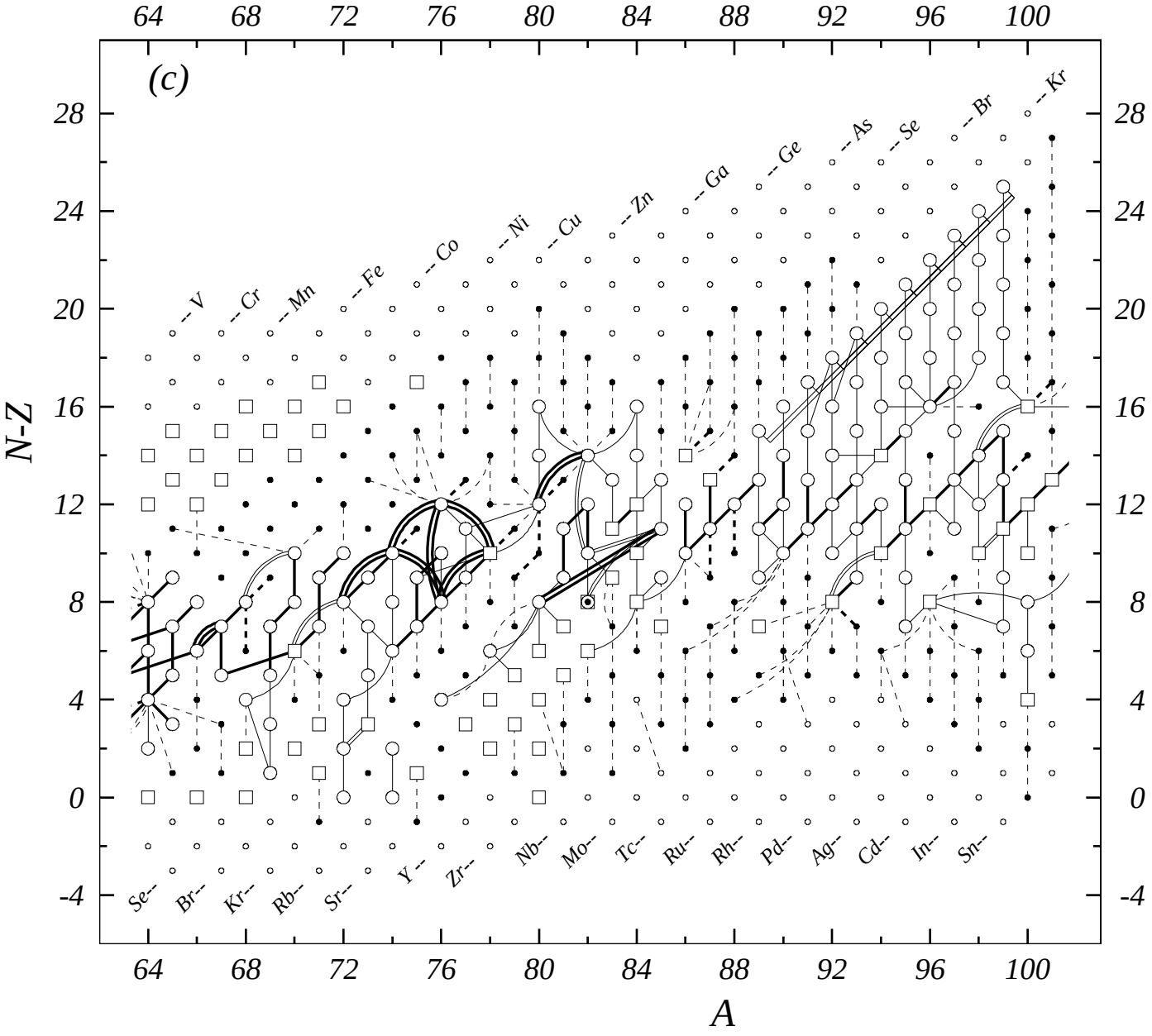
Se
Br
Kr


(c)
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A
64
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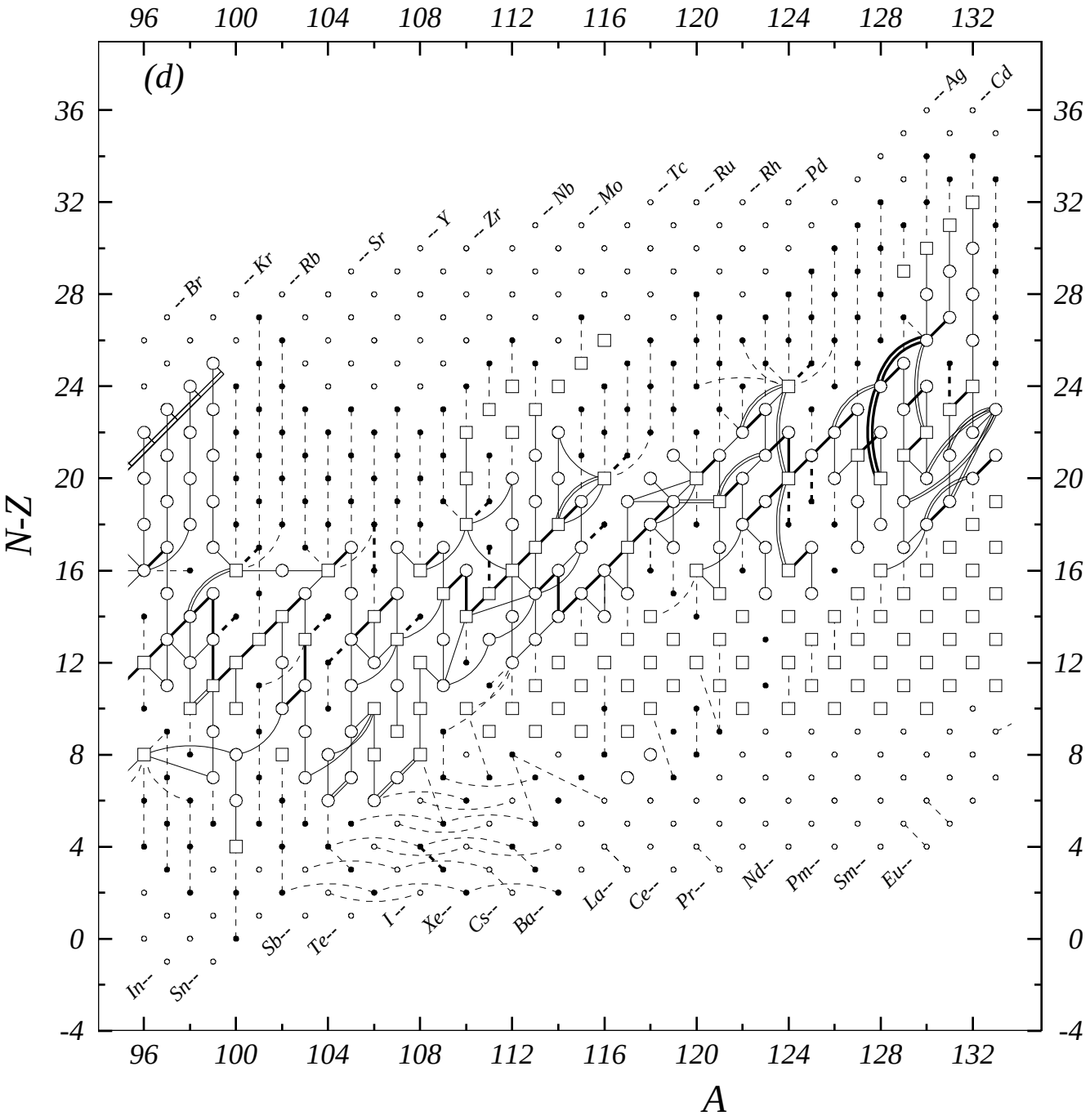
72
76
80
84
88
92
96
100
28
24
20
16
12
8
4
0
-4
V
Cr
Mn
Fe
Co
Ni
Cu
Zn
Ga
Ge
As
Se
Br
Kr
Se--
Br--
Kr--
Rb--
Sr--
Y --
Zr--
Nb--
Mo--
Tc--
Ru--
Rh--
Pd--
Ag--
Cd--
In--
Sn--


(d)
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104
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112
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120
124
128
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28
24
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12
8
4
0
-4
Br
Kr
Rb
Sr
Y
Zr
Nb
Mo
Tc
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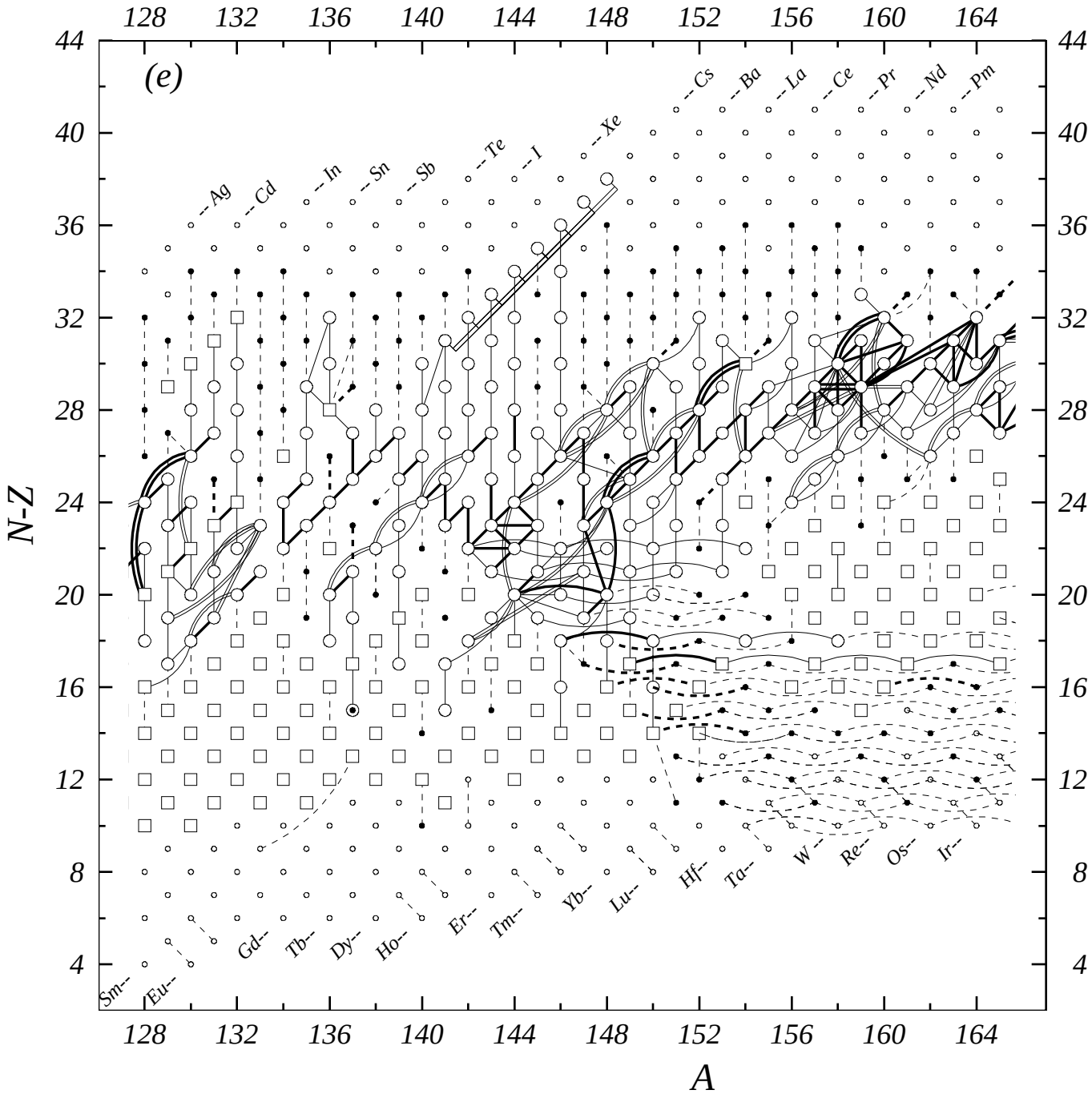
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24
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32
36
40
44
Ag
Cd
In
Sn
Sb
Te
I
Xe
Cs
Ba
La
Ce
Pr
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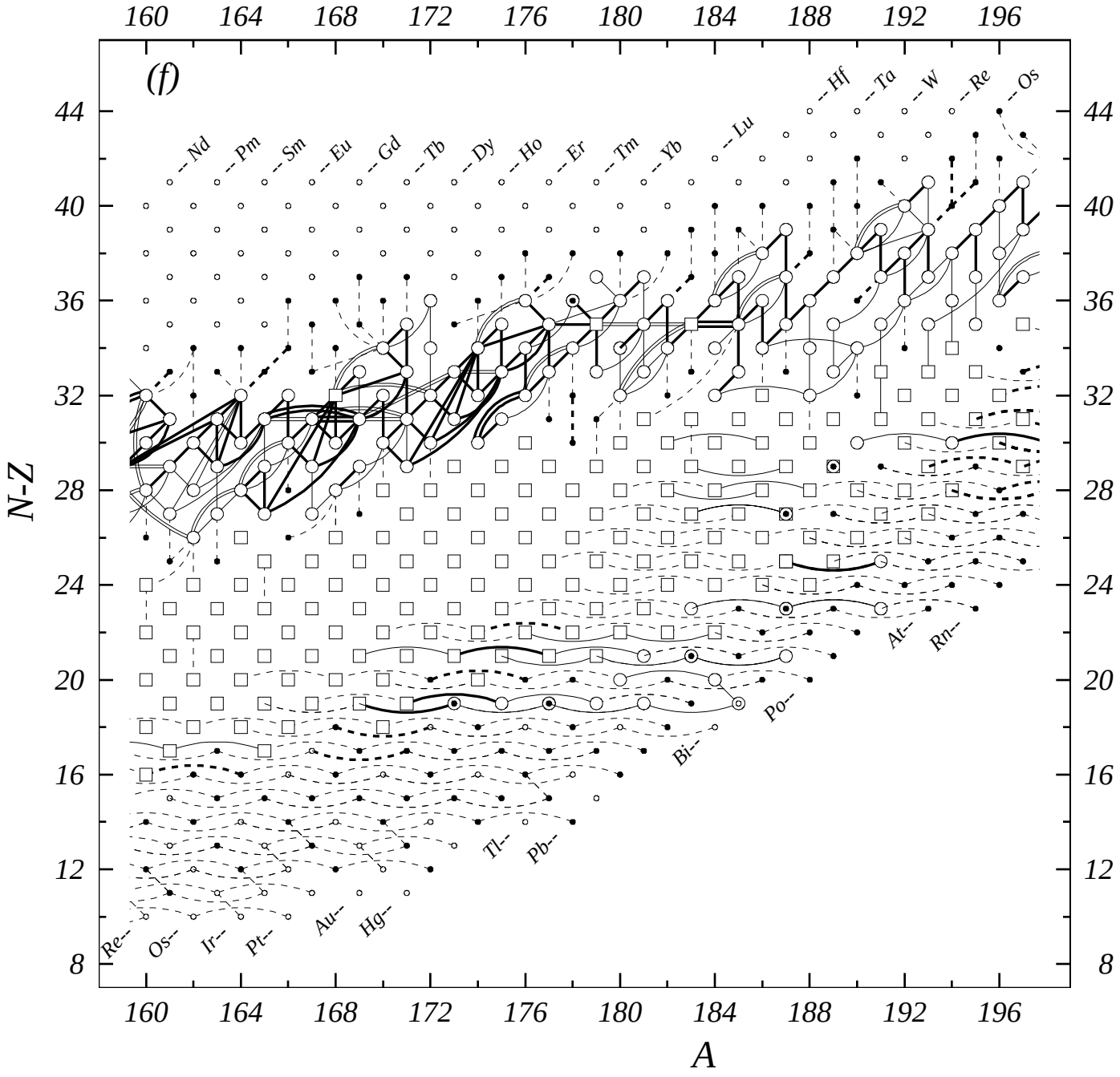
Re
Os
Ir


(f)
Nd
Pm
Sm
Eu
Gd
Tb
Dy
Ho
Er
Tm
Yb
Lu
Hf
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Re
Os
Re--
Os--
Ir--
Pt--
Au--
Hg--
Tl--
Pb--
Bi--
Po--
At--
Rn--
N-Z
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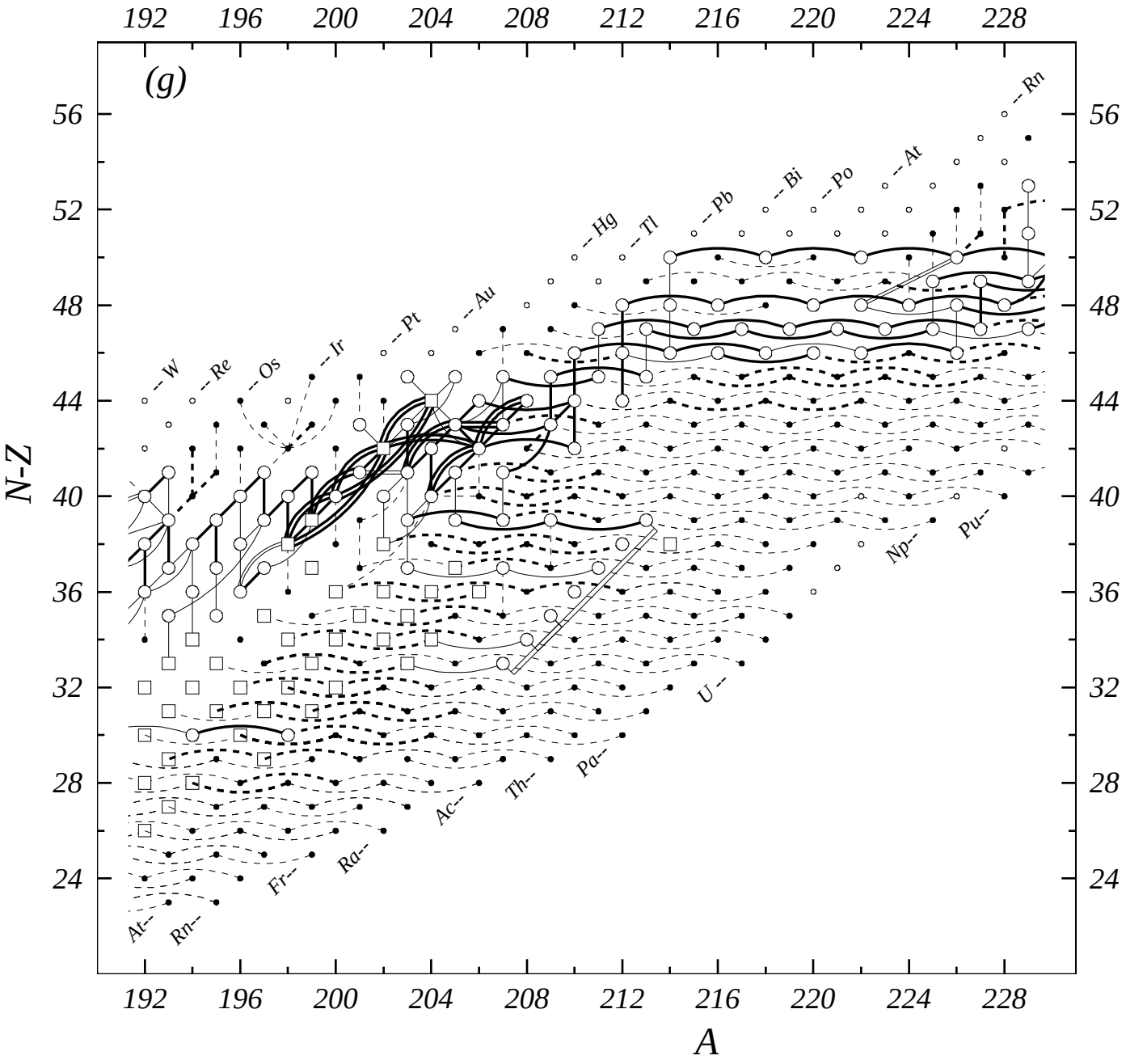
(g)
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28
24
N-Z
A
W
Re
Os
Ir
Pt
Au
Hg
Tl
Pb
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Rn
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Rn--
Fr--
Ra--
Ac--
Th--
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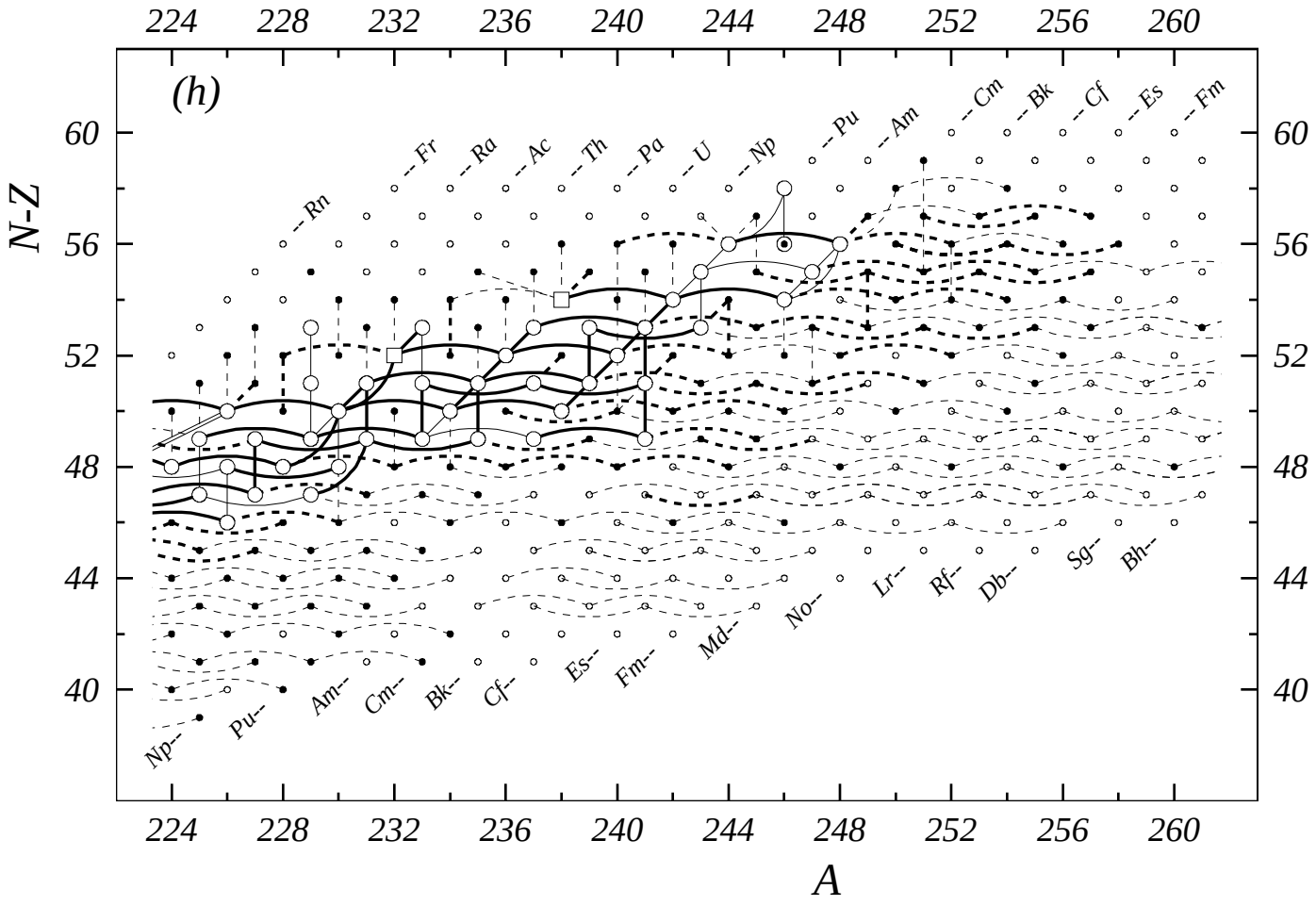
U--
Np--
Pu--


(h)
N-Z
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56
60
Rn
Fr
Ra
Ac
Th
Pa
U
Np
Pu
Am
Cm
Bk
Cf
Es
Fm
Md
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Rf
Db
Sg
Bh
Np
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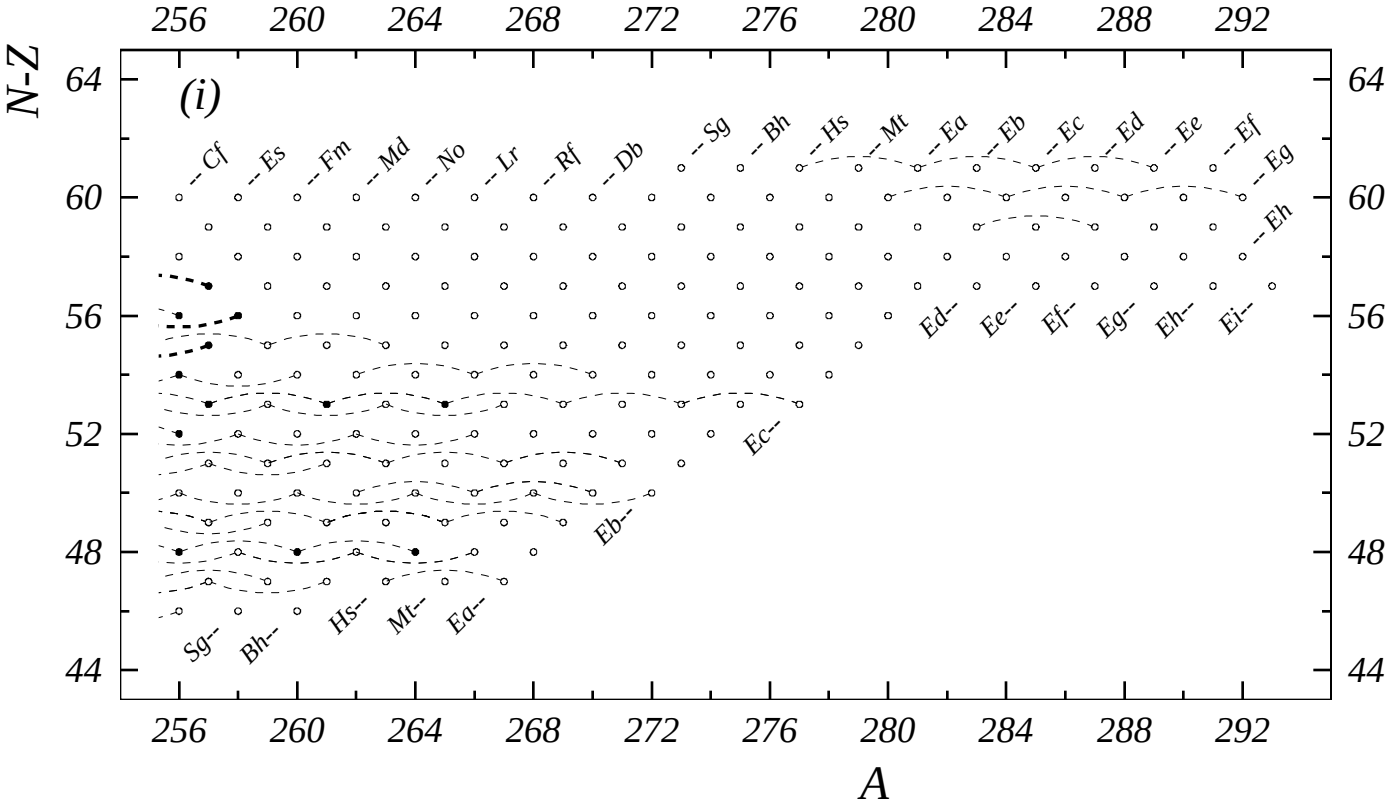
Am
Cm
Bk
Cf
Es
Fm


(i)
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272
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288
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48
52
56
60
64
Cf
Es
Fm
Md
No
Lr
Rf
Db
Sg
Bh
Hs
Mt
Ea
Eb
Ec
Ed
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Ef
Eg
Eh
Ed--
Ee--
Ef--
Eg--
Eh--
Ei--
Ec--
Eb--
Sg--
Bh--
Hs--
Mt--
Ea--