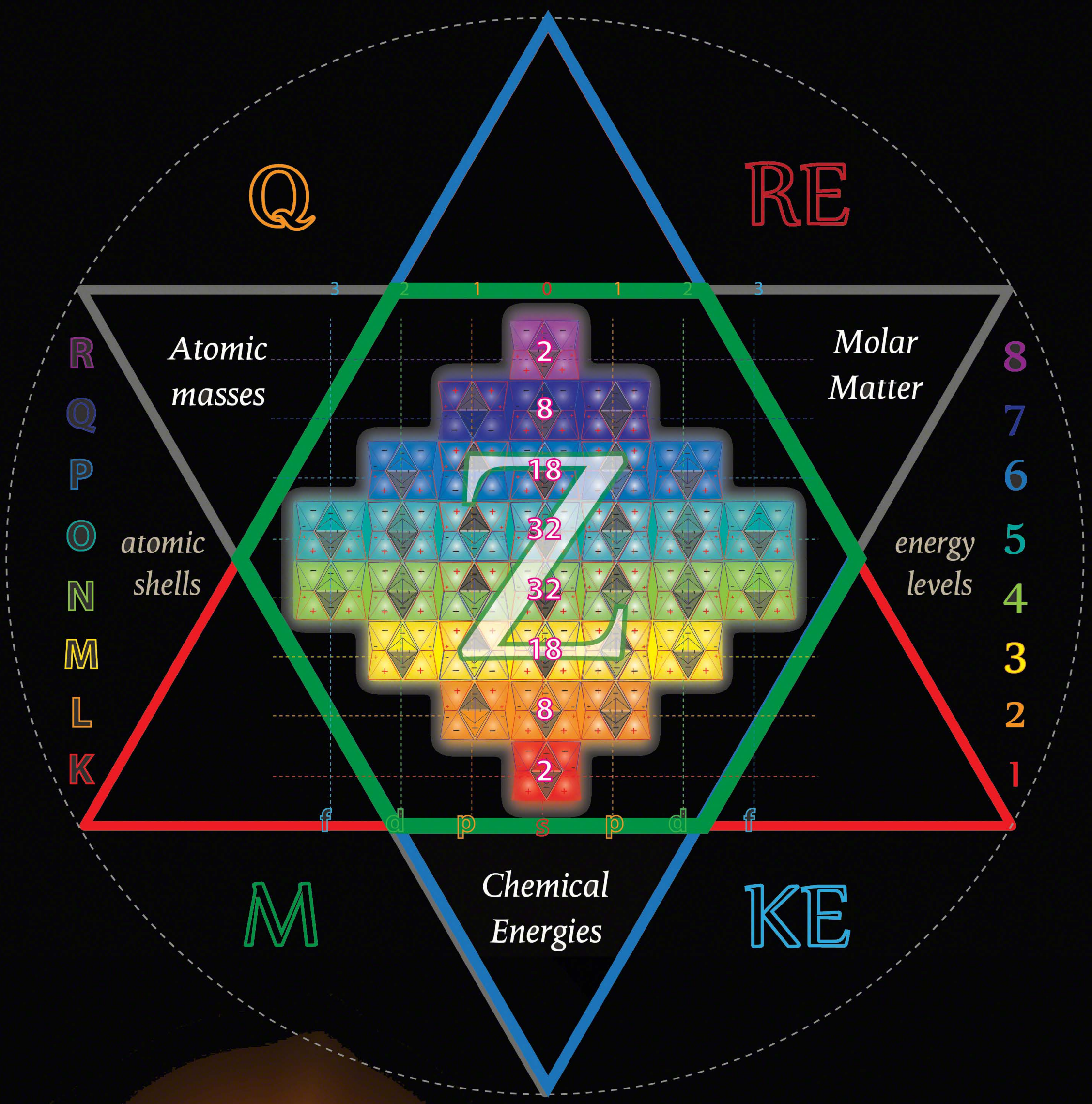
TETRYONICS

The charged topology of periodic & compound Matter



Foundational Quantum Chemistry

Abraham

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[Second Edition © 2012]

Residual Electro-Magnetic Forces

allow Neutrons and Protons to attract via the opposite Electric charge points created by their constituent Quarks in order to create Elementary Nuclei

Protons + Neutrons

u+d+u d+u+d

All electrons, quarks and Baryons are made up of 4n+ (Tetryonic) standing-wave EM fields.

As well as having nett Tetryonic charged topologies ranging between [+24] ~ [-12] they all posses distinct ELECTRIC FIELDS that are concentrated in 3 apex points as indicated in the illustrations

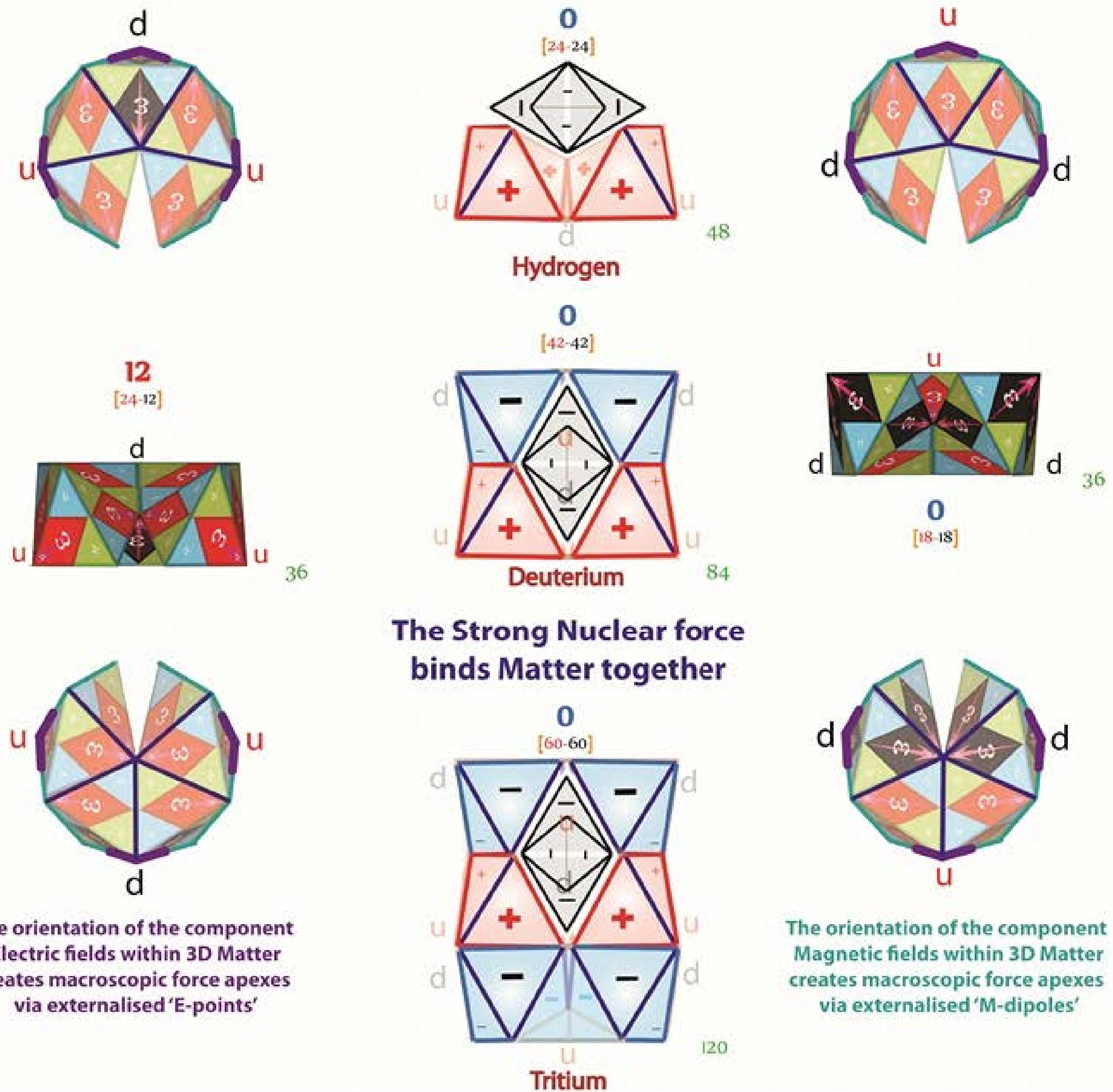
These points result from the orientation of Electric apexes and orthagonal Magnetic dipole field edges that make up each particle's externalised EM fields.

The Positive and Negative electric apex points, obey the Law of Interaction forcing separated nuceli to combine due to their individual nett Tetryonic charges and provide a means of orienting nuclei to each other to create larger particles [elements, allotropes and compounds]

External Magnetic (H) fields can interact with the integral magnetic (B) dipoles of Tetryonic particles forcing them to orientate in specific directions to facilite chemical bonding [nuclear forces]

Additionally, external Electric fields can interect with the integral electric fields attracting or repelling them depending on the polarity of the external electric field [Electrostatics]

External energies can be induced into these integral EM fields via inductive coupling or the absorption of spectral photons in turn leading to an increase in the strengthes of the integral EM apexes in turn increasing the Strong Nuclear Force.



The orientation of the component Electric fields within 3D Matter creates macroscopic force apexes via externalised 'E-points'

The orientation of the component Magnetic fields within 3D Matter creates macroscopic force apexes via externalised 'M-dipoles'

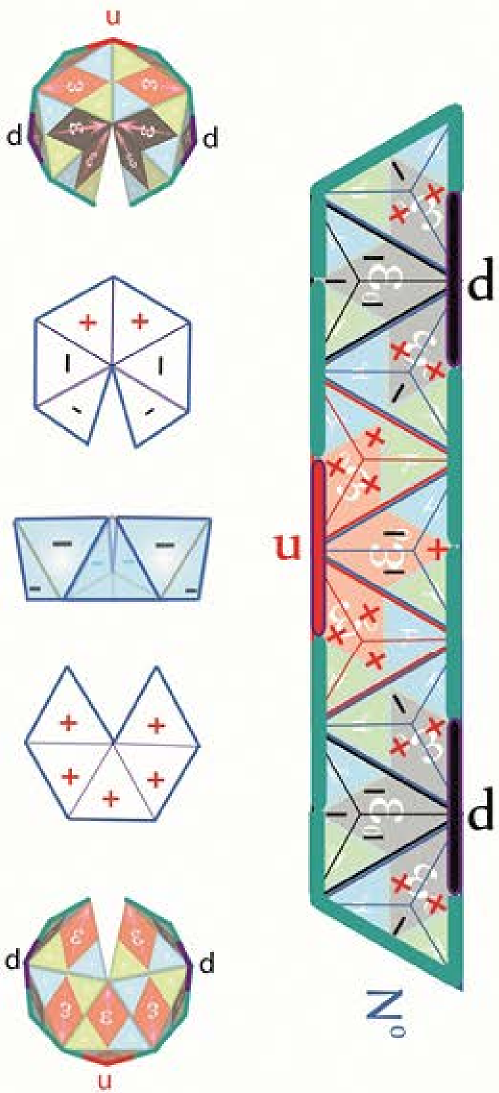
Nucleonic residual EM force

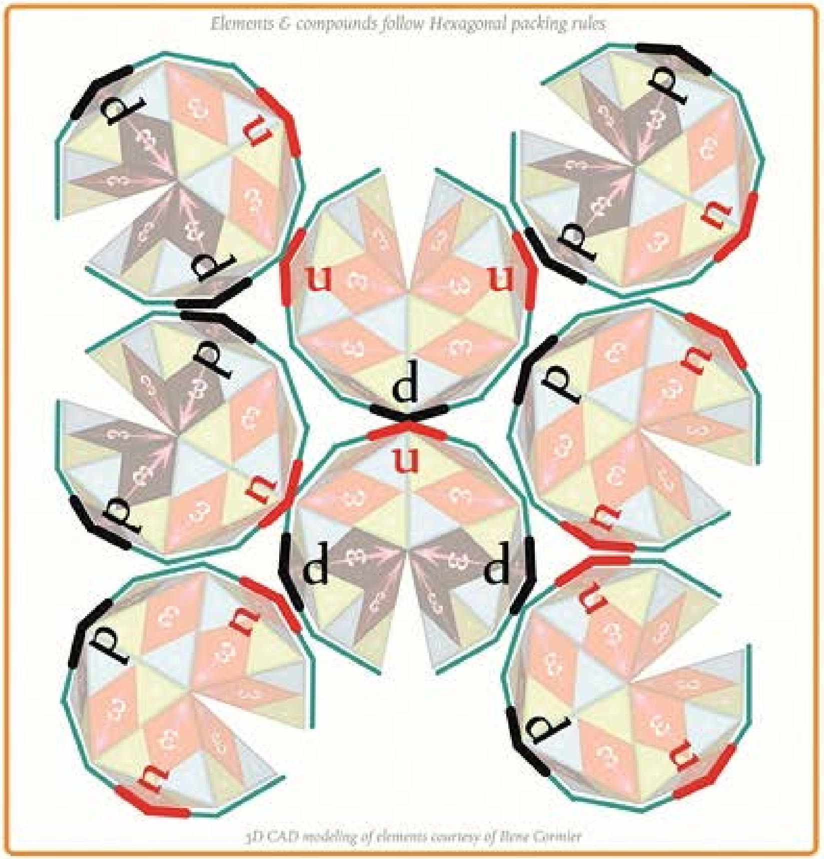
Neutrons

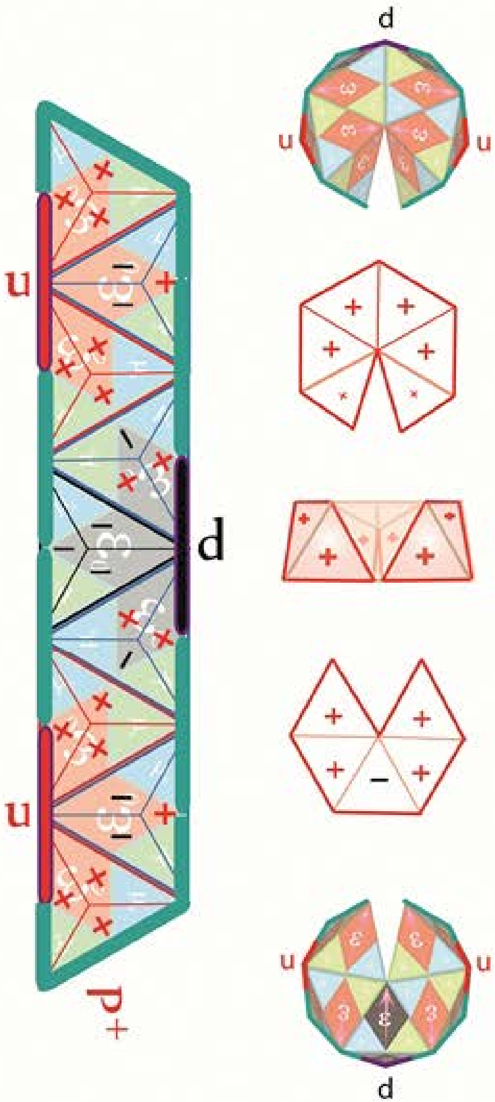
Protons

The attraction between Baryonic E&M field apexs, a result of their component Quark arrangements, results in the formation of heavier and more complex Nuclei

The residual e-field apexes and m-field dipoles form two rings of residual EM fields around the circumference of atomic nuclei







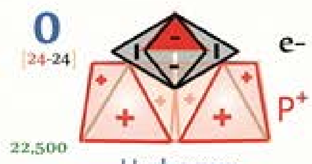
E-field apexes and their polarities highlight the quark alignment of all atomic nuclei and elements

UP Quark
Positive Electric field apex

DOWN Quark
Negative Electric field apex

Insulators and Conductors

The position of electrons in Nuclei within Atomic Elements
results in the properties of Insulators or Conductors



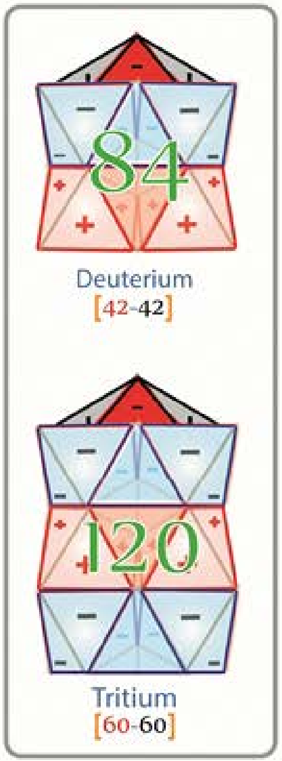
Coloumbic forces

Electrons are attracted to the residual EM net (+12) positive charge of Protons or n[+12] unbalanced Ionic charges of nuclei

Conductor

Electrical energies move around the material via boson exchanges and electron movement

0

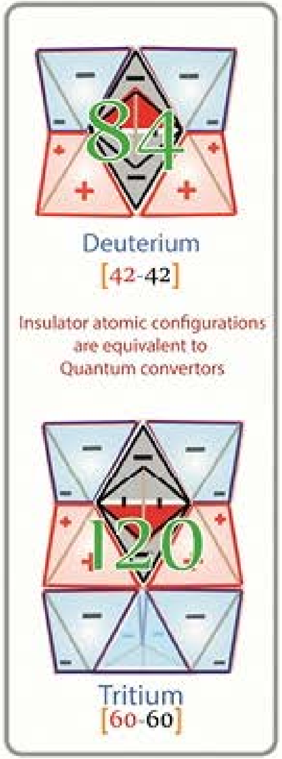


0

≈

Insulator

Electrical energy is fixed within the nucleus as electrostatic charges & released upon demand via electron rotation/motion within the nucleus

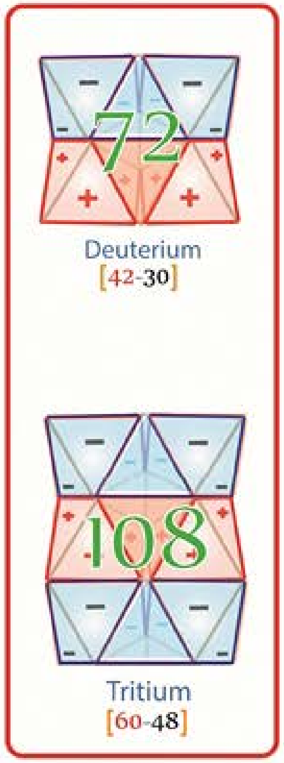


0

0

Ions

Charge (energy) is moved around material via electron movement



12

12

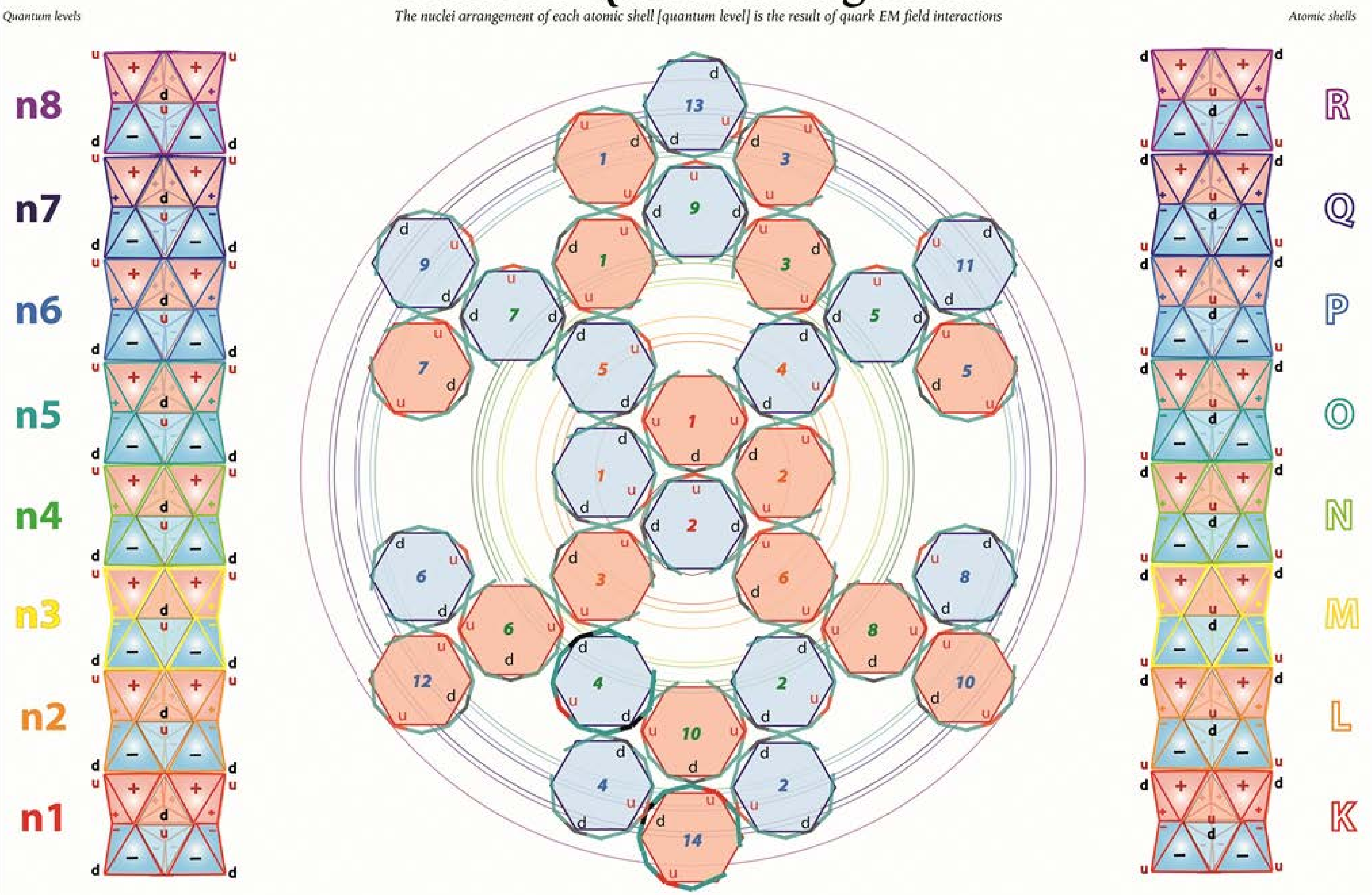
Conductive materials contain 'free' electrons that can be readily or easily moved within the material

Insulator materials have electrons that are 'bound' tightly to the atoms and store charges locally where they are applied

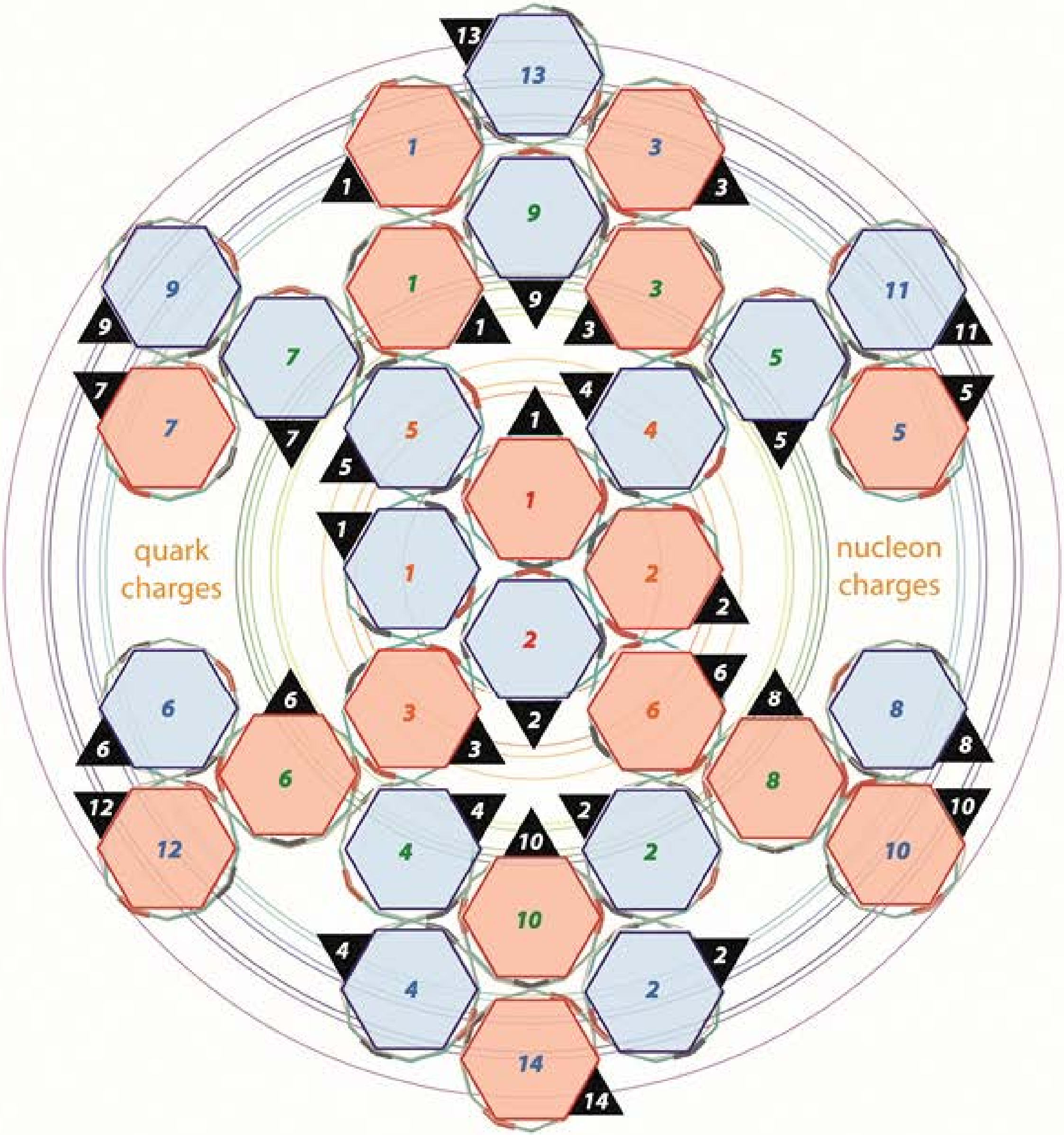
Materials that have been ionised are more likely to become Conductors as they easily attract and bind free electrons to them

Nucleon Quark Arrangement

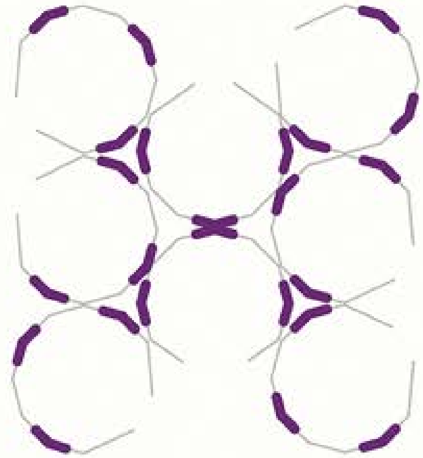
The nuclei arrangement of each atomic shell [quantum level] is the result of quark EM field interactions



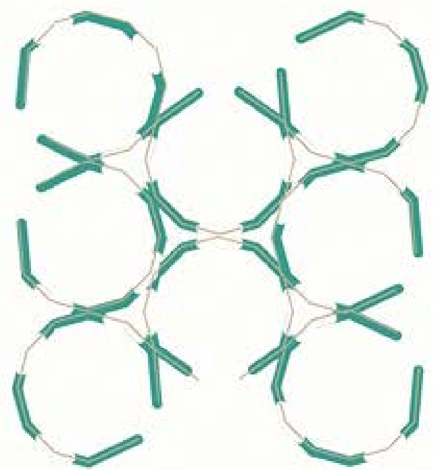
Nucleon Charges and Bonding



(Strong force - topological Electric Points)



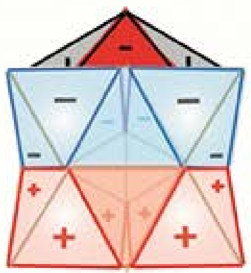
residual EM forces



(Strong force - topological Magnetic dipoles)

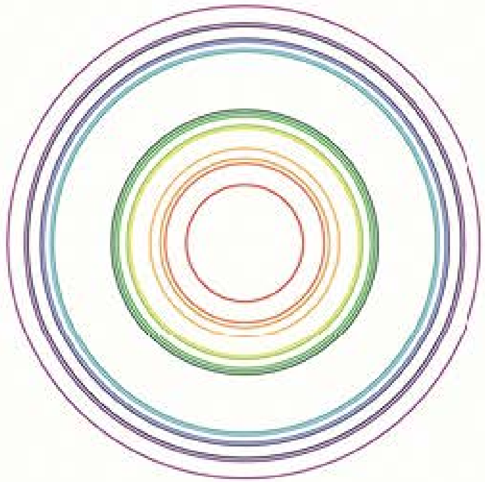
Bound electron arrangements

Externally bound electrons produce sub-orbital patterns different to the electron orbitals of internally bound electrons



Deuterium

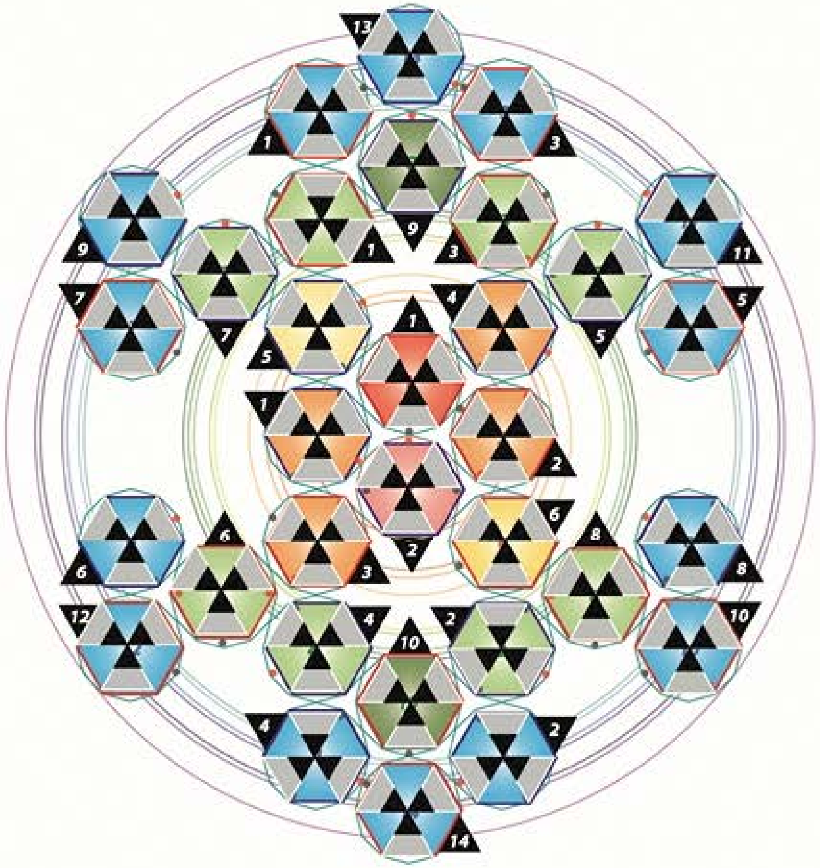
electrons are externally bound to the Deuteron nuclei



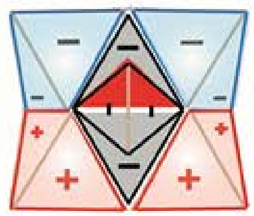
Conductors

Charges are free to move and equalise

electrons require less energy to 'break free' from Nuclei

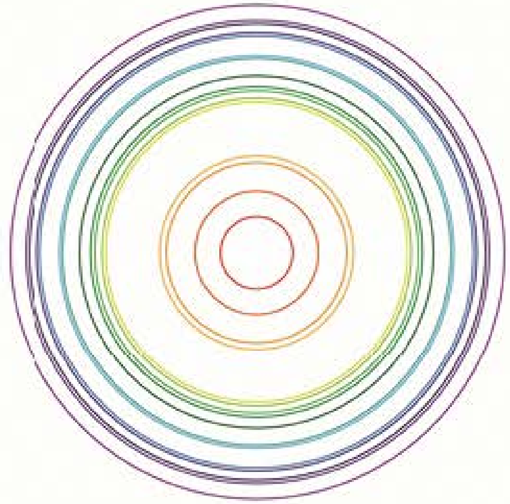


The electron orbitals of conductors are lower energies than those of insulators



Deuterium

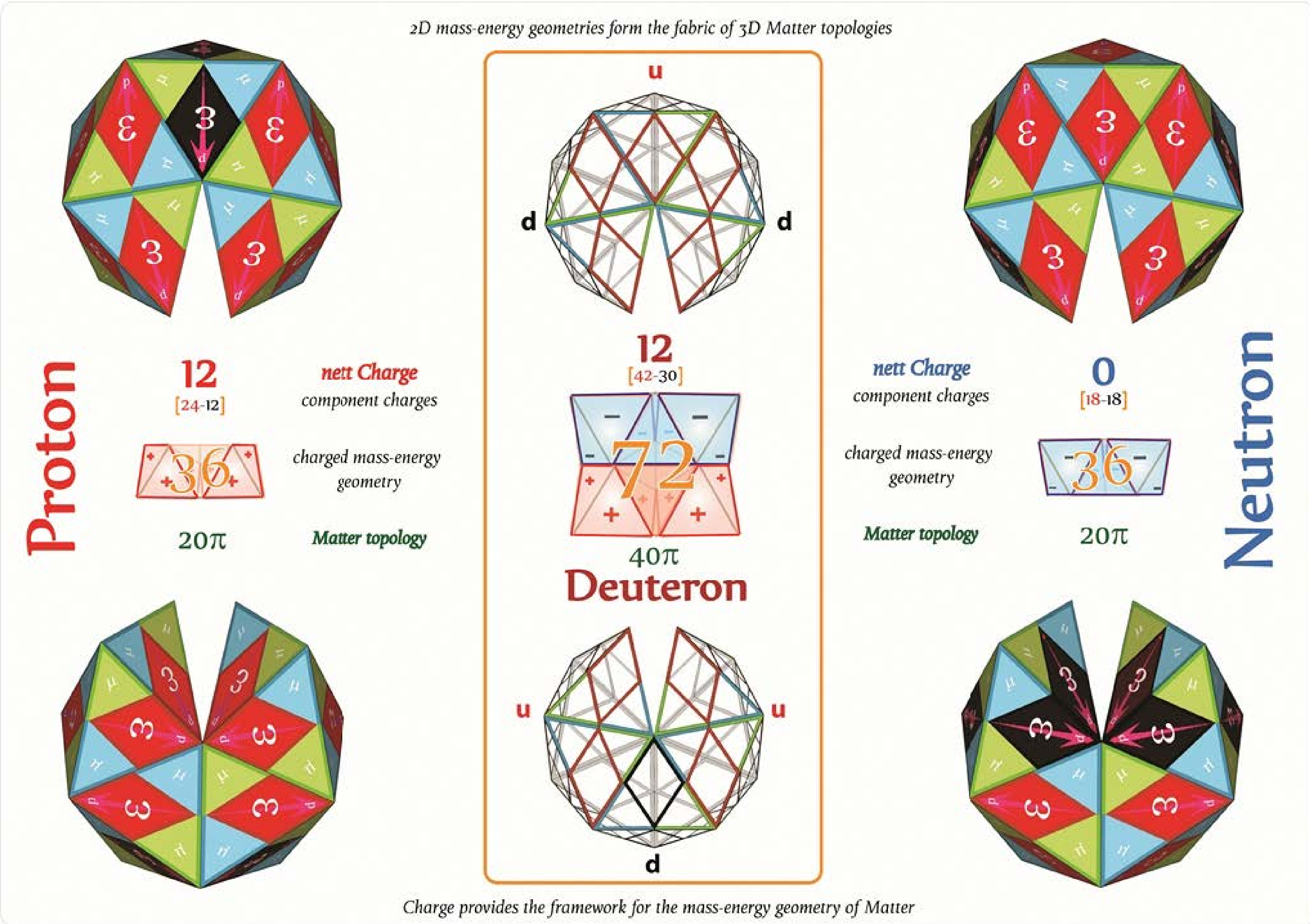
electrons are internally bound in the Deuteron nuclei

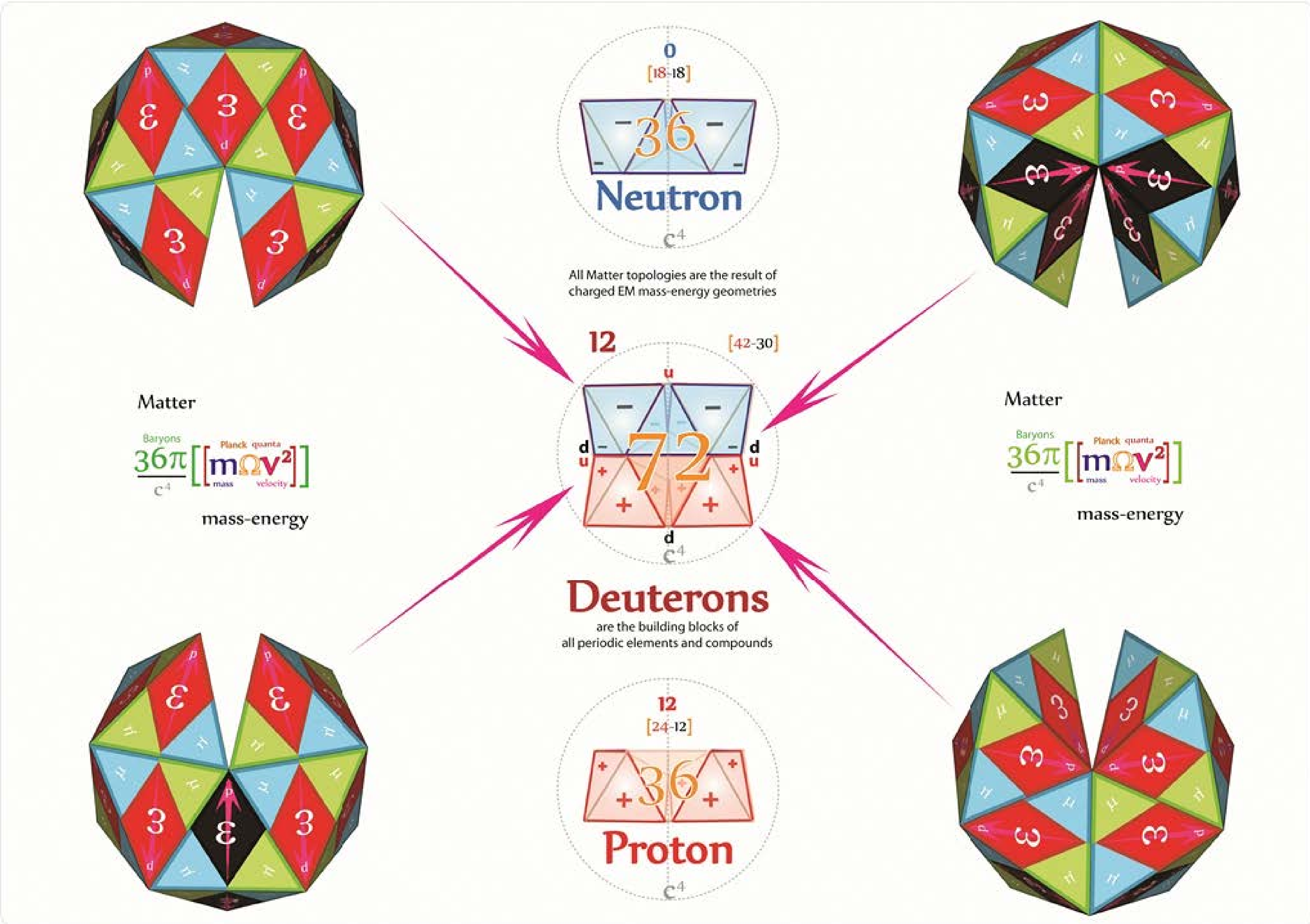


Insulators

Charges are bound to specific locations

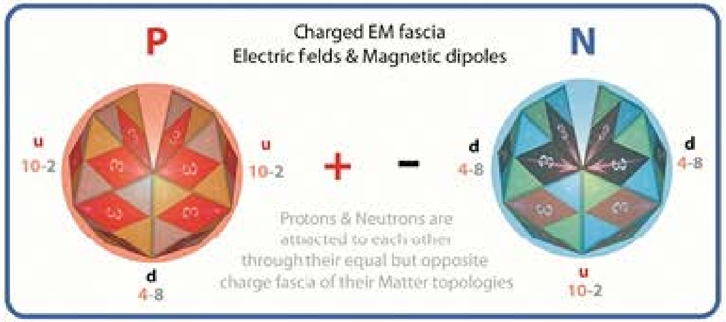
electrons require more energy to 'break free' from Nuclei

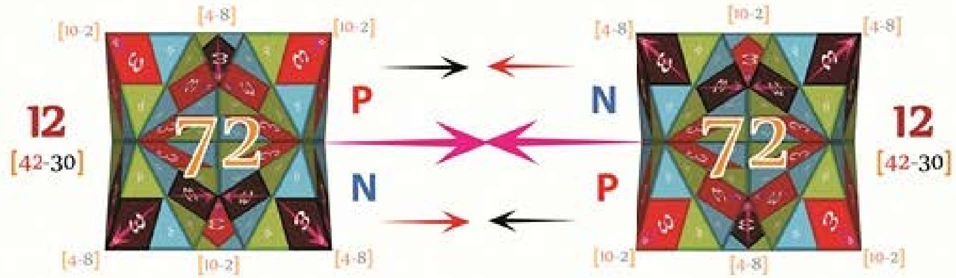

2D mass-energy geometries form the fabric of 3D Matter topologies
Proton
12
[24-12]
36
20π
nett Charge
component charges
charged mass-energy geometry
Matter topology
u
d
d
12
[42-30]
72
40π
Deuteron
u
u
d
nett Charge
component charges
charged mass-energy geometry
Matter topology
0
[18-18]
36
20π
Neutron
Charge provides the framework for the mass-energy geometry of Matter


0
[18-18]
36
Neutron
c4
All Matter topologies are the result of
charged EM mass-energy geometries
12
[42-30]
72
Deuterons
are the building blocks of
all periodic elements and compounds
12
[24-12]
36
Proton
Matter
Baryons
Planck quanta
36π [[mΩv²]]
c4
mass velocity
mass-energy
Matter
Baryons
Planck quanta
36π [[mΩv²]]
c4
mass velocity
mass-energy

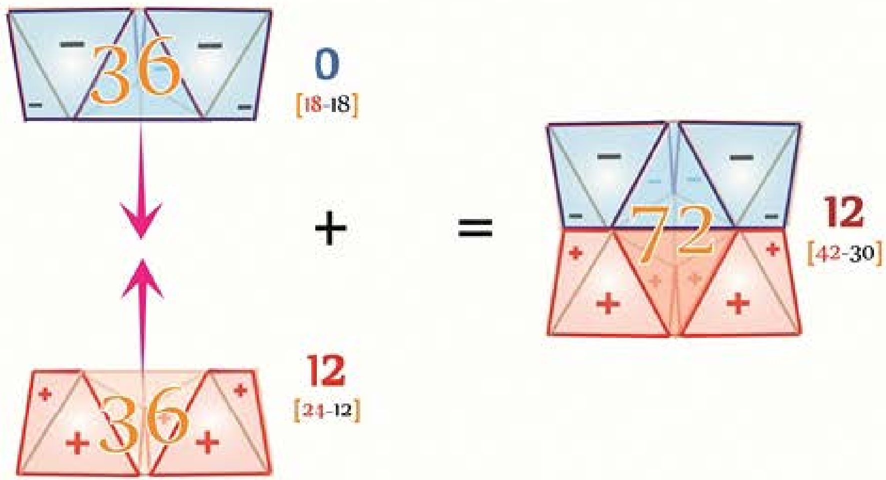
Strong Forces and Nuclear Bonding

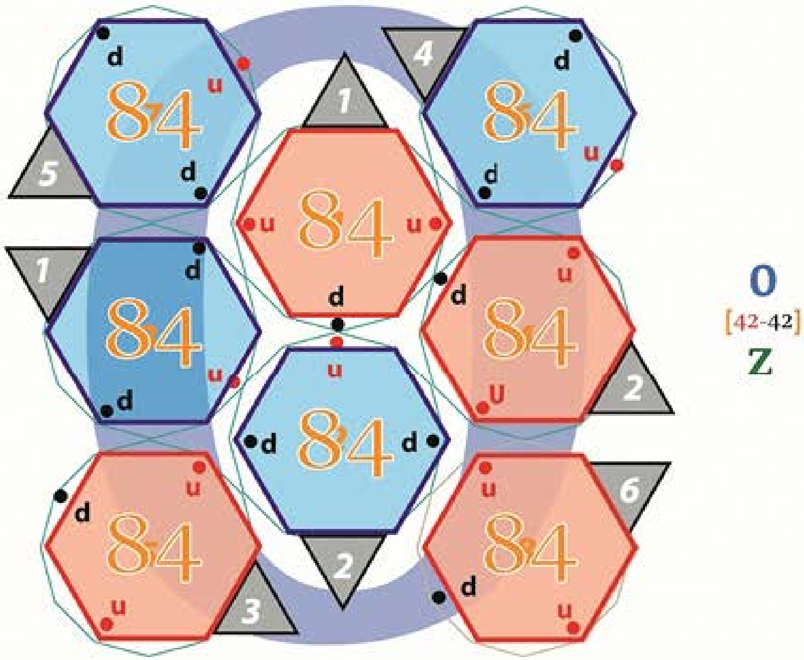
How do Baryons with Positive and Neutral charges attract each other and bind to form stable elements ?





Once nuclei have been created their external electric fields & magnetic dipoles continue to attract and bind individual nuclei together via the Residual EM Force as nuclei seek charge equilibrium by combining with each other and electrons to form neutral elements

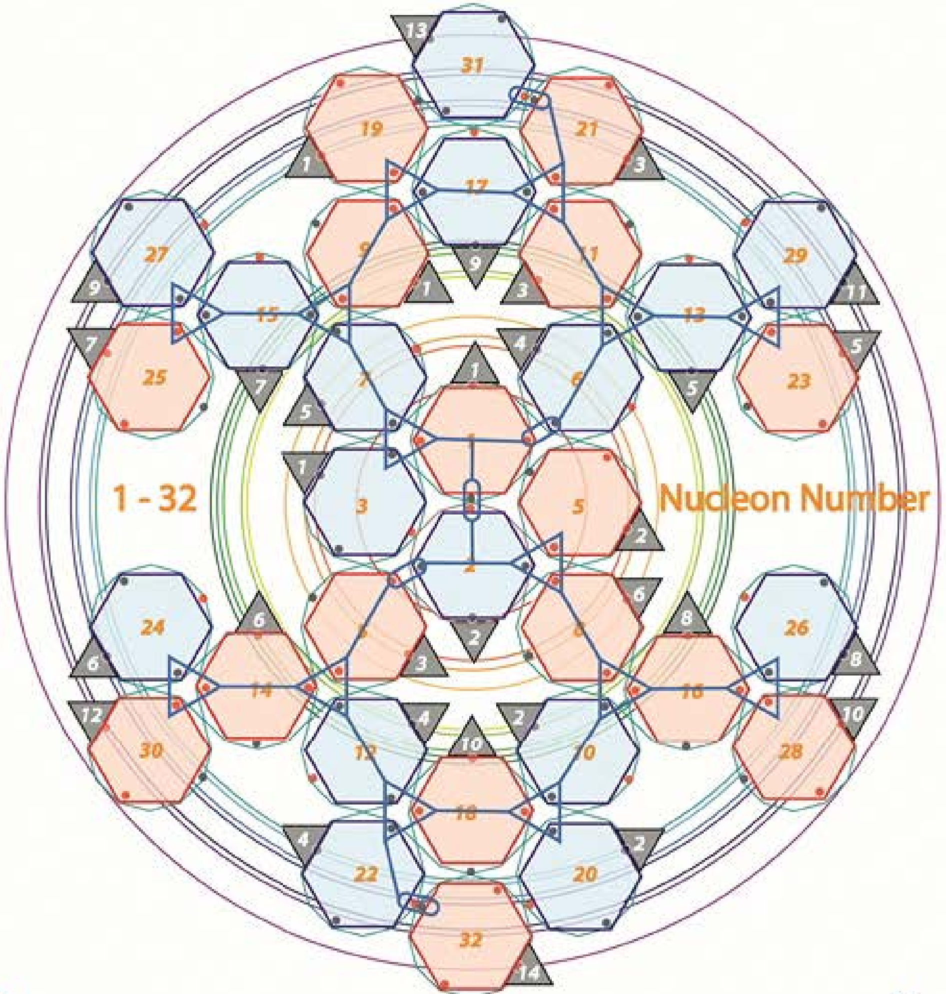


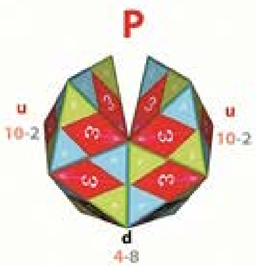


The attraction and binding of Protons and Neutrons through their electric charge imbalances creates Deuterons which have +12 charges

The residual Z[+12] charge is what attracts electrons to form neutral atomic nuclei via Coulombic attraction

Strong Nucleonic Bonding

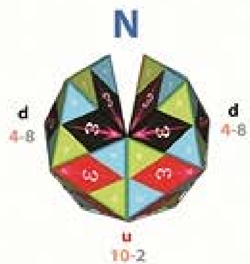




+

In addition to the Strong colour force
a separate residual binding force arises
from the external apexes formed by
Positive and Negative Electric points of quarks
in each Baryon [nuclear-chemical bonds]

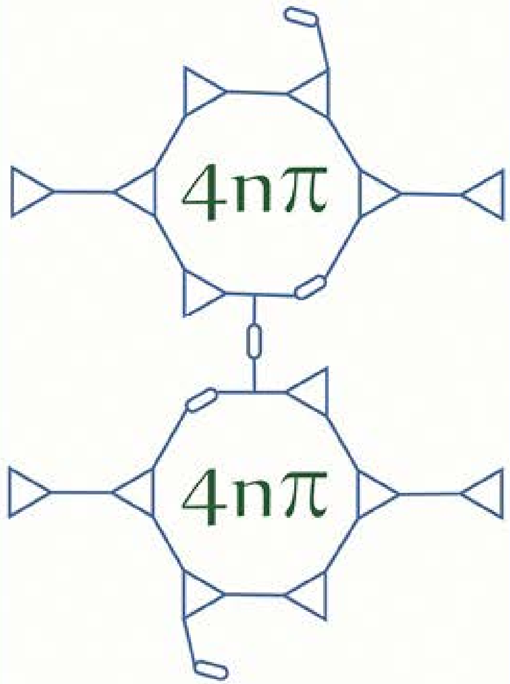
-



All energy seeks equilibrium

Strong E-force
nuclear linkages

External Electric field points bind via Charge fascia interactions with Plus and Minus Electric points combining and sharing energy throughout the resultant nuclei

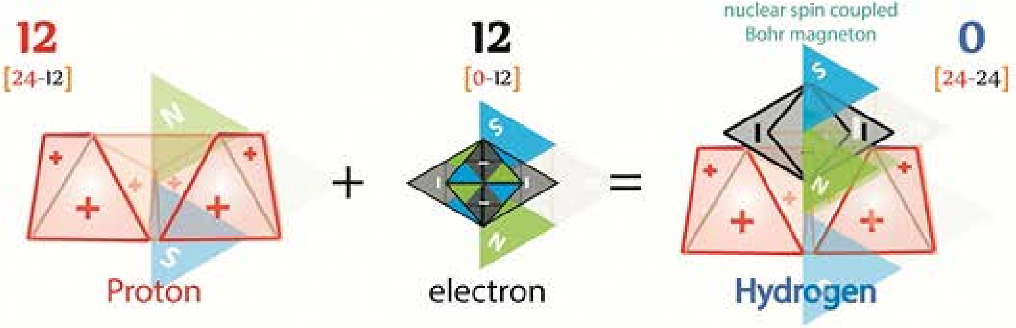


Positive Electric field apex

Negative Electric field apex

Hydrogenic vs Nucleonic electron binding

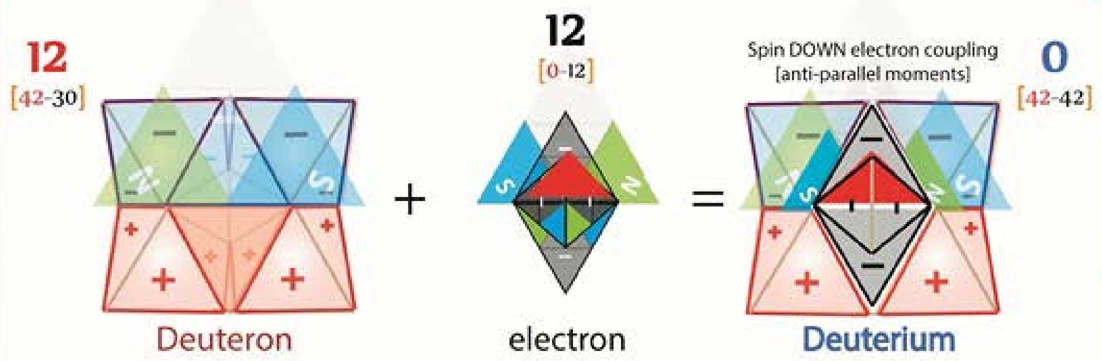
If a unbound Proton attracts an Electron
the Electron can be bound to the nuclei
in a number of differing orientations
[each with differing spin energies]



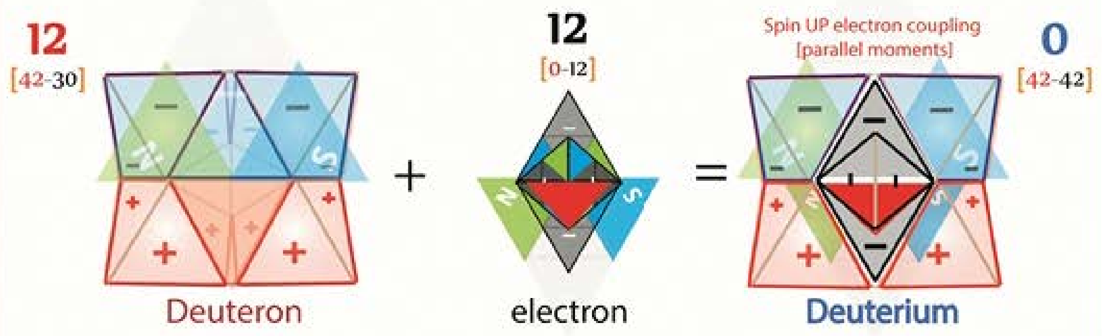
The energy levels of Baryons determines the KEM field energy of bound electrons

All atomic nuclei (and elements) are Deuteron'ic nuclei with a mixture of *orthagonal*, parallel and anti-paralllel spin orientations

(this is why Rydberg is less accurate for elemental nuclei compared to Hydrogenic atoms - see QM spin)



Bohr magnetons are always referenced wrt the Nuclear magneton

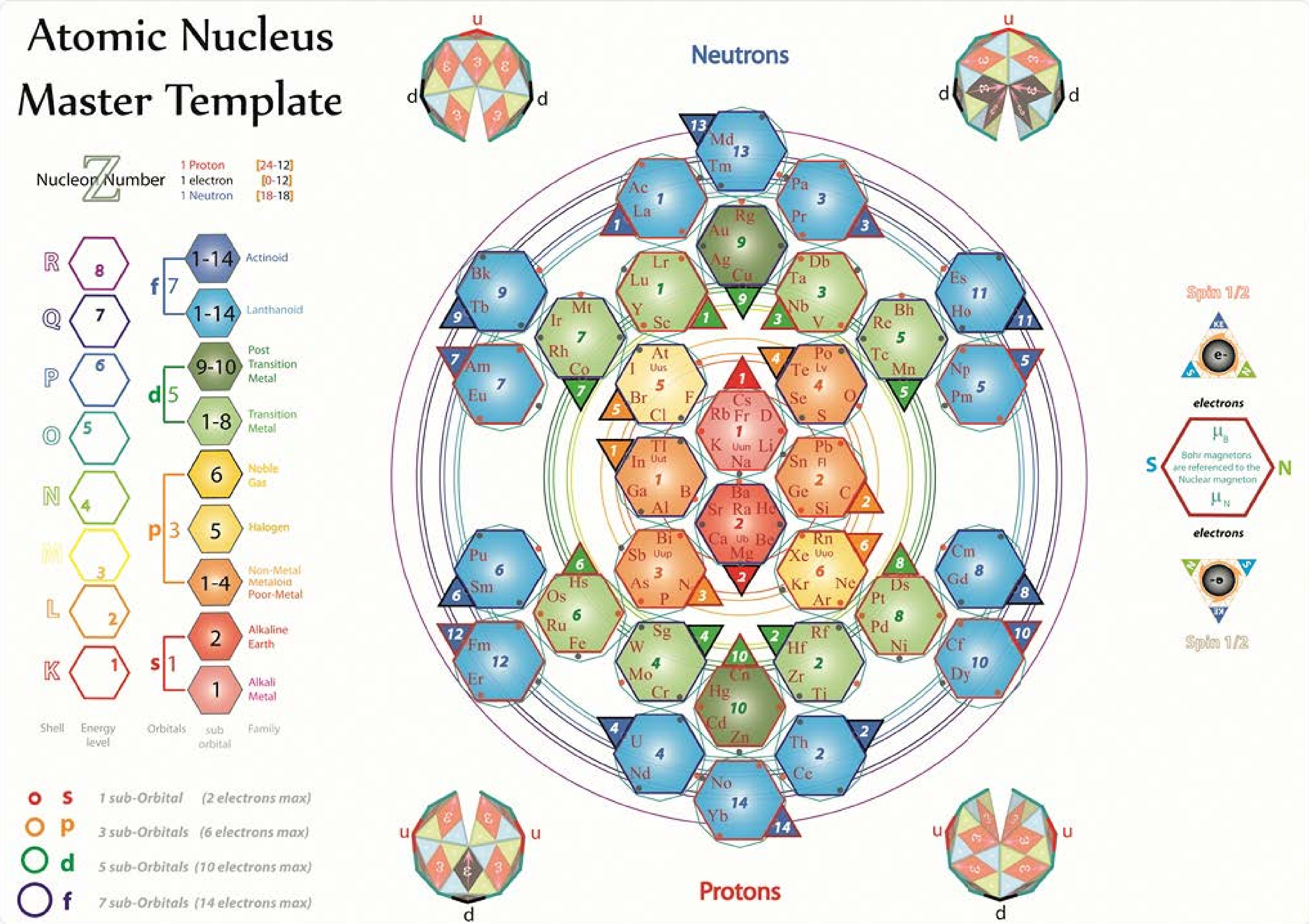


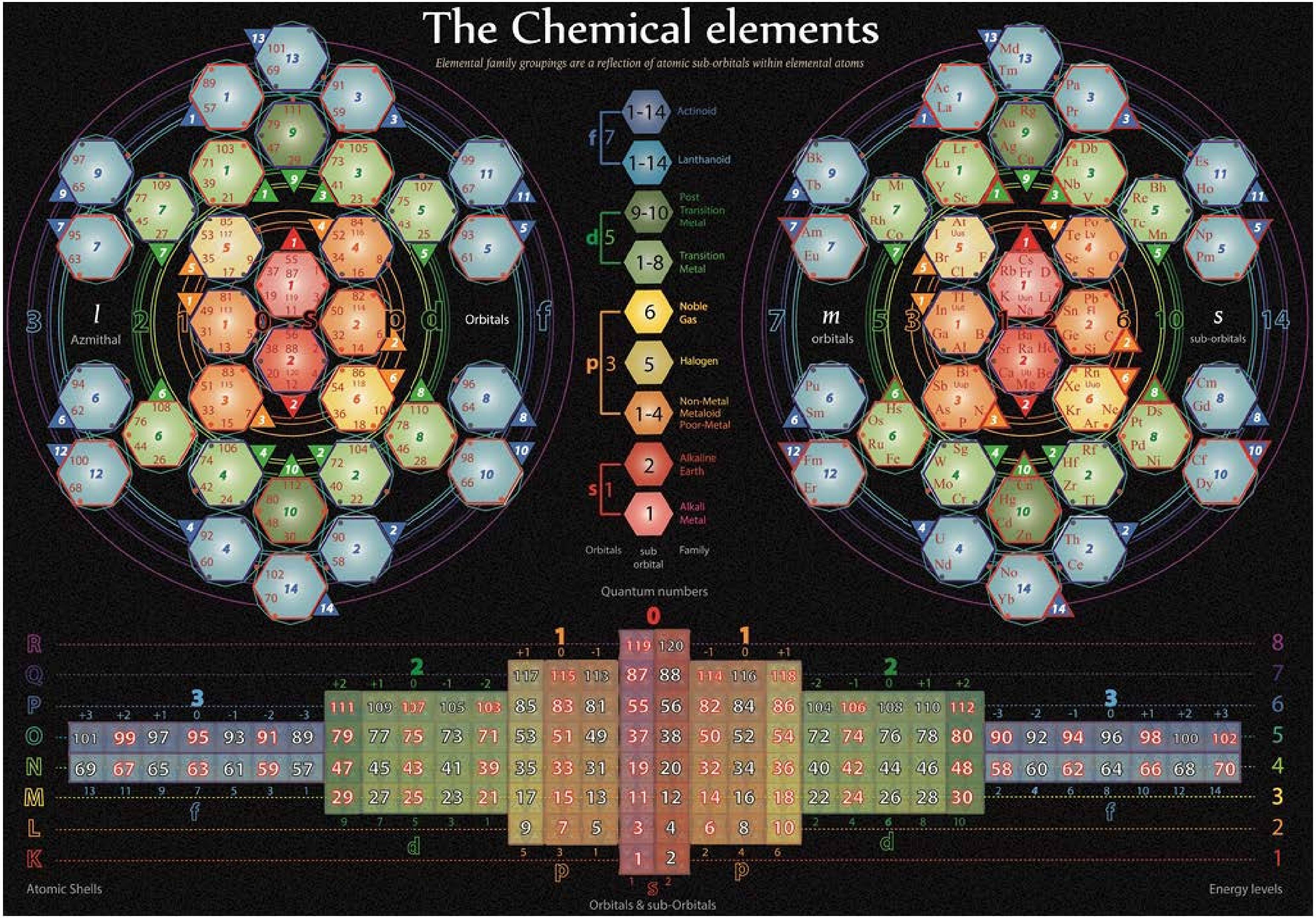
electrons produce stronger magnetic moments due to their mass-charge quotient

Electrons can be bound to deuteron nuclei
in four distinct orientations [2 horizontal & 2 vertical]
with each spin coupling orientation producing
differing energy electron orbitals
[wrt to the nuclear magnetic moments]

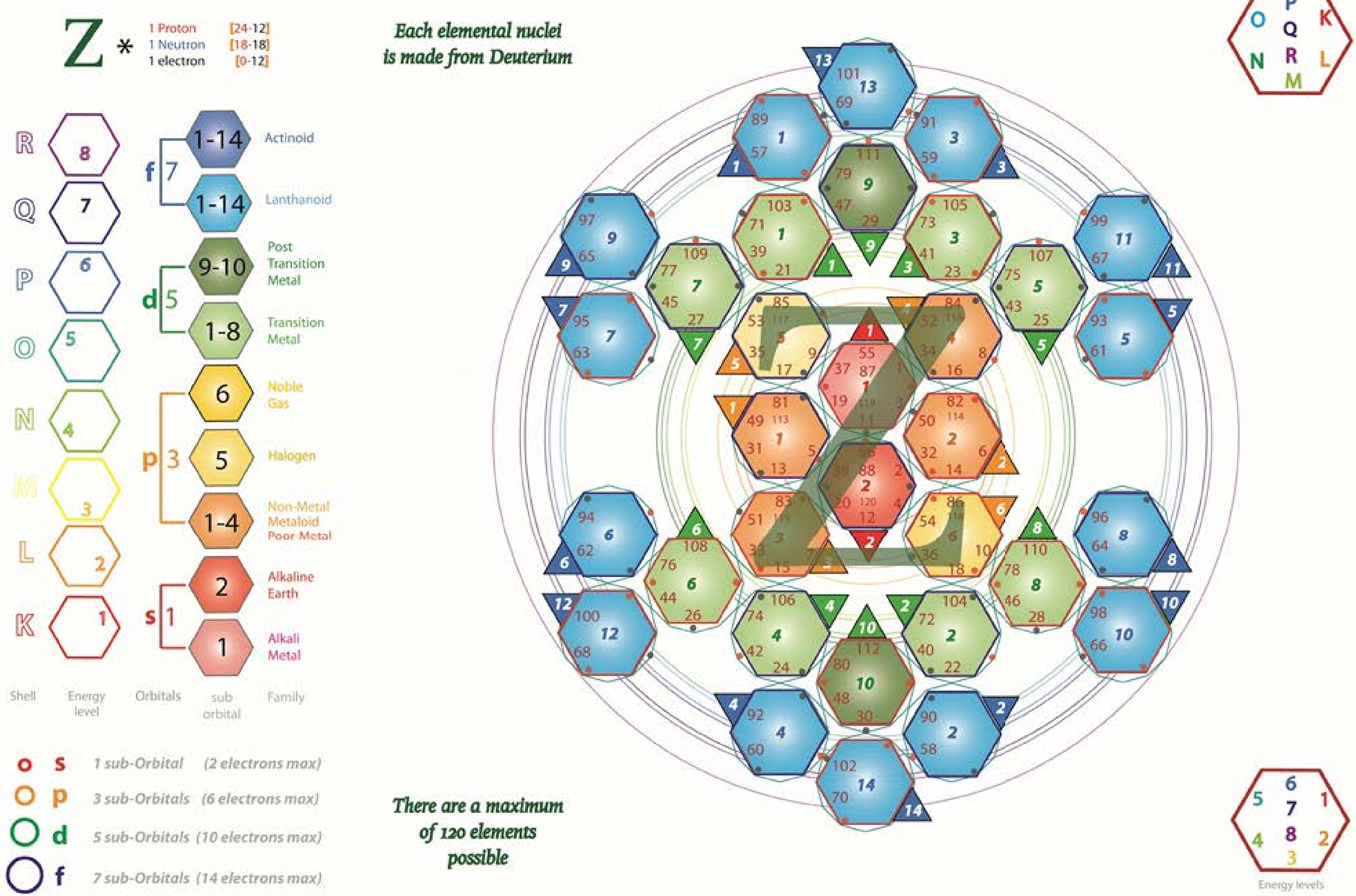
Ejecting electrons from atomic nuclei
by adding energies to their KEM fields
[the Photoelectric effect]
creates Positive Ions

Vertically orientated electrons
within Proton-Neutron Nuclei [Deuterons]
create quantum synchronous convertor geometries

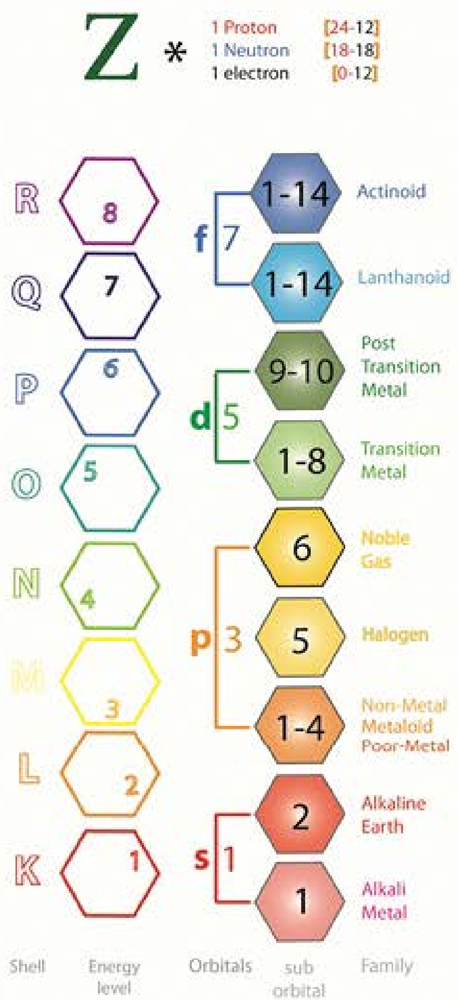

Atomic Nucleus
Master Template
Nucleon Number
1 Proton [24-12]
1 electron [0-12]
1 Neutron [18-18]
Actinoid
Lanthanoid
Post Transition Metal
Transition Metal
Noble Gas
Halogen
Non-Metal Metaloid Poor-Metal
Alkaline Earth
Alkali Metal
Shell
Energy level
Orbitals
sub orbital
Family
s 1 sub-Orbital (2 electrons max)
p 3 sub-Orbitals (6 electrons max)
d 5 sub-Orbitals (10 electrons max)
f 7 sub-Orbitals (14 electrons max)
Neutrons
Protons
Spin 1/2
electrons
Bohr magnetons are referenced to the Nuclear magneton
electrons
Spin 1/2


The Chemical elements
Elemental family groupings are a reflection of atomic sub-orbitals within elemental atoms
Actinoid
Lanthanoid
Post Transition Metal
Transition Metal
Noble Gas
Halogen
Non-Metal Metaloid Poor-Metal
Alkaline Earth
Alkali Metal
Orbitals
sub orbital
Family
Quantum numbers
Azmithal
Orbitals
orbitals
sub-orbitals
Atomic Shells
Energy levels
Orbitals & sub-Orbitals

Element Numbers



Element Names



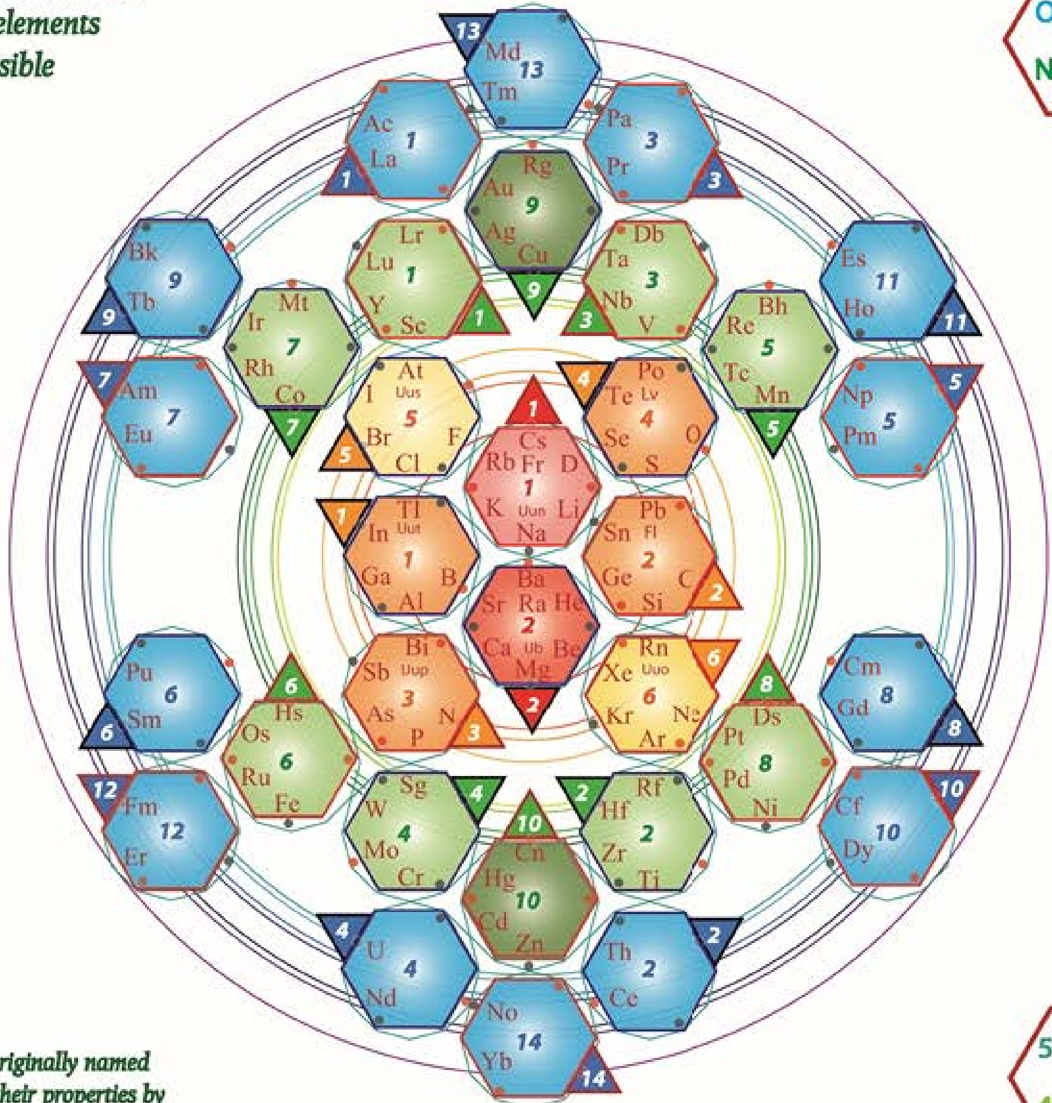
s 1 sub-Orbital (2 electrons max)

p 3 sub-Orbitals (6 electrons max)

d 5 sub-Orbitals (10 electrons max)

f 7 sub-Orbitals (14 electrons max)

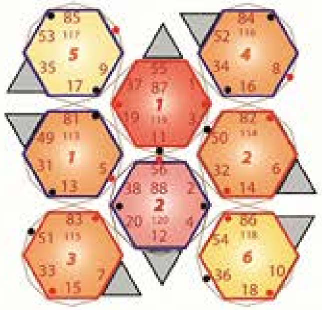
There are a maximum of 120 elements possible



They were originally named according to their properties by their discoverer but have recently been named after famous scientists

Electron orbital configurations

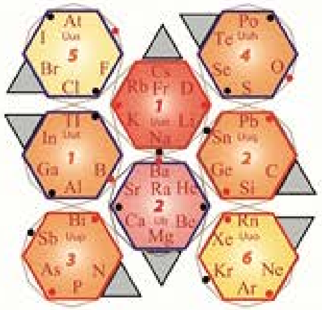
A huge number of differing d and f orbital configurations are possible given the number of nuclei and bond points created by elemental topologies

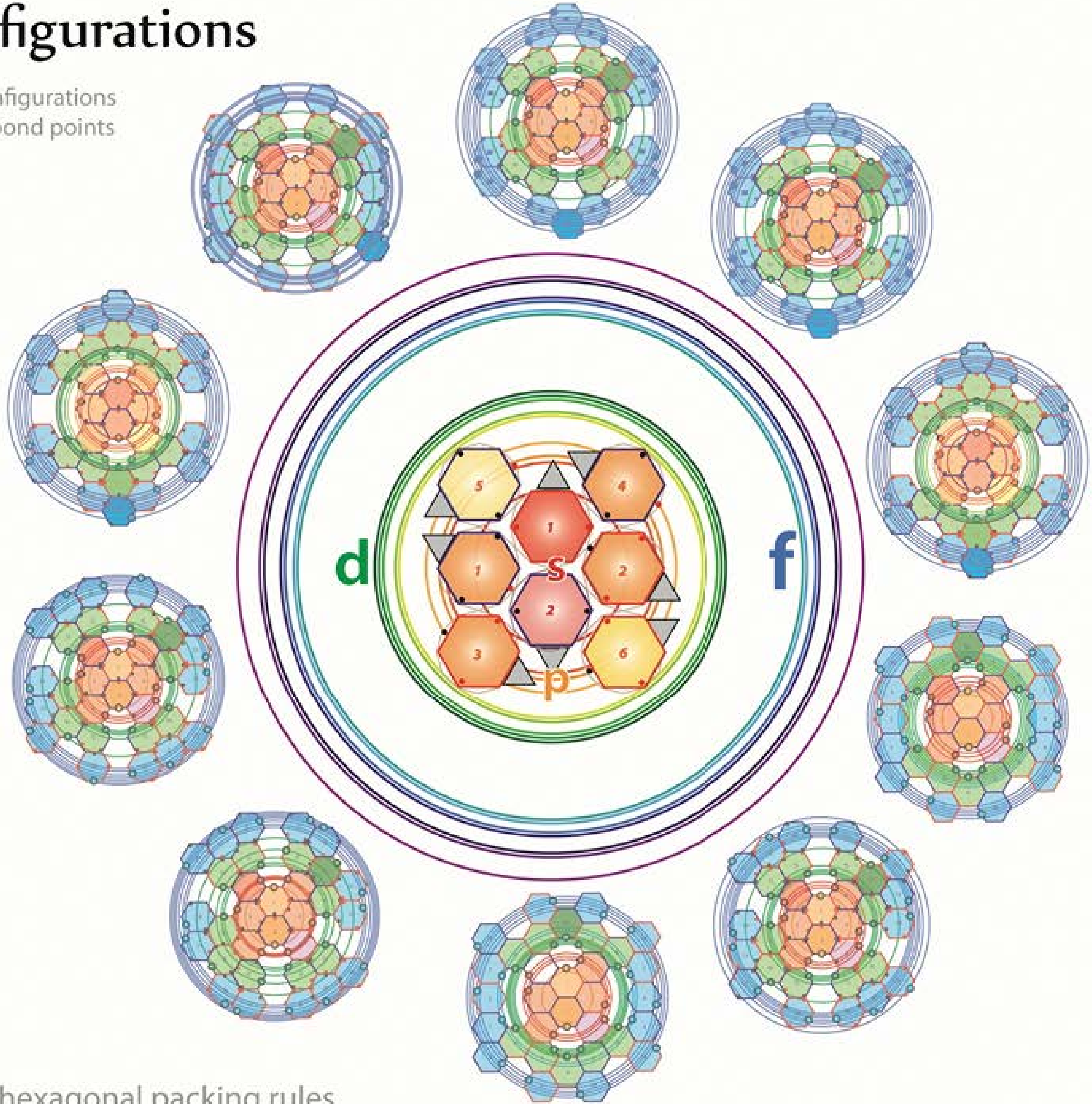


As the number of nucleons increases so does the complexity of the electron orbitals possible

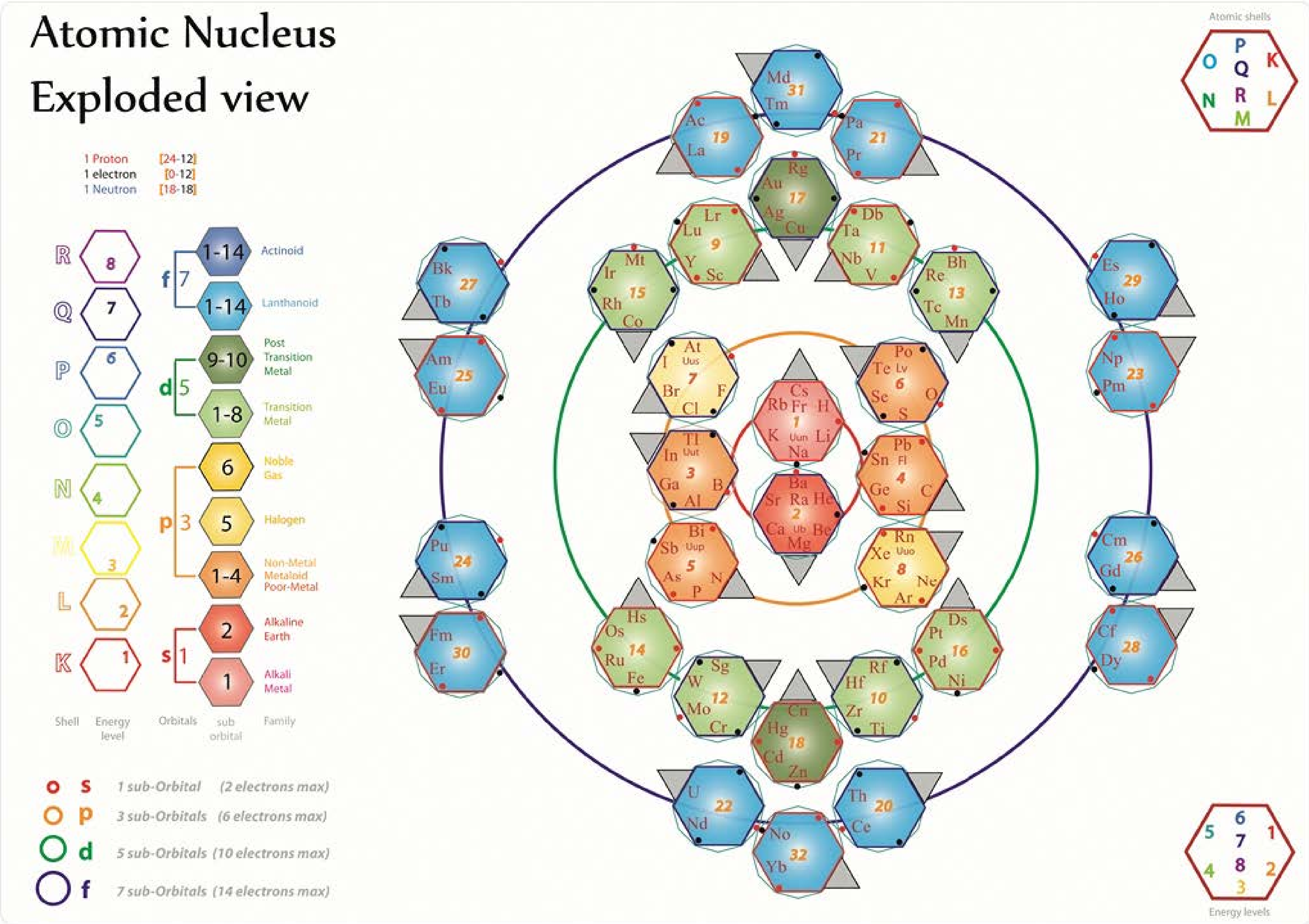
quantum snowflakes

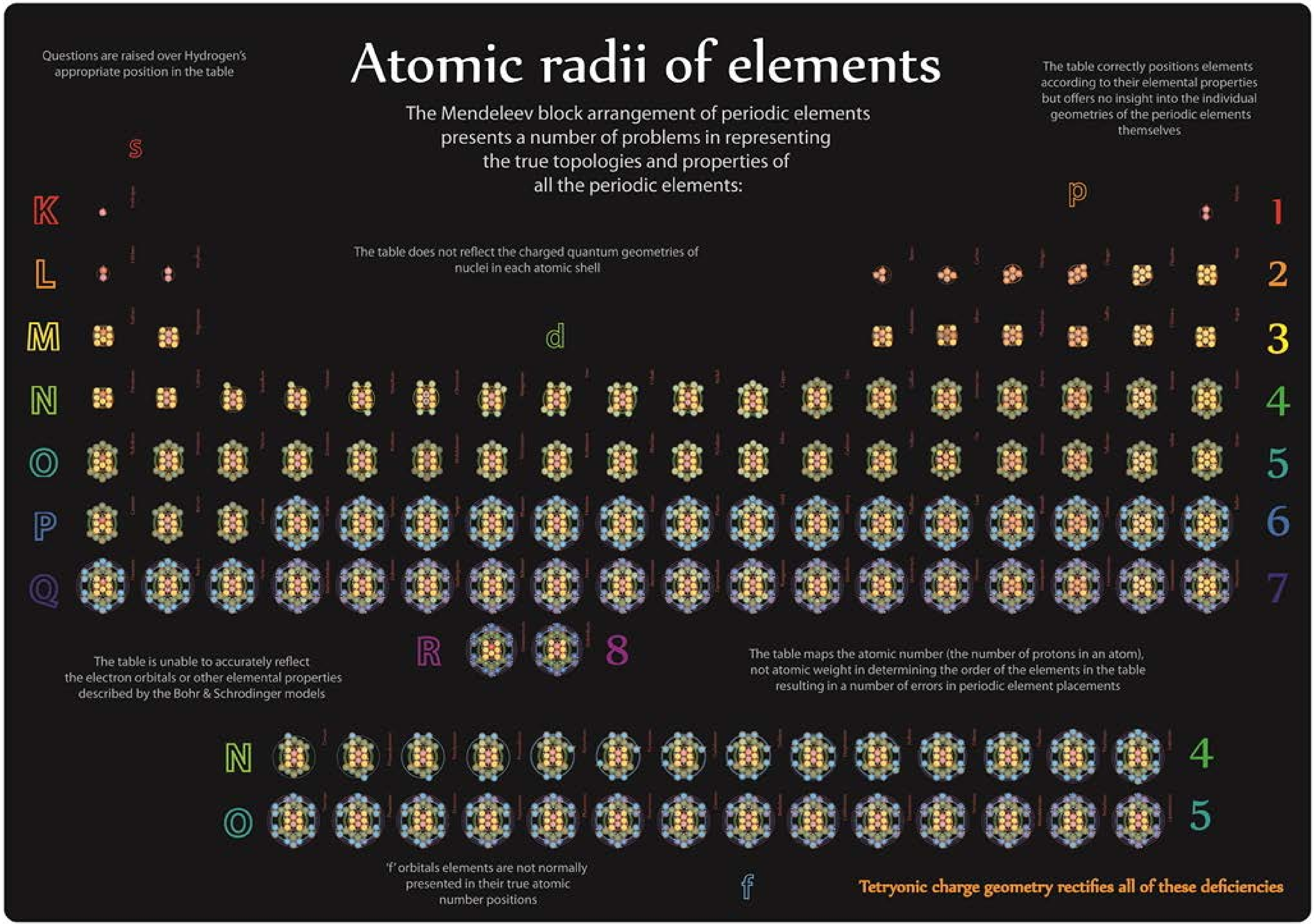
However all have a stable 'core' grouping of nuclei comprised of s and p electron orbitals



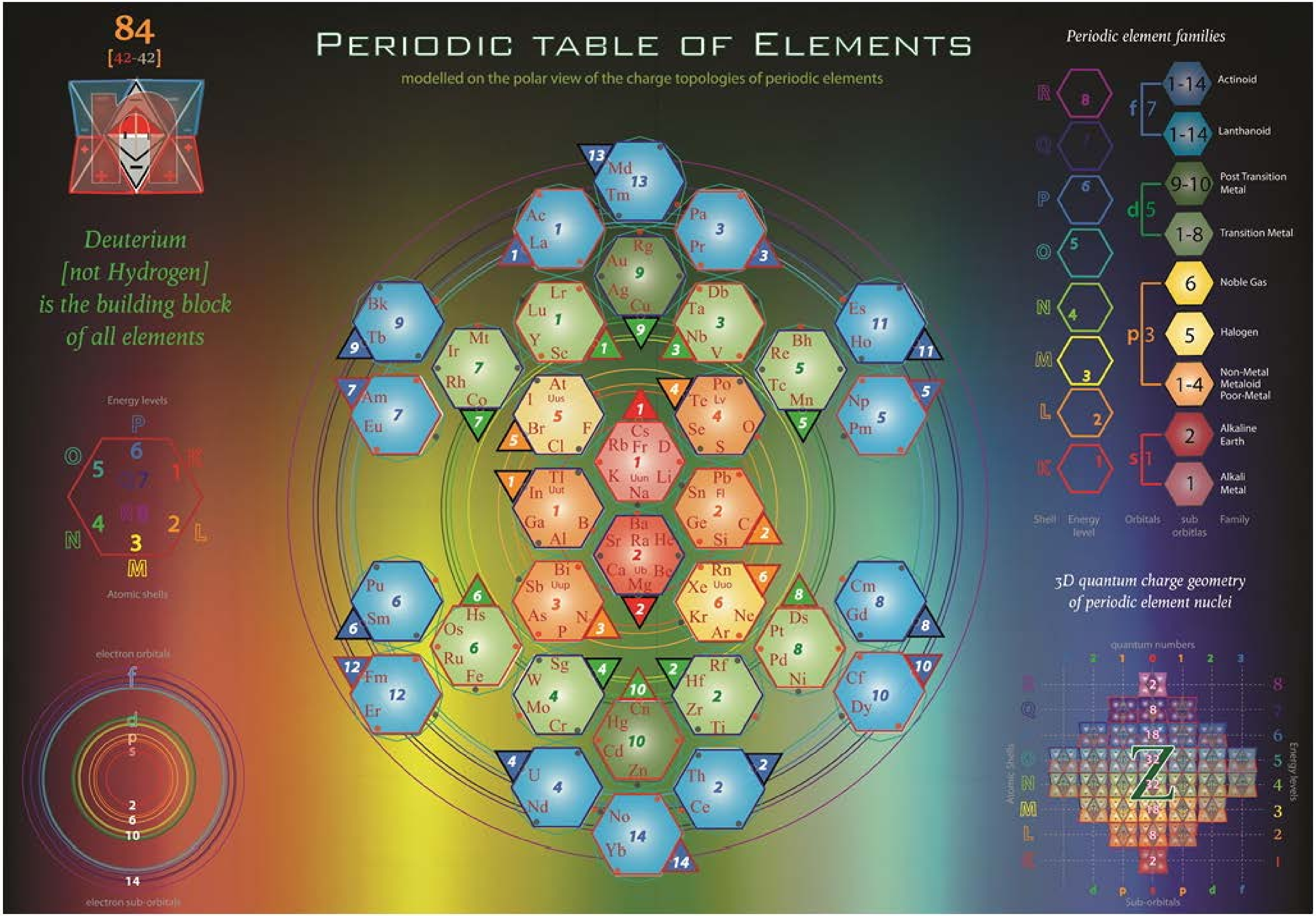


All nuclei bonding closely follows hexagonal packing rules

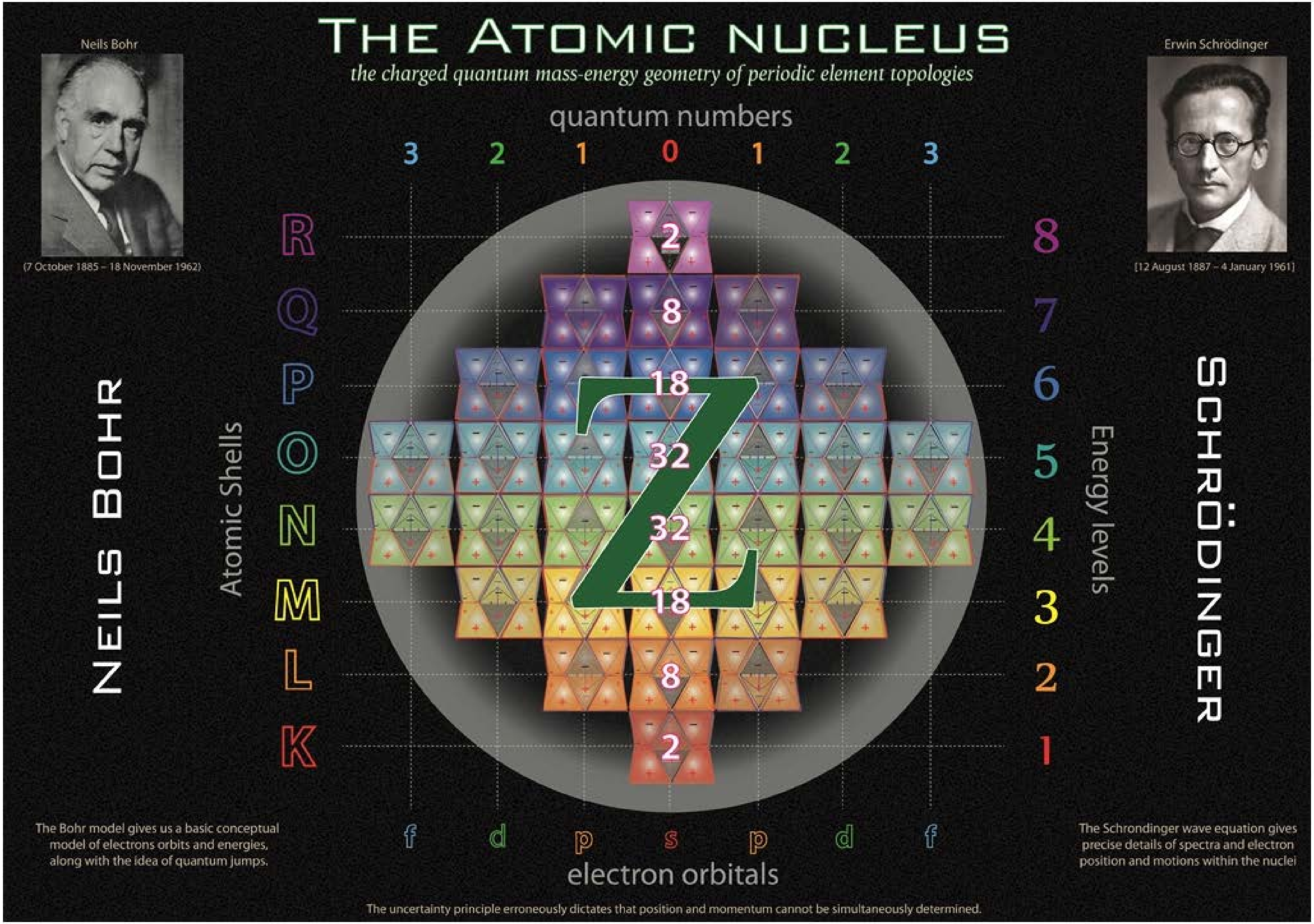

Atomic Nucleus
Exploded view
1 Proton [24-12]
1 electron [0-12]
1 Neutron [18-18]
Actinoid
Lanthanoid
Post Transition Metal
Transition Metal
Noble Gas
Halogen
Non-Metal Metaloid Poor-Metal
Alkaline Earth
Alkali Metal
Shell
Energy level
Orbitals
sub orbital
Family
s 1 sub-Orbital (2 electrons max)
p 3 sub-Orbitals (6 electrons max)
d 5 sub-Orbitals (10 electrons max)
f 7 sub-Orbitals (14 electrons max)
Atomic shells
Energy levels

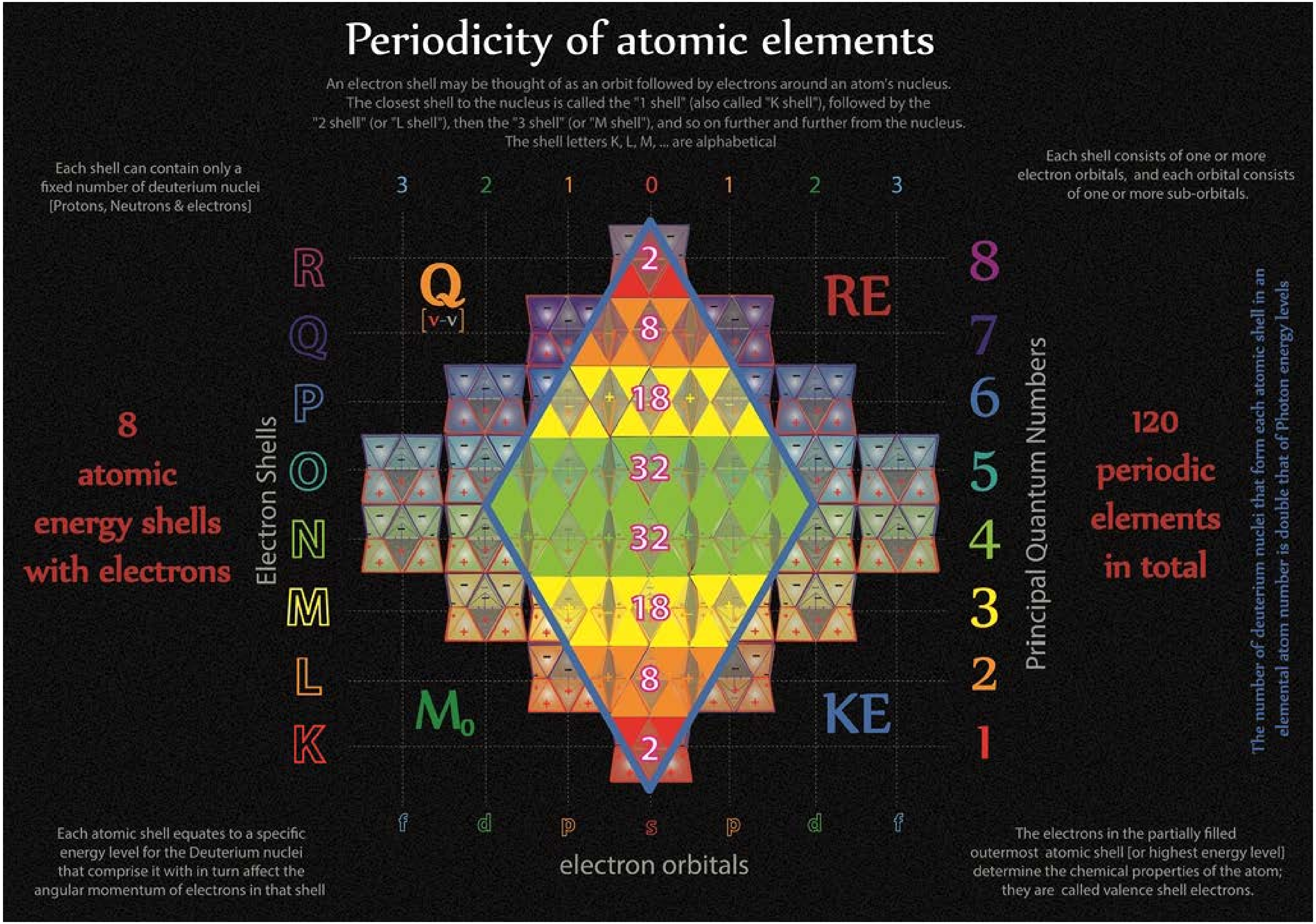


Tetryonics 43.07 - Atomic radii of elements

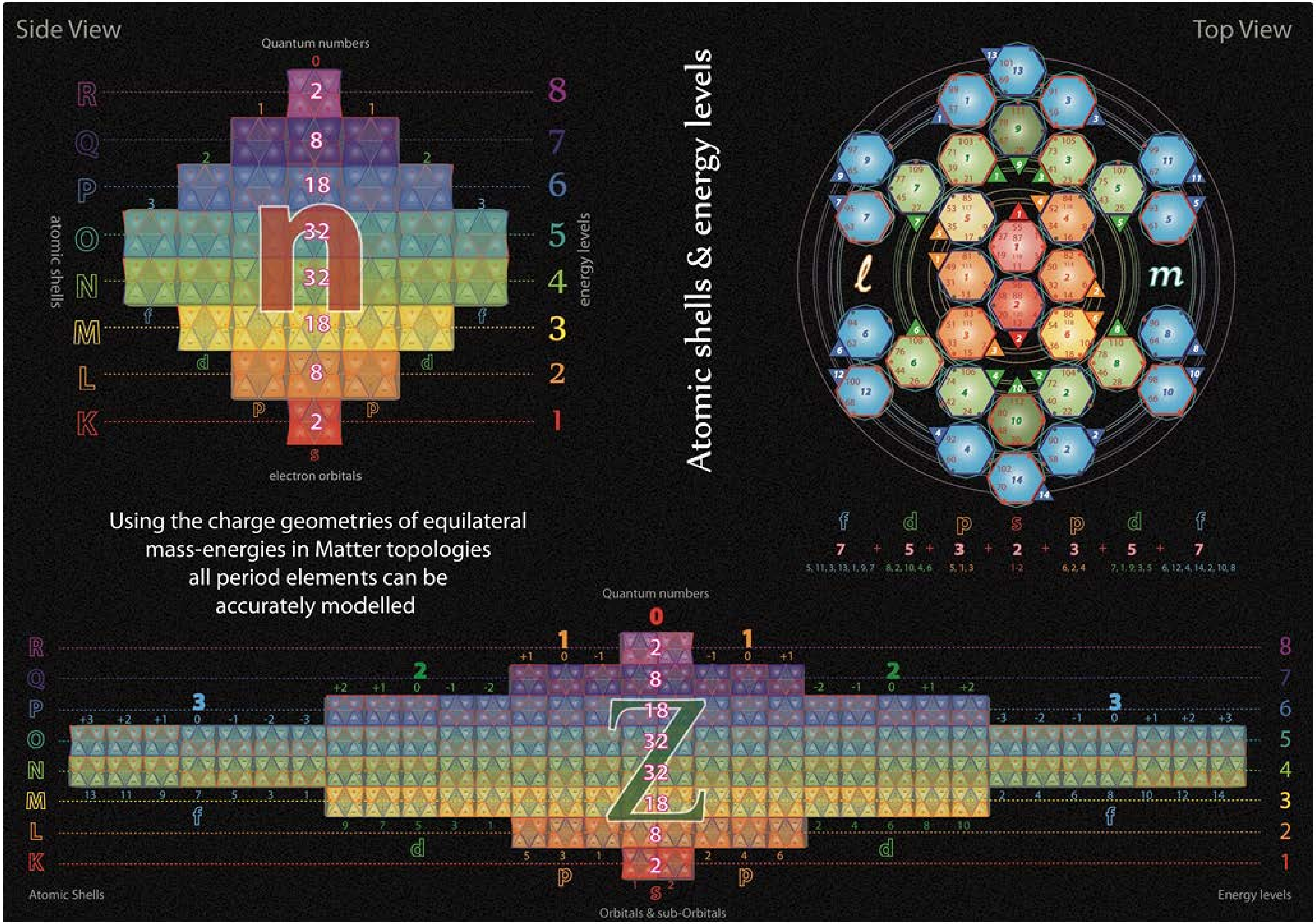


Periodic table of Elements
modelled on the polar view of the charge topologies of periodic elements
84
[42-42]
Deuterium
[not Hydrogen]
is the building block
of all elements
Energy levels
Atomic shells
electron orbitals
electron sub-orbitals
Periodic element families
Actinoid
Lanthanoid
Post Transition Metal
Transition Metal
Noble Gas
Halogen
Non-Metal
Metaloid
Poor-Metal
Alkaline Earth
Alkali Metal
Shell
Energy level
Orbitals
sub orbitlas
Family
3D quantum charge geometry
of periodic element nuclei
quantum numbers
Atomic Shells
Energy levels
Sub-orbitals

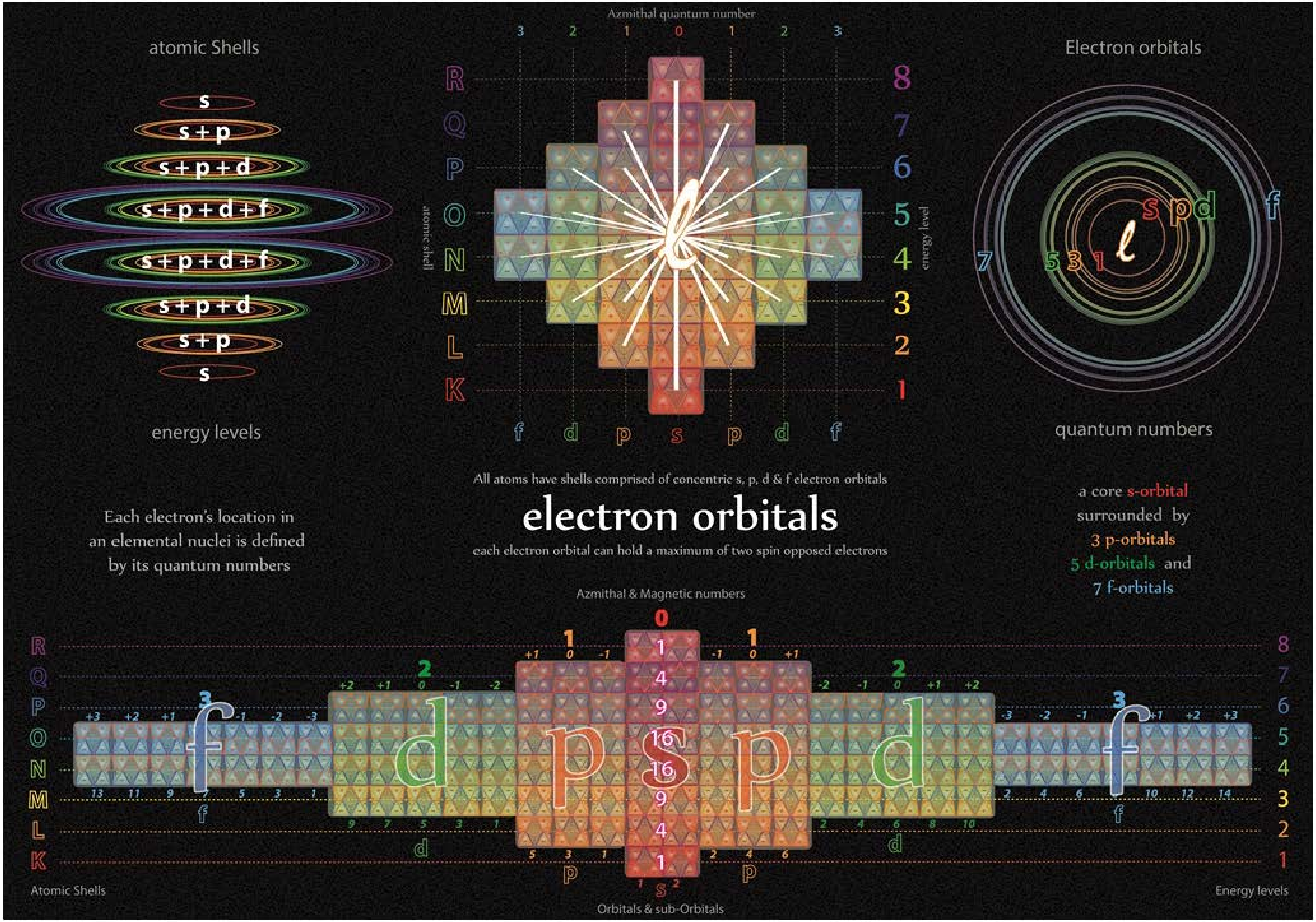

THE ATOMIC NUCLEUS
the charged quantum mass-energy geometry of periodic element topologies
Neils Bohr
(7 October 1885 – 18 November 1962)
Erwin Schrödinger
[12 August 1887 – 4 January 1961]
quantum numbers
3 2 1 0 1 2 3
NEILS BOHR
Atomic Shells
R Q P O N M L K
8 7 6 5 4 3 2 1
Energy levels
SCHRÖDINGER
2
8
18
32
32
18
8
2
Z
f d p s p d f
electron orbitals
The Bohr model gives us a basic conceptual model of electrons orbits and energies, along with the idea of quantum jumps.
The Schrondinger wave equation gives precise details of spectra and electron position and motions within the nuclei
The uncertainty principle erroneously dictates that position and momentum cannot be simultaneously determined.



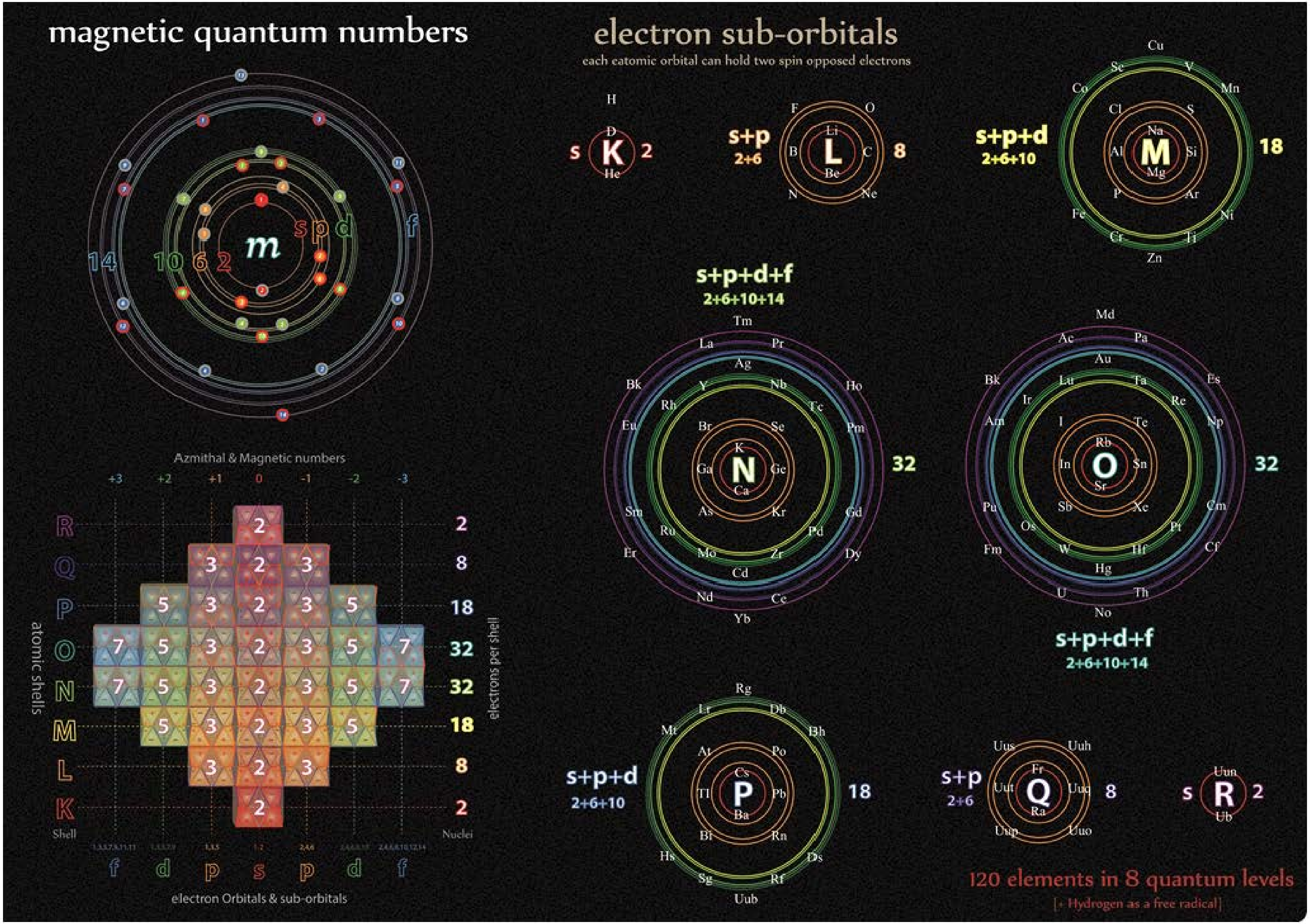
Tetryonics 44.02 - Periodicity of atomic elements

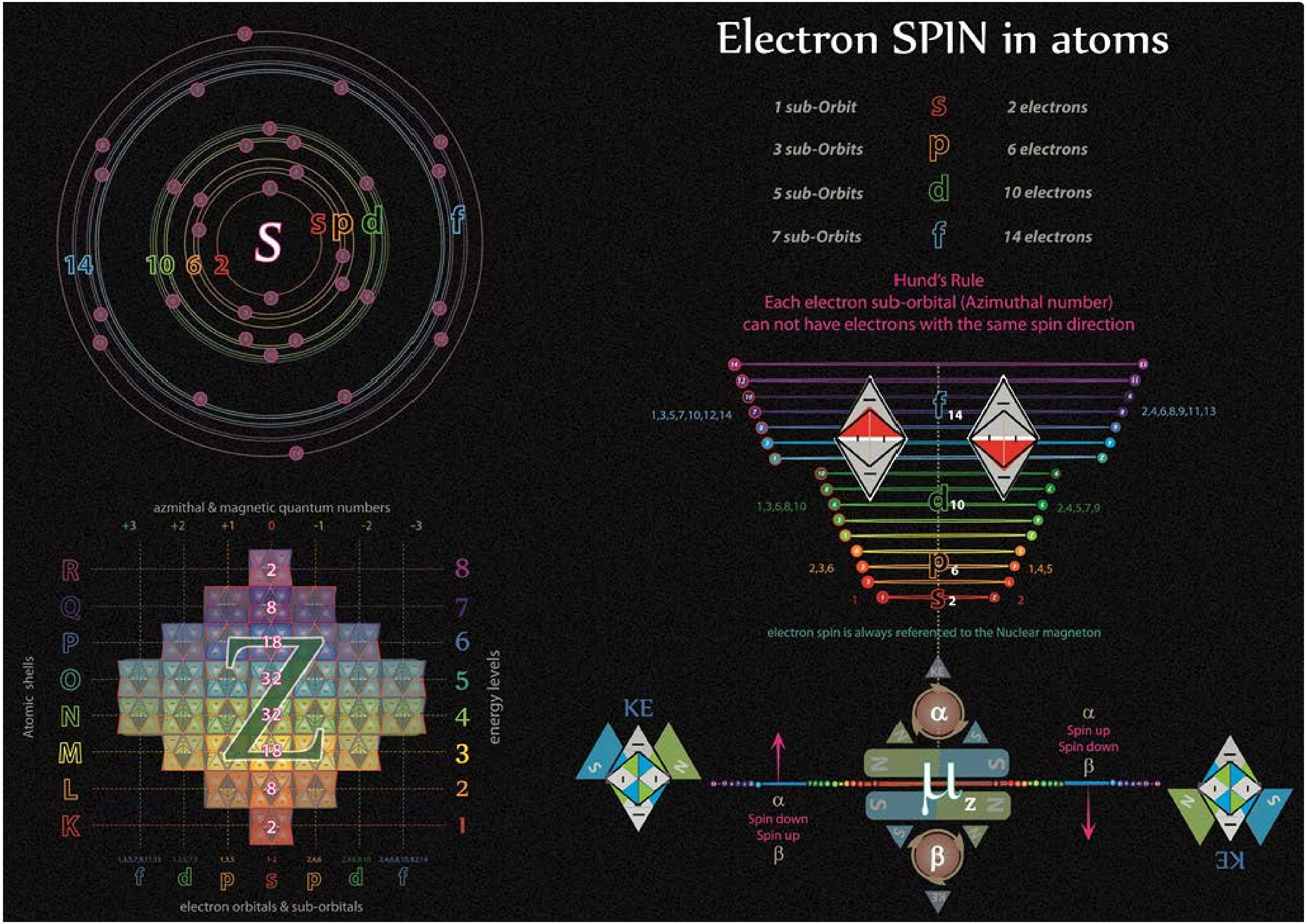


Tetryonics 44.03 - Shells & energy levels



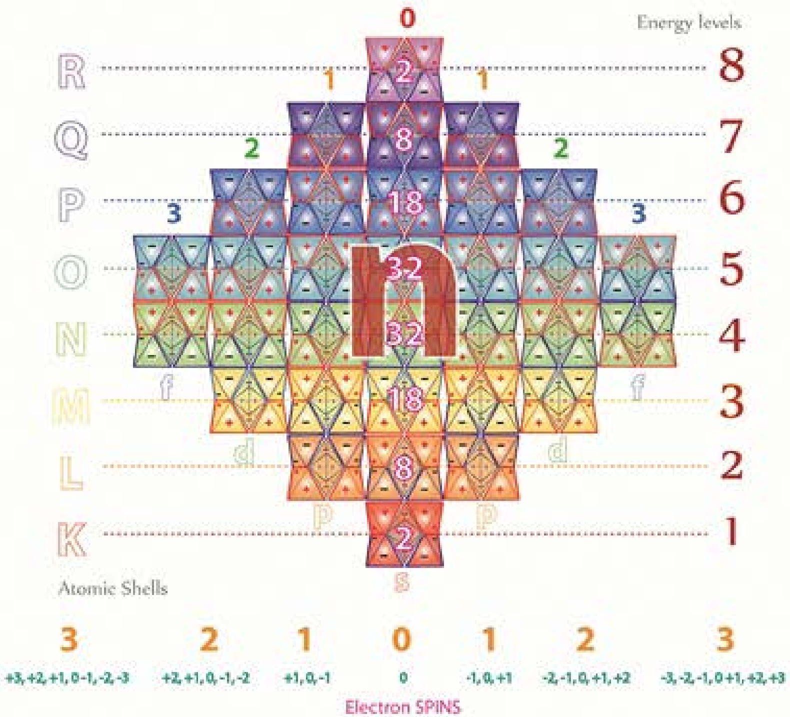
Azmithal quantum number
atomic Shells
Electron orbitals
s
s + p
s + p + d
s + p + d + f
s + p + d + f
s + p + d
s + p
s
energy levels
R Q P O N M L K
atomic shell
8 7 6 5 4 3 2 1
energy level
f d p s p d f
quantum numbers
All atoms have shells comprised of concentric s, p, d & f electron orbitals
electron orbitals
each electron orbital can hold a maximum of two spin opposed electrons
Each electron's location in an elemental nuclei is defined by its quantum numbers
a core s-orbital surrounded by 3 p-orbitals 5 d-orbitals and 7 f-orbitals
Azmithal & Magnetic numbers
Atomic Shells
Energy levels
Orbitals & sub-Orbitals


magnetic quantum numbers
m
s p d f
14 10 6 2
Azmithal & Magnetic numbers
+3 +2 +1 0 -1 -2 -3
R Q P O N M L K
Shell
atomic shells
2 8 18 32 32 18 8 2
electrons per shell
Nuclei
f d p s p d f
electron Orbitals & sub-orbitals
electron sub-orbitals
each eatomic orbital can hold two spin opposed electrons
s K 2
s+p 2+6 L 8
s+p+d 2+6+10 M 18
s+p+d+f 2+6+10+14 N 32
O 32
s+p+d+f 2+6+10+14
s+p+d 2+6+10 P 18
s+p 2+6 Q 8
s R 2
120 elements in 8 quantum levels
[+ Hydrogen as a free radical]



Tetryonics 44.06 - Electron spin

Quantum numbers



The properties of every atom's specific electron configuration can be described by four quantum numbers:

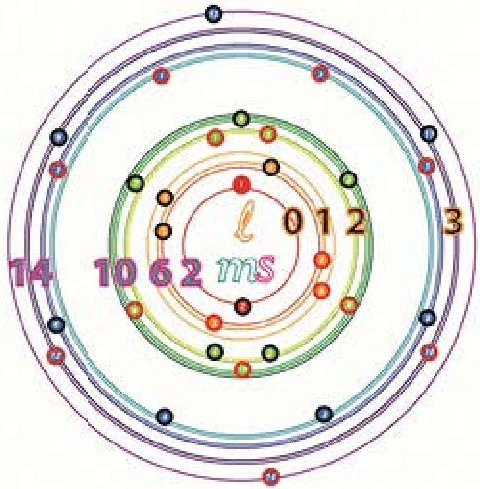
n (1-8)
Principal
(n = 1, 2, 3, 4 ...)

ℓ (0-3)
Azimuthal
(l = 0, 1 ... n−1)

m (2ℓ+1)
Magnetic
(ml = −l, −l+1 ... 0 ... l−1, l)

s ±½
electron Spin
(ms = −1/2 or +1/2),

The Bohr model was a one-dimensional model that used one quantum number to describe the distribution of electrons

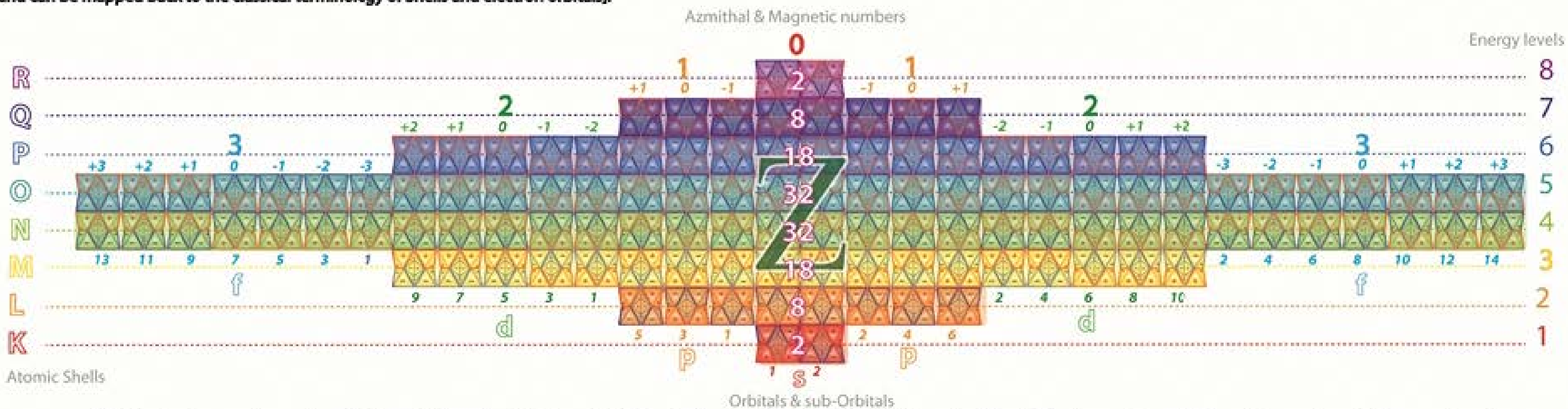


The three coordinates that come from Schrödinger's wave equations are the principal (n), angular (l), and magnetic (m) quantum numbers.

These quantum numbers describe the size, shape, and orientation in space of the orbitals of any particular atom mathematically.

Each electron's quantum numbers are unique and cannot be shared by another electron in that atom.

These four numbers, n, ℓ, m and s can be used to describe any electron in a stable atom [and can be mapped back to the classical terminology of Shells and electron orbitals].



A stable atom has equal numebrs of Protons, electrons [and Neutrons], all following the Pauli Exclusion Principle thus orientating their spins so that each element has a unique electron configuration

PRINCIPAL quantum number

The first describes the electron shell, or energy level, of an atom.

This is the only quantum number introduced by the Bohr model

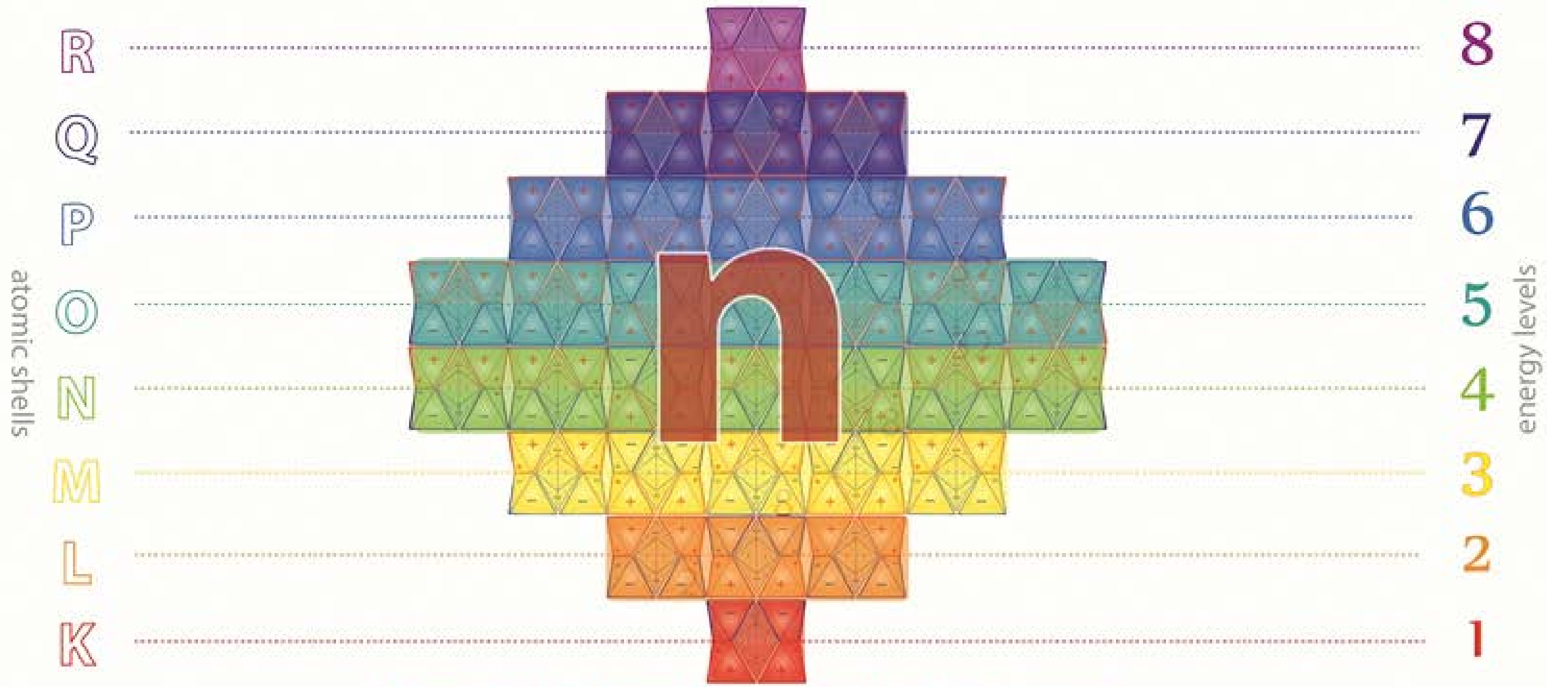
The principal quantum number can only have positive integer values

atomic shells

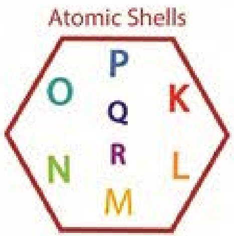
n(1-8)

(n = 1, 2, 3, 4 ...)

energy levels



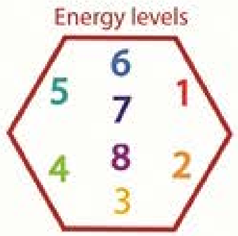
As energies of the Baryons comprising the atomic nuclei increases, the electron bound to each nuclei also possesses more KEM field energies and is therefore less tightly bound to the nucleus

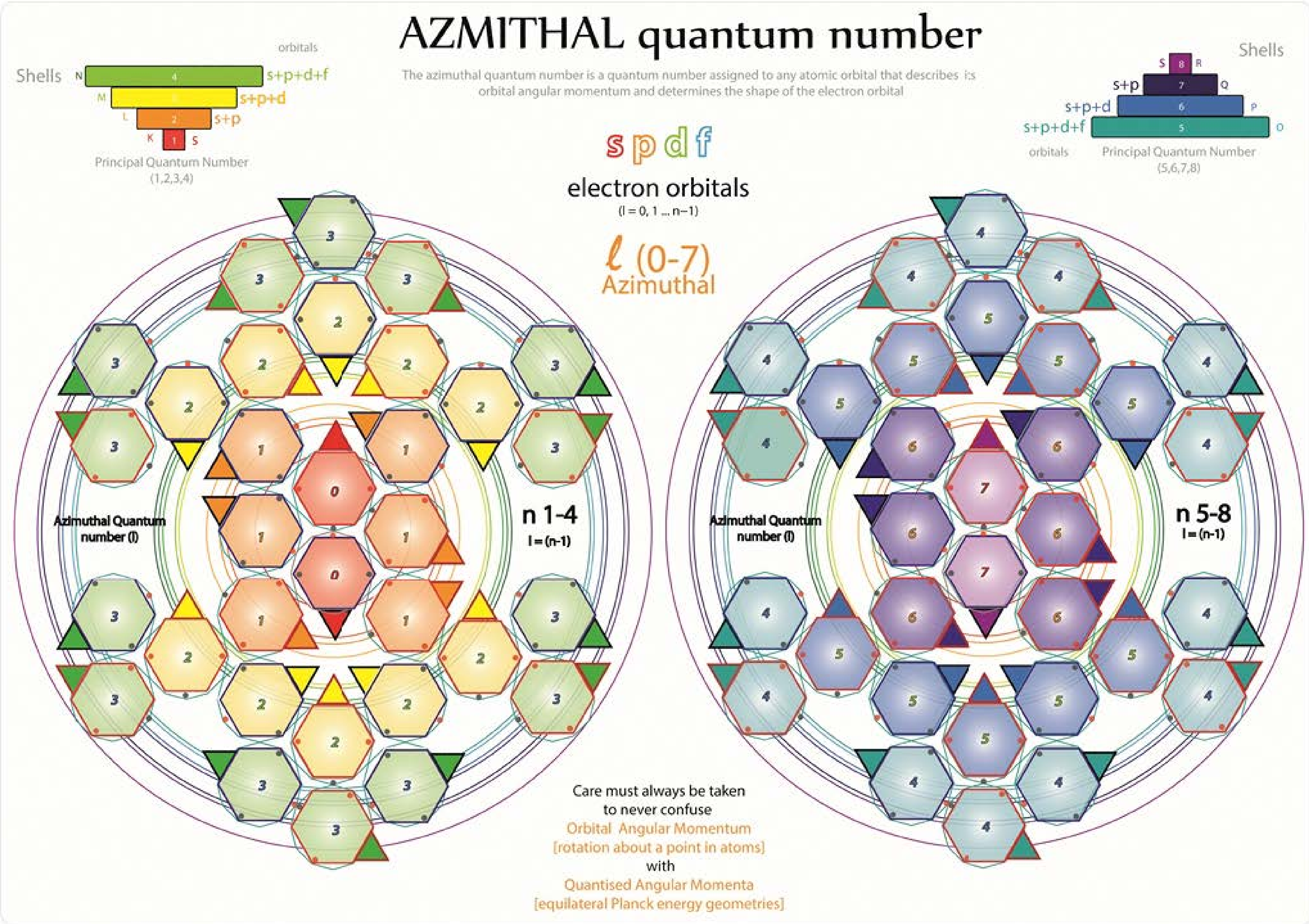


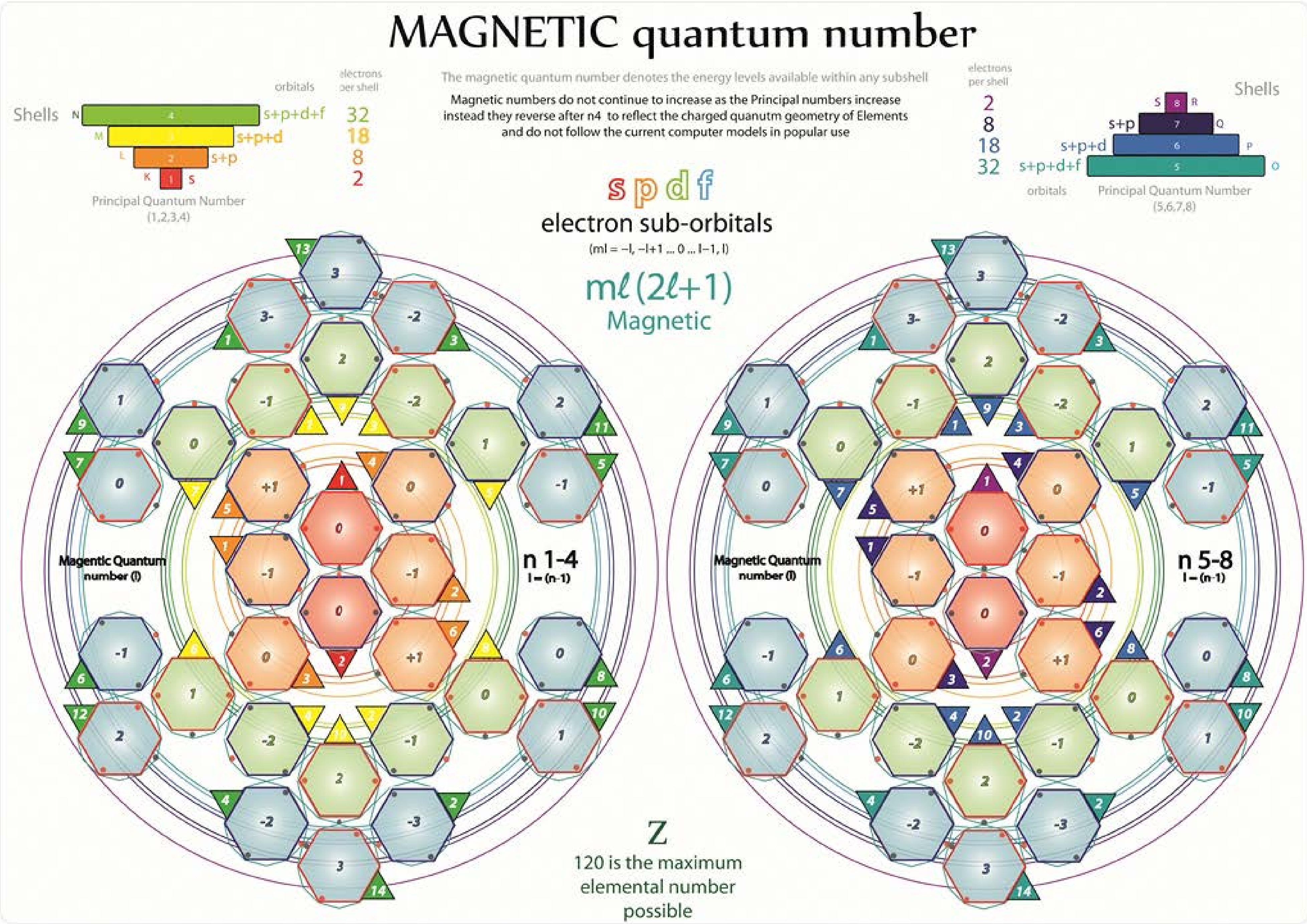
(K, L, M, N, O, P, Q, R)

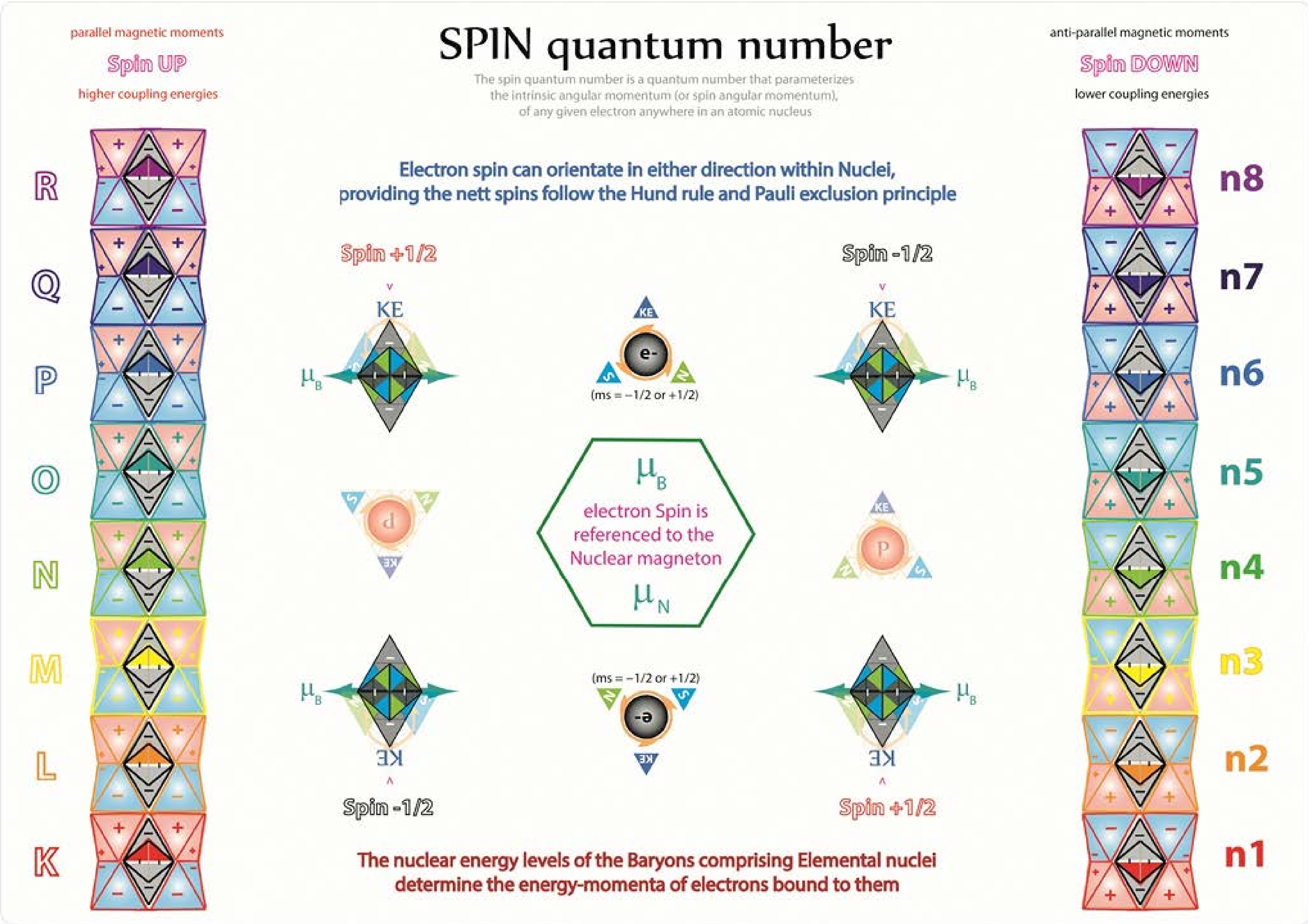
Atomic shells relate directly to Principal quantum numbers

(1, 2, 3, 4, 5, 6, 7, 8)




AZMITHAL quantum number
The azimuthal quantum number is a quantum number assigned to any atomic orbital that describes its orbital angular momentum and determines the shape of the electron orbital
Shells
orbitals
N 4 s+p+d+f
M s+p+d
L 2 s+p
K 1 s
Principal Quantum Number (1,2,3,4)
s p d f
electron orbitals
(l = 0, 1 ... n−1)
ℓ (0-7)
Azimuthal
Shells
S 8 R
s+p 7 Q
s+p+d 6 P
s+p+d+f 5 O
orbitals
Principal Quantum Number (5,6,7,8)
Azimuthal Quantum number (l)
n 1-4
l = (n-1)
Azimuthal Quantum number (l)
n 5-8
l = (n-1)
Care must always be taken
to never confuse
Orbital Angular Momentum
[rotation about a point in atoms]
with
Quantised Angular Momenta
[equilateral Planck energy geometries]


MAGNETIC quantum number
The magnetic quantum number denotes the energy levels available within any subshell
Magnetic numbers do not continue to increase as the Principal numbers increase
instead they reverse after n4 to reflect the charged quanutm geometry of Elements
and do not follow the current computer models in popular use
Shells
orbitals
electrons per shell
s+p+d+f 32
s+p+d 18
s+p 8
s 2
Principal Quantum Number (1,2,3,4)
Principal Quantum Number (5,6,7,8)
s p d f
electron sub-orbitals
(ml = −l, −l+1 ... 0 ... l−1, l)
mℓ(2ℓ+1)
Magnetic
Magentic Quantum number (l)
n 1-4
l = (n-1)
n 5-8
Z
120 is the maximum elemental number possible


parallel magnetic moments
Spin UP
higher coupling energies
SPIN quantum number
The spin quantum number is a quantum number that parameterizes
the intrinsic angular momentum (or spin angular momentum),
of any given electron anywhere in an atomic nucleus
anti-parallel magnetic moments
Spin DOWN
lower coupling energies
R
Q
P
O
N
M
L
K
n8
n7
n6
n5
n4
n3
n2
n1
Electron spin can orientate in either direction within Nuclei,
providing the nett spins follow the Hund rule and Pauli exclusion principle
Spin +1/2
Spin -1/2
KE
e-
(ms = −1/2 or +1/2)
μB
electron Spin is
referenced to the
Nuclear magneton
μN
d
p
Spin -1/2
Spin +1/2
The nuclear energy levels of the Baryons comprising Elemental nuclei
determine the energy-momenta of electrons bound to them

Modifying Hund's Rule

Electrons fill orbitals in an alternating sequential numbering pattern due to nucleon placement creating opposed direction electron spins

The increased stability of the atom, most commonly manifested in a lower energy state, arises because the high-spin state forces the unpaired electrons to reside in different spatial orbitals.

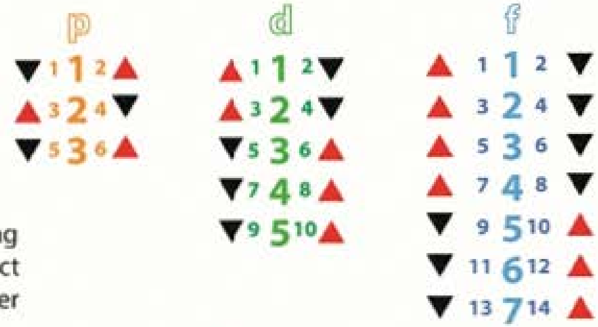
A commonly given reason for the increased stability of high multiplicity states is that the different occupied spatial orbitals create a larger average distance between electrons, reducing electron-electron repulsion energy. In reality, it has been shown that the actual reason behind the increased stability is a decrease in the screening of electron-nuclear attractions[1].

The total spin state is calculated as the total number of unpaired electrons + 1, or twice the total spin + 1 written as 2s+1.

As a result of Hund's rule, constraints are placed on the way atomic orbitals are filled using the Aufbau principle.

Before any two electrons occupy an orbital in a subshell, other orbitals in the same subshell must first each contain one electron. Also, the electrons filling a subshell will have parallel spin before the shell starts filling up with the opposite spin electrons (after the first orbital gains a second electron).

As a result, when filling up atomic orbitals, the maximum number of unpaired electrons (and hence maximum total spin state) is assured

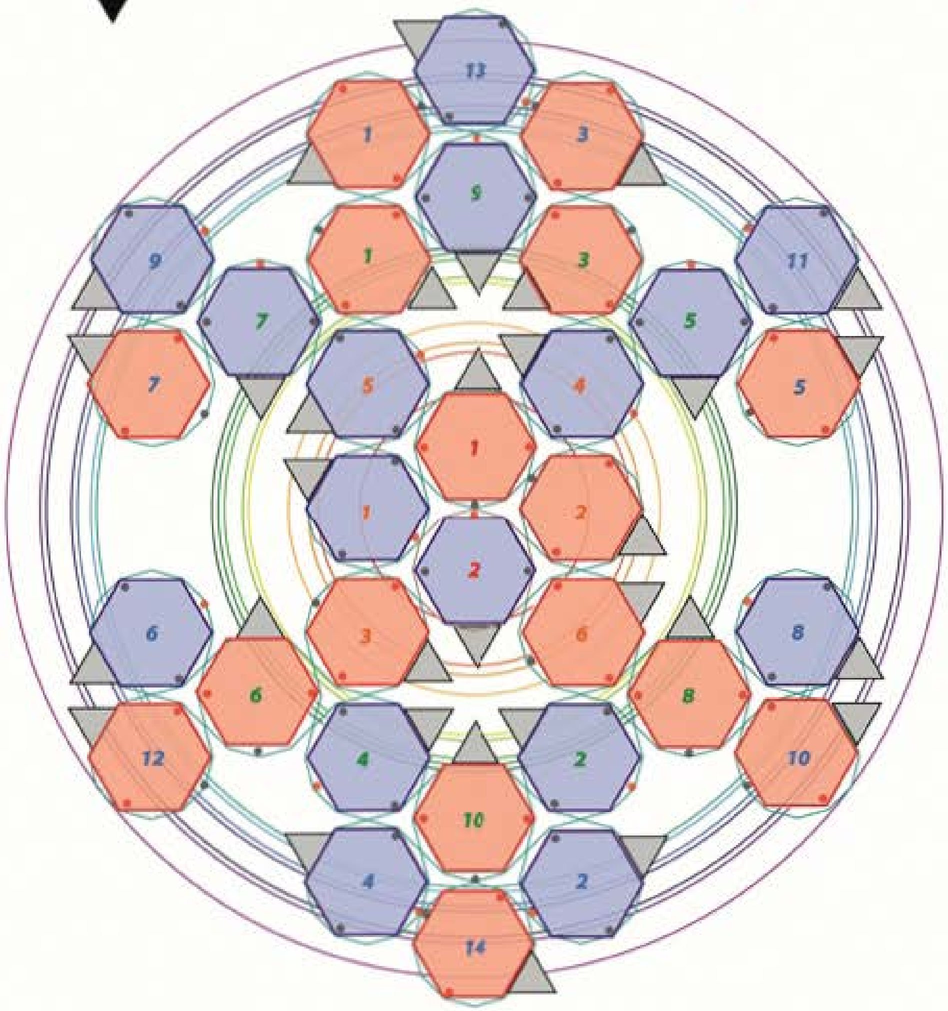


Hund's rule of orbital filling must be modified to reflect the true orbital filling order

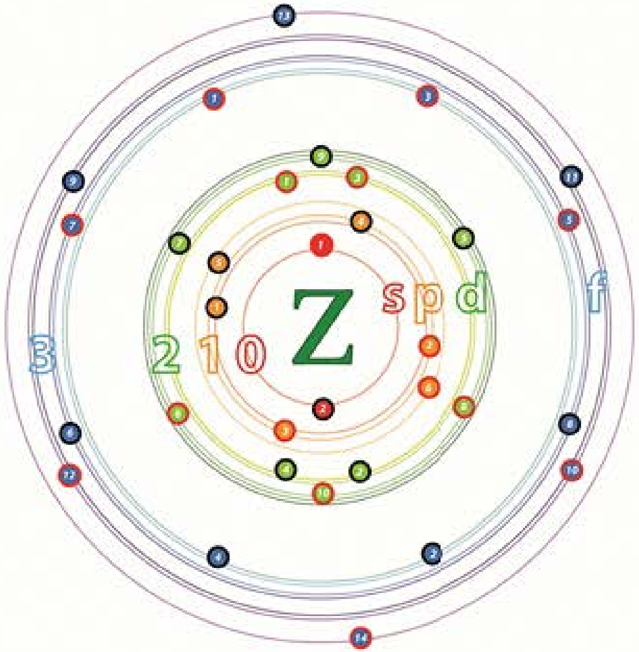
Sub-orbitals fill in order of numbering

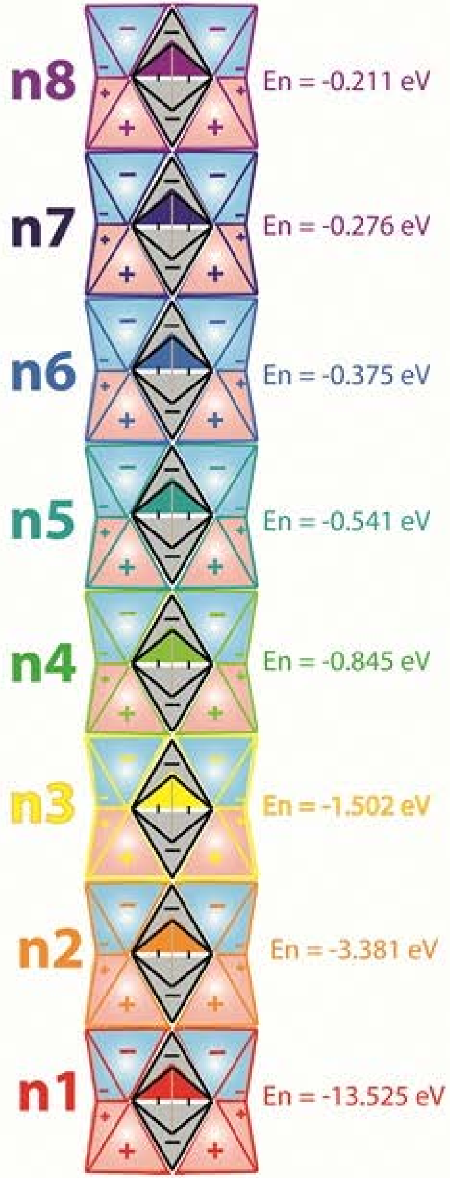
Electrons spins pair before next orbital is filled

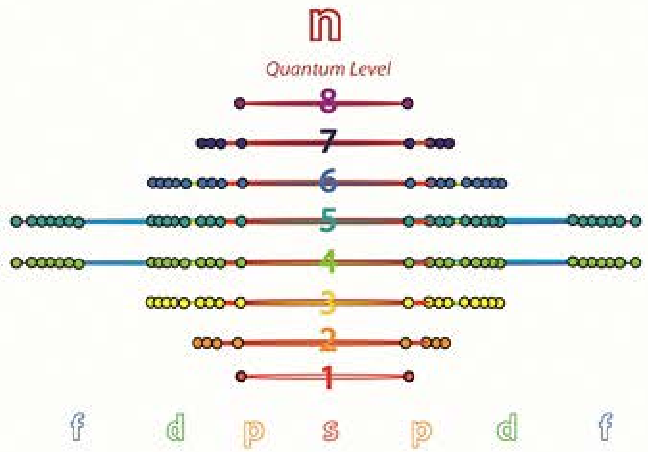
ie.
p1 [DOWN] and p2 [UP] fill
before
p3 [UP] and p4 [DOWN]
before
p5 [DOWN] and p6 [UP] etc



Principle quantum Energies







s orbits n1-8
p orbits n2-7
d orbits n3-6
f orbits n4-5

In an atom - electron energies are proportional to their intrinsic Kinetic Energies - which in turn are directly proportional to the quantum energy level of the nuclei which the electron binds to in their respective atomic shel s

In a nucleus, lower energy orbits have less 'paired' nuclei supplying energy. The more energy you give a nuclei the faster it casuses the bound electron to rotate. If you give the nuclei enough energy, it will impart eneough energy to its electron for it to leave the system entirely.

The same is true for an electron orbital. Higher values of n mean more energy for the electron and the corresponding KEM field enegies of the electron is larger, resulting in increased angular momentum.

Values of n start at 1 and go up by integer amounts.

If enough energy is added to the system by incident Photons a electron will leave the atom creating a positively charged nuclei [ionisation].

Eigenstate value

KEM field energy [per n] required to exceed 13.525 eV at which point the photo-electron has sufficient KE to break free of the Nucleus

$$E_n = \frac{E_1}{n^2} = \frac{-13.6eV}{n^2}, n = 1, 2, 3...$$

The possible Kinetic Energies (quantum levels) of an electron are directly related to the energy level of the Nuclei in each Quantum Level

Quantum Level 1

K shell

n1

Ground State electron

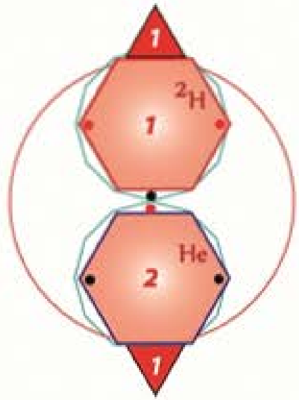
$iE = -13.313\ eV$

The energy levels of bound electrons is determined by Baryons

Z#		Name	Protons	electrons	Neutrons
1	1s1	Deuterium	1	1	1
2	1s2	Helium	2	2	2

2

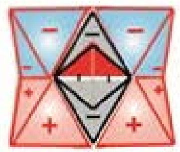
Deuterium [not Hydrogen] is the building block of elements



Z#		Name	Protons	electrons	Neutrons
1	1s1	Hydrogen	1	1	0

Hydrogen is a free radical element

n1



Quantum Level 2

L shell

n2

Ground State electron

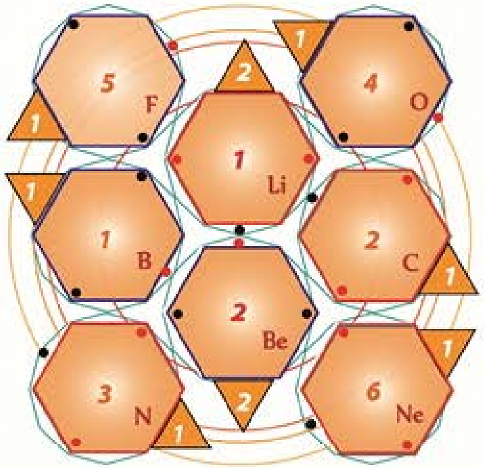
$iE = -12.679$ eV

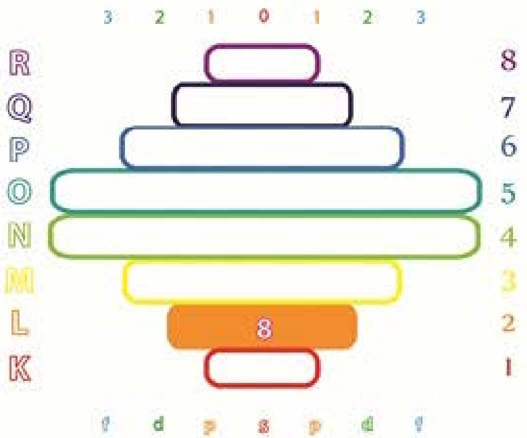
The energy levels of bound electrons is determined by Baryons

Z#		Name	Protons	electrons	Neutrons
3	2s1	Lithium	3	3	3
4	2s2	Beryllium	4	4	4
5	1p1	Boron	5	5	5
6	1p2	Carbon	6	6	6
7	1p3	Nitrogen	7	7	7
8	1p4	Oxygen	8	8	8
9	1p5	Fluorine	9	9	9
10	1p6	Neon	10	10	10

8

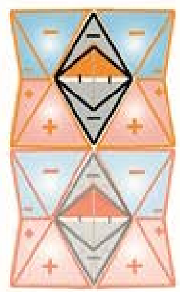
Deuterium [not Hydrogen] is the building block of elements





n2

n1



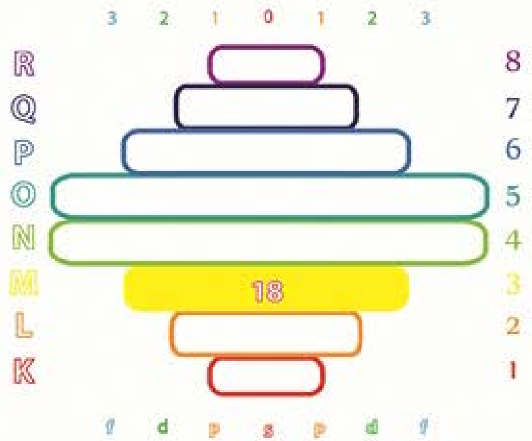
Quantum Level 3

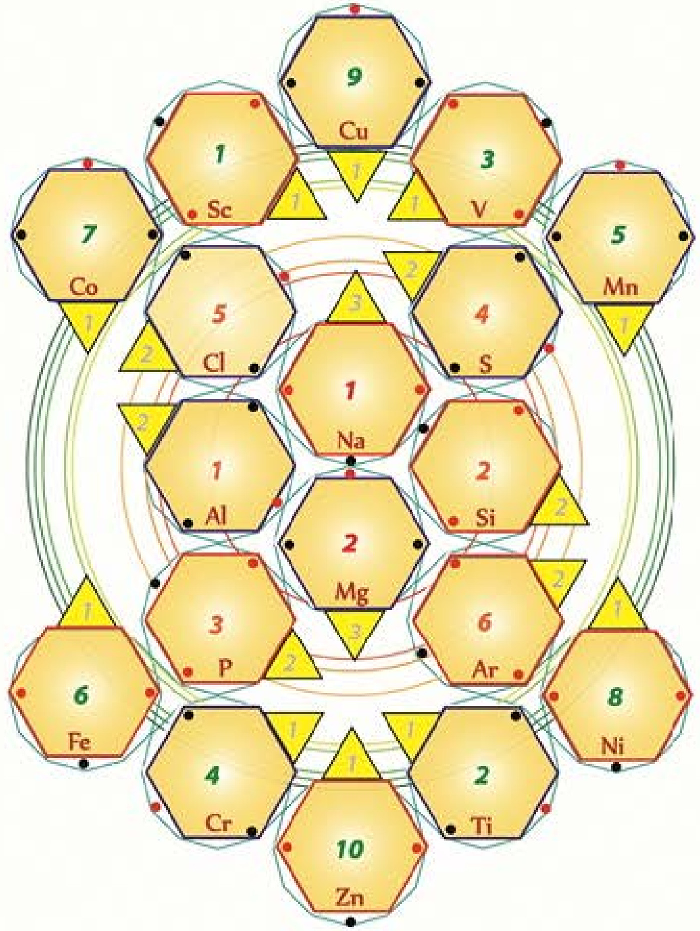
The energy levels of bound electrons is determined by Baryons

Z #		Name	Protons	electrons	Neutrons
11	3s1	Sodium	11	11	11
12	3s2	Magnesium	12	12	12
13	2p1	Aluminium	13	13	13
14	2p2	Silicon	14	14	14
15	2p3	Phosphorus	15	15	15
16	2p4	Sulfur	16	16	16
17	2p5	Chlorine	17	17	17
18	2p6	Argon	18	18	18
21	3d1	Scandium	21	21	21
22	3d2	Titanium	22	22	22
23	3d3	Vanadium	23	23	23
24	3d4	Chromium	24	24	24
25	3d5	Manganese	25	25	25
26	3d6	Iron	26	26	26
27	3d7	Cobalt	27	27	27
28	3d8	Nickel	28	28	28
29	3d9	Copper	29	29	29
30	3d10	Zinc	30	30	30

18

Deuterium [not Hydrogen] is the building block of elements

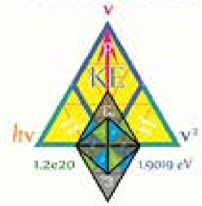




M shell

n3

Ground State electron



$iE = -11.623$ eV

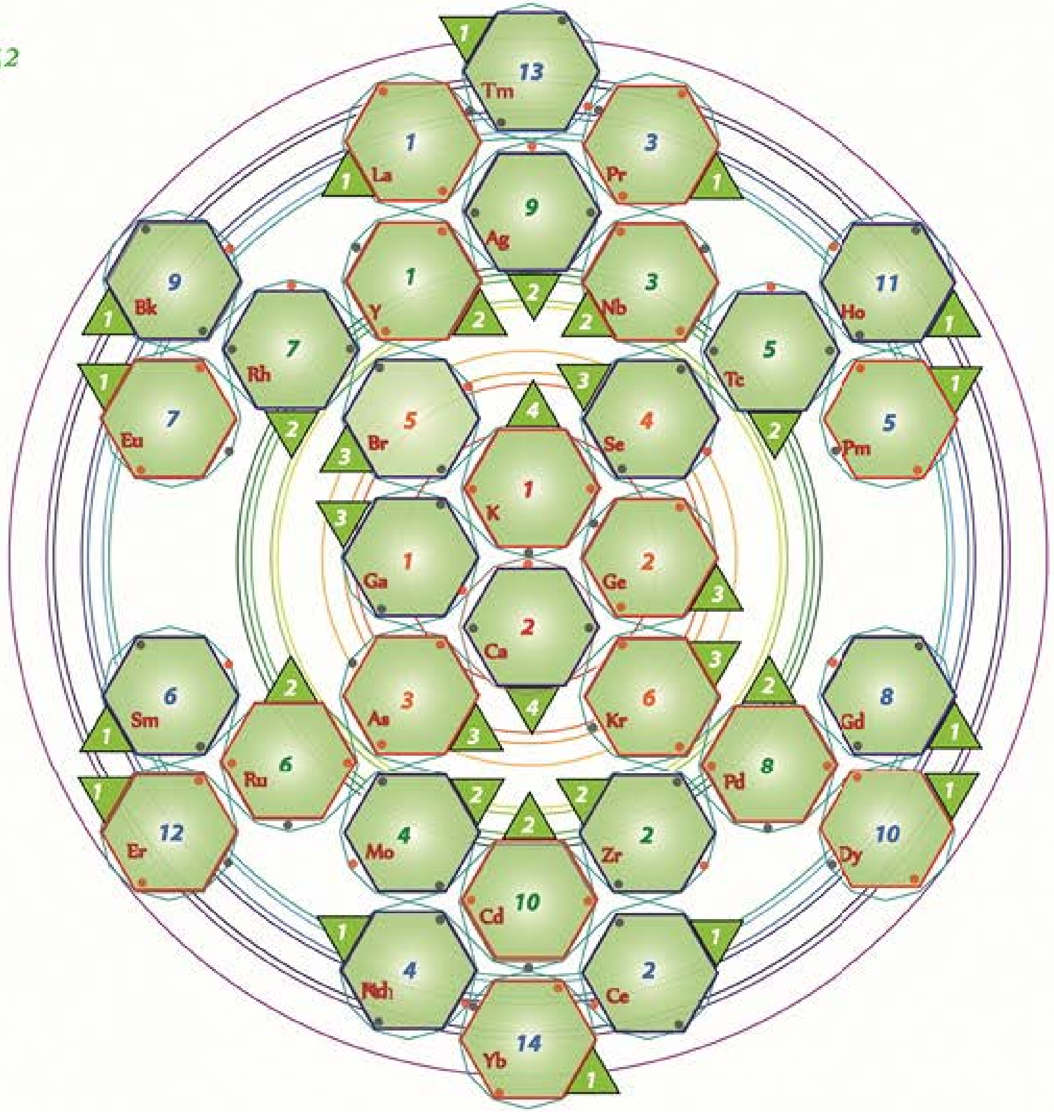
Quantum Level 4

The energy levels of bound electrons is determined by Baryons

Z #		Name	Protons	electrons	Neutrons
19	4s1	Potassium	19	19	19
20	4s2	Calcium	20	20	20
31	4p1	Gallium	31	31	31
32	4p2	Germanium	32	32	32
33	4p3	Arsenic	33	33	33
34	4p4	Selenium	34	34	34
35	4p5	Bromine	35	35	35
36	4p6	Krypton	36	36	36
39	4d1	Yttrium	39	39	39
40	4d2	Zirconium	40	40	40
41	4d3	Niobium	41	41	41
42	4d4	Molybdenum	42	42	42
43	4d5	Technetium	43	43	43
44	4d6	Ruthenium	44	44	44
45	4d7	Rhodium	45	45	45
46	4d8	Palladium	46	46	46
47	4d9	Silver	47	47	47
48	4d10	Cadmium	48	48	48
57	4f1	Lanthanum	57	57	57
58	4f2	Cerium	58	58	58
59	4f3	Praseodymium	59	59	59
60	4f4	Neodymium	60	60	60
61	4f5	Promethium	61	61	61
62	4f6	Samarium	62	62	62
63	4f7	Europium	63	63	63
64	4f8	Gadolinium	64	64	64
65	4f9	Terbium	65	65	65
66	4f10	Dysprosium	66	66	66
67	4f11	Holium	67	67	67
68	4f12	Erbium	68	68	68
69	4f13	Thulium	69	69	69
70	4f14	Ytterbium	70	70	70

32

Deuterium [not Hydrogen] is the building block of elements

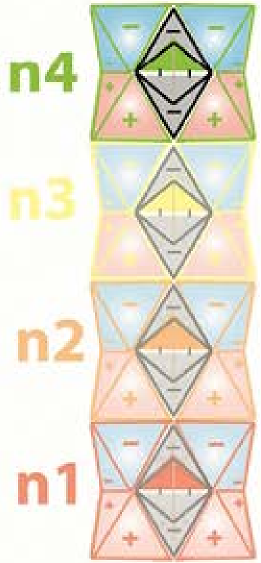


N shell

n4

Ground State electron

$iE = -10.143\ eV$



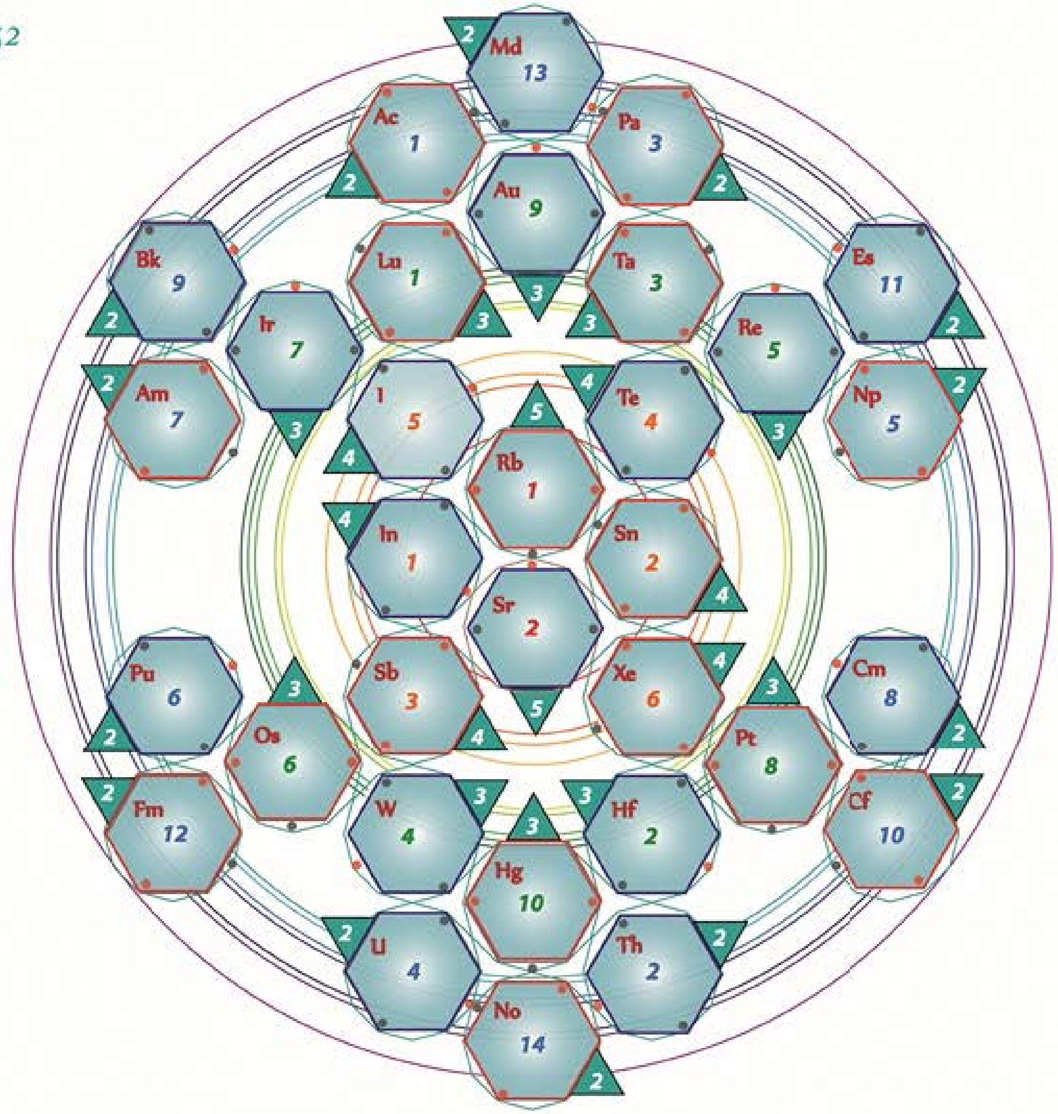
Quantum Level 5

The energy levels of bound electrons is determined by Baryons

Z #		Name	Protons	electrons	Neutrons
37	5s1	Rubidium	37	37	37
38	5s2	Strontium	38	38	38
49	5p1	Indium	49	49	49
50	5p2	Tin	50	50	50
51	5p3	Antimony	51	51	51
52	5p4	Tellurium	52	52	52
53	5p5	Iodine	53	53	53
54	5p6	Xenon	54	54	54
71	5d1	Lutetium	71	71	71
72	5d2	Hafnium	72	72	72
73	5d3	Tantalum	73	73	73
74	5d4	Tungsten	74	74	74
75	5d5	Rhenium	75	75	75
76	5d6	Osmium	76	76	76
77	5d7	Iridium	77	77	77
78	5d8	Platinum	78	78	78
79	5d9	Gold	79	79	79
80	5d10	Mercury	80	80	80
89	5f1	Actinium	89	89	89
90	5f2	Thorium	90	90	90
91	5f3	Protactium	91	91	91
92	5f4	Uranium	92	92	92
93	5f5	Neptunium	93	93	93
94	5f6	Plutonium	94	94	94
95	5f7	Americium	95	95	95
96	5f8	Curium	96	96	96
97	5f9	Berkelium	97	97	97
98	5f10	Californium	98	98	98
99	5f11	Einsteinium	99	99	99
100	5f12	Fermium	100	100	100
101	5f13	Mendelevium	101	101	101
102	5f14	Nobelium	102	102	102

32

Deuterium [not Hydrogen] is the building block of elements



O shell

n5

Ground State electron

$iE = -8.241\ eV$

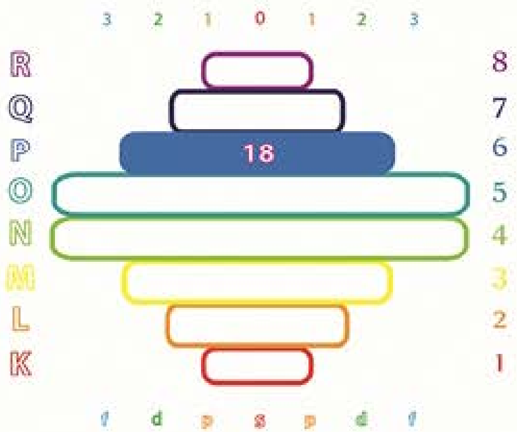
Quantum Level 6

The energy levels of bound electrons is determined by Baryons

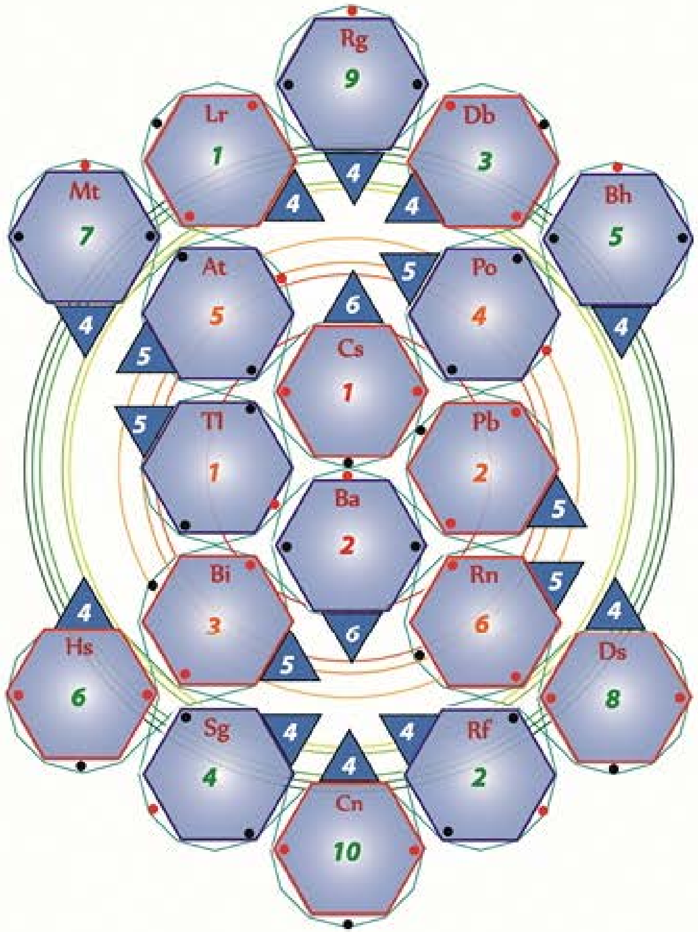
Z #		Name	Protons	electrons	Neutrons
55	6s1	Caesium	55	55	55
56	6s2	Barium	56	56	56
81	6p1	Thallium	81	81	81
82	6p2	Lead	82	82	82
83	6p3	Bismuth	83	83	83
84	6p4	Polonium	84	84	84
85	6p5	Astatine	85	85	85
86	6p6	Radon	86	86	86
103	6d1	Lawrencium	103	103	103
104	6d2	Rutherfordium	104	104	104
105	6d3	Dubnium	105	105	105
106	6d4	Seaborgium	106	106	106
107	6d5	Bohrium	107	107	107
108	6d6	Hassium	108	108	108
109	6d7	Meitnerium	109	109	109
110	6d8	Darmstadtium	110	110	110
111	6d9	Roetgenium	111	111	111
112	6d10	Copernicium	112	112	112

18

Deuterium [not Hydrogen] is the building block of elements



Energy level

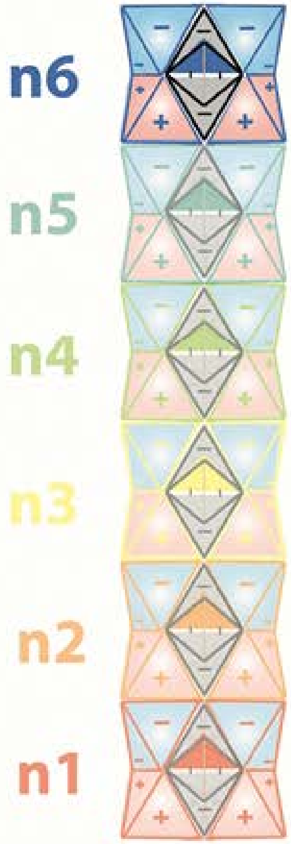


P shell

n6

Ground State electron

iE = -5.917 eV



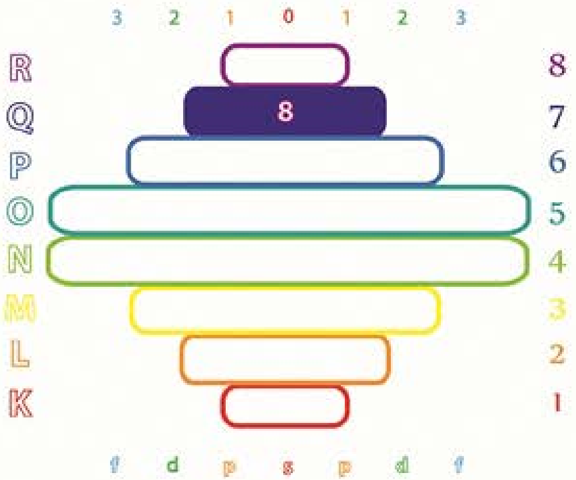
Quantum Level 7

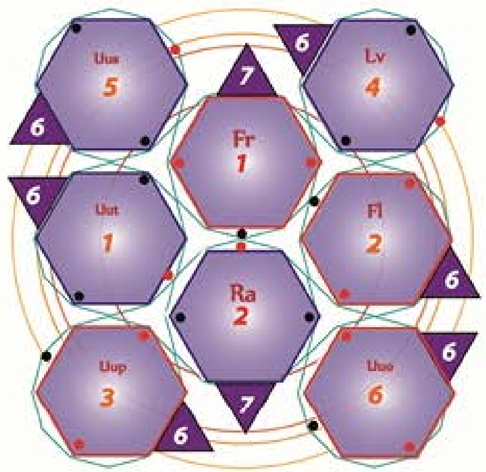
The energy levels of bound electrons is determined by Baryons

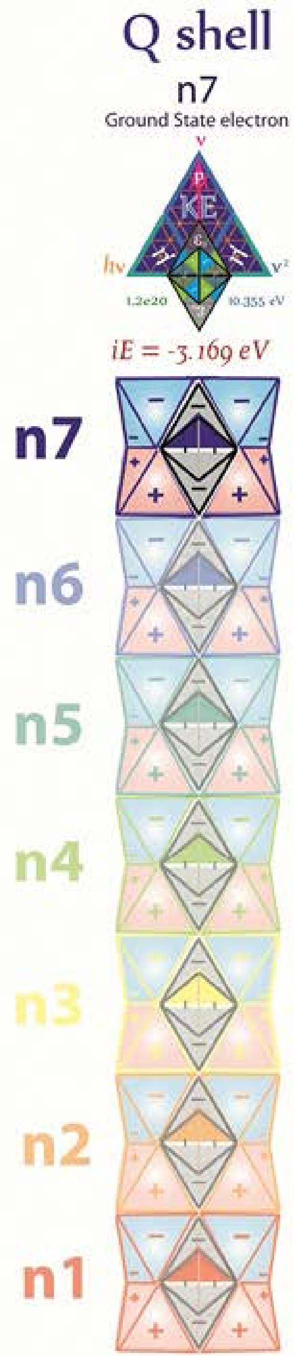
Z #		Name	Protons	electrons	Neutrons
87	7s1	Francium	87	87	87
88	7s2	Radium	88	88	88
113	7p1	Ununtrium	113	113	113
114	7p2	Flerovium	114	114	114
115	7p3	Ununpentium	115	115	115
116	7p4	Livermorium	116	116	116
117	7p5	Ununseptium	117	117	117
118	7p6	Ununoctium	118	118	118

8

Deuterium [not Hydrogen] is the building block of elements







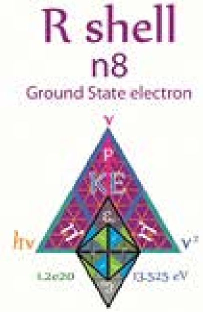
Quantum Level 8

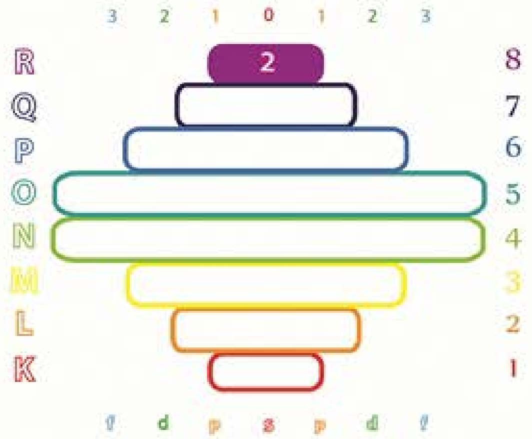
The energy levels of bound electrons is determined by Baryons

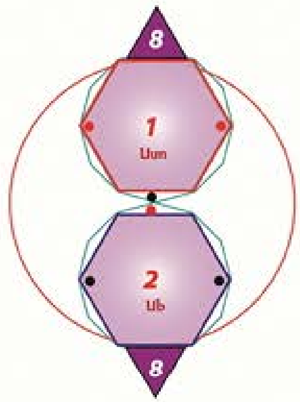
Z #		Name	Protons	electrons	Neutrons
119	8s1	Ununnonium	119	119	119
120	8s2	Unbinilium	120	120	120

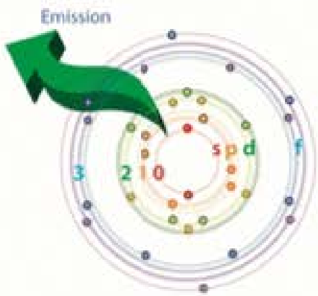
2

Deuterium [not Hydrogen] is the building block of elements









Quantum Level Jumps

Photon Absorption and Release

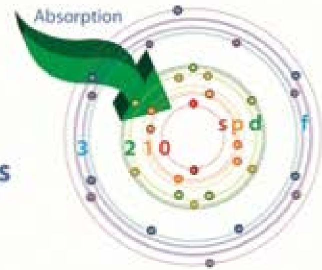


Photo-electrons can only transition between principal energy Baryons in the atomic nuclei in discrete steps [or quantum jumps] because Baryons determine the KEM energy levels of electrons in nuclei

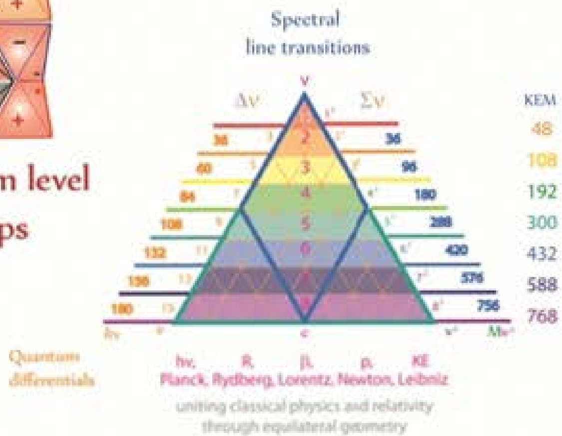
[see Tetryonic QED for full details on spectral line mechanics]

Initial Quantum level		1	2	3	4	5	6	7	8
8	768	756	720	660	576	468	336	180	0
7	588	576	540	480	396	288	156	0	
6	432	420	384	324	240	132	0		
5	300	288	252	192	108	0			
4	192	180	144	84	0				
3	108	96	60	0					
2	48	36	0						
1	12	0							
		12	48	108	192	300	432	588	768
		1	2	3	4	5	6	7	8

Final Quantum level

$$\Delta p = \Delta Mv = hf$$

accelerating photo-electrons produce spectral lines



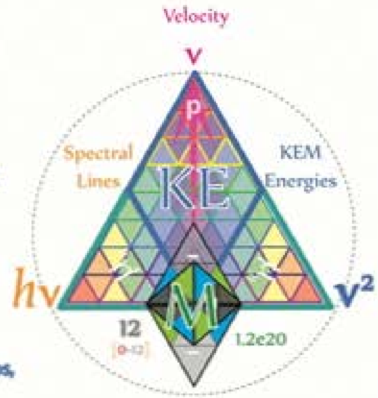
Nuclear energy emission~absorption

If atoms are left undisturbed, their electrons usually fill the lowest available energy levels and stay there, in their "ground state."

Occasionally, however, they may also be pushed up to some higher energy ("become excited") e.g. by a collision with a fast atom or electron, one which got extra speed from an electric voltage or from some source of heat.

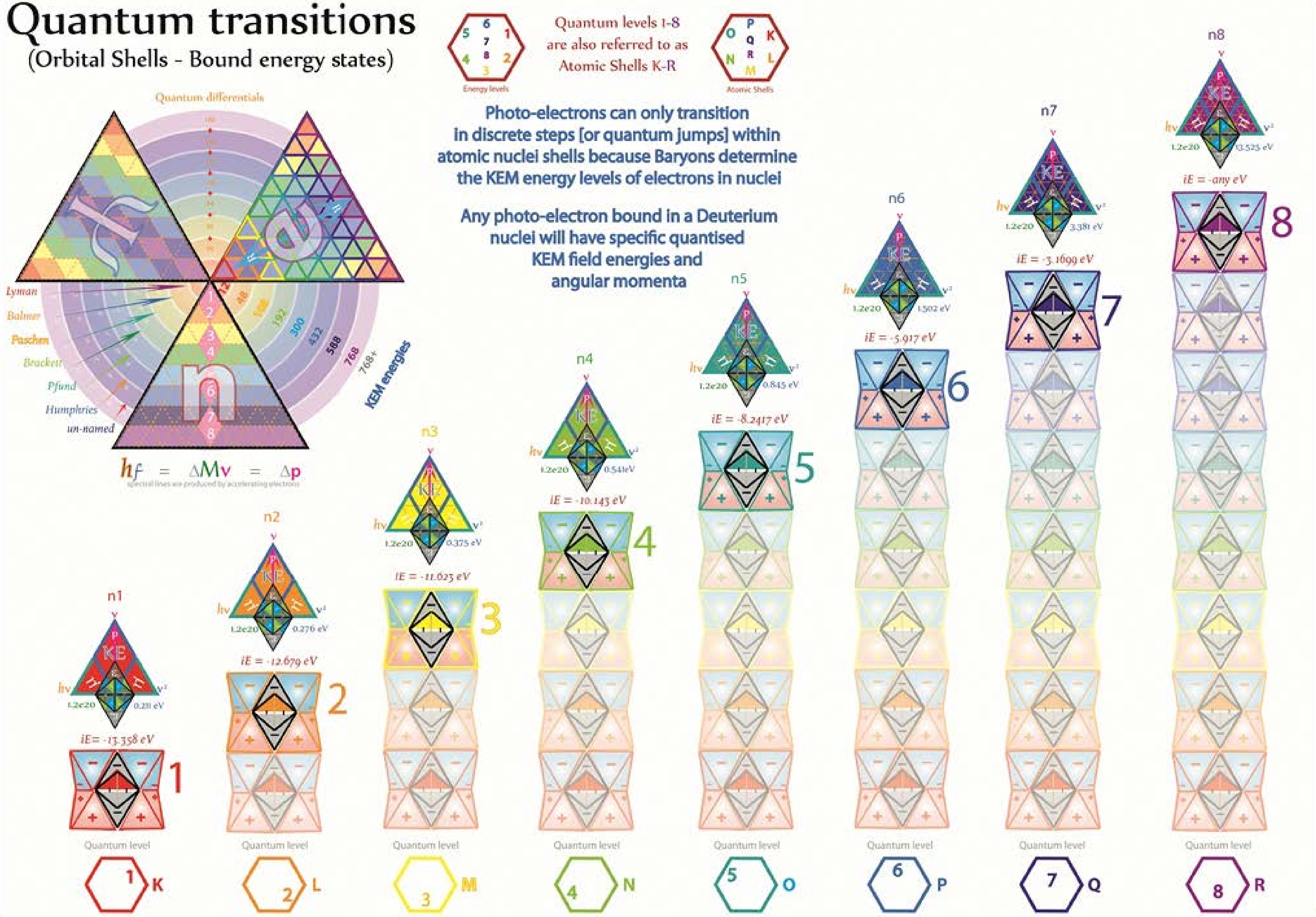
An atom/electron elevated to one of its higher "excited levels" soon falls back to a lower level ("undergoes a quantum jump"), emitting a photon whose energy corresponds to the difference between the levels.

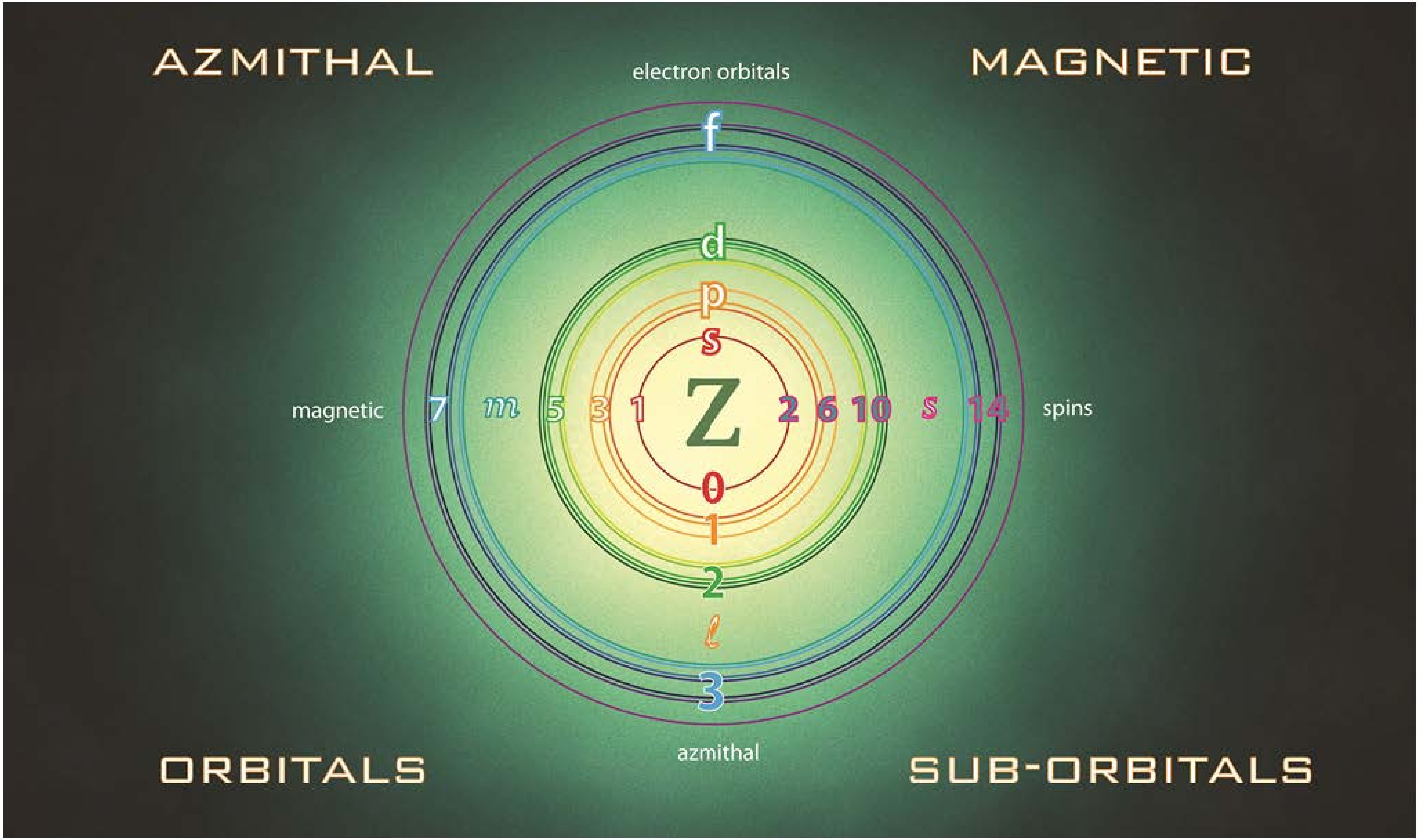
That need not be the ground state: the atom/electron might descend to that state in several steps, emitting a photon at each step on the way.



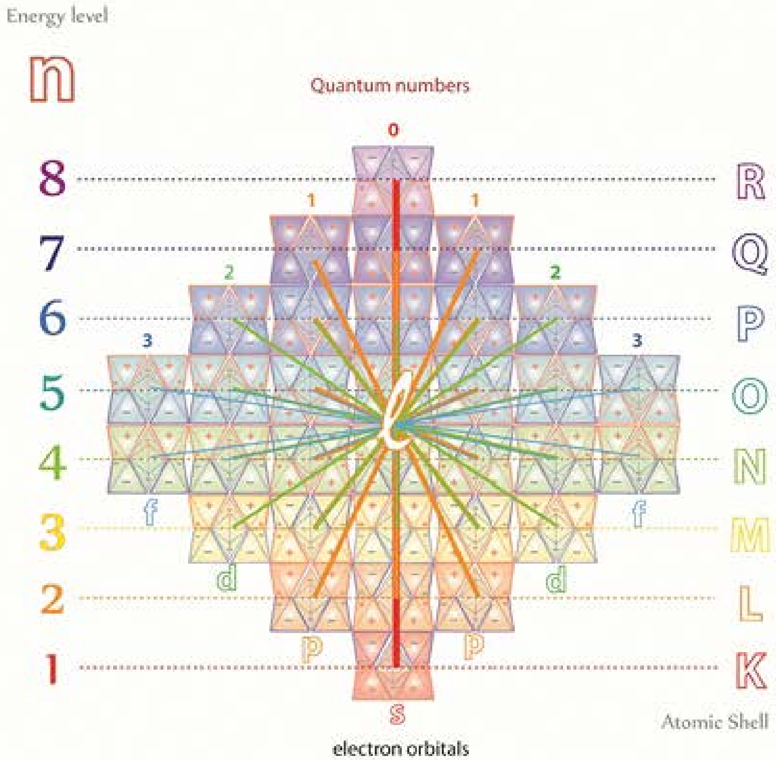
Quantum transitions

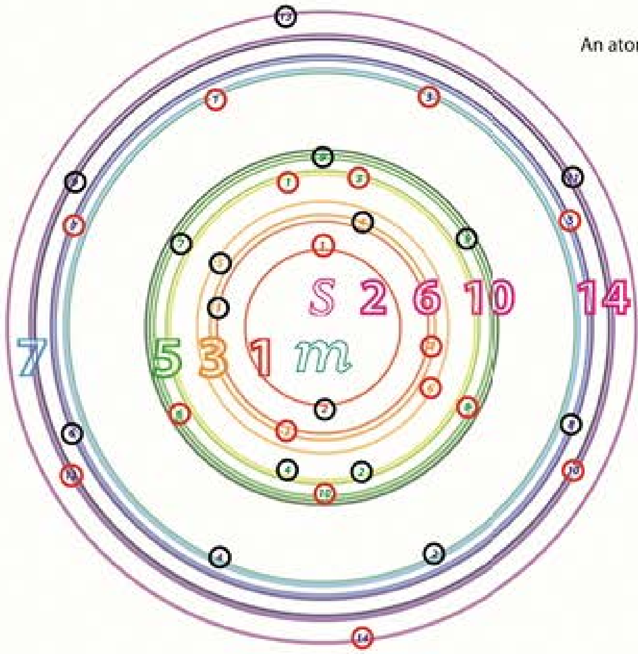
(Orbital Shells - Bound energy states)




AZMITHAL
MAGNETIC
electron orbitals
f
d
p
s
magnetic
7
m
5
3
1
Z
2
6
10
s
14
spins
0
1
2
l
3
azmithal
ORBITALS
SUB-ORBITALS

Atomic Orbitals





An atomic orbital is a mathematical function that describes the wave-like behavior of either one electron or a pair of electrons in an atom

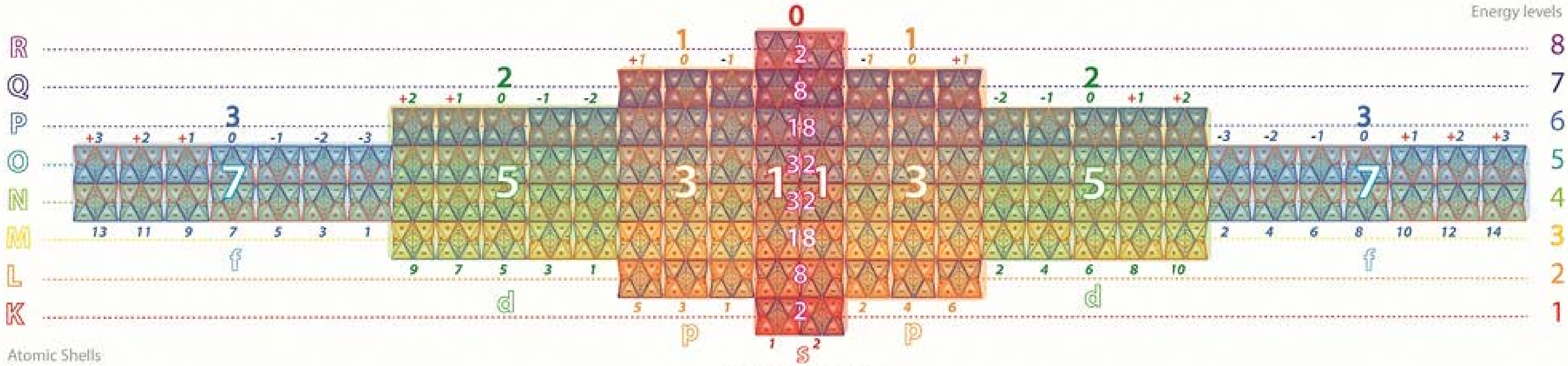
Atomic orbitals are typically categorized by n, l, and m quantum numbers, which correspond to the electron's energy, angular momentum, and an angular momentum vector component, respectively.

Historically used to define the pedagogical electron cloud model of an atom Tetryonics reveals the true geometry of atomic nuclei

Each orbital is defined by a different set of quantum numbers and contains a maximum of two spin opposed electrons.

Aufbau

Azmithal & Magnetic numbers

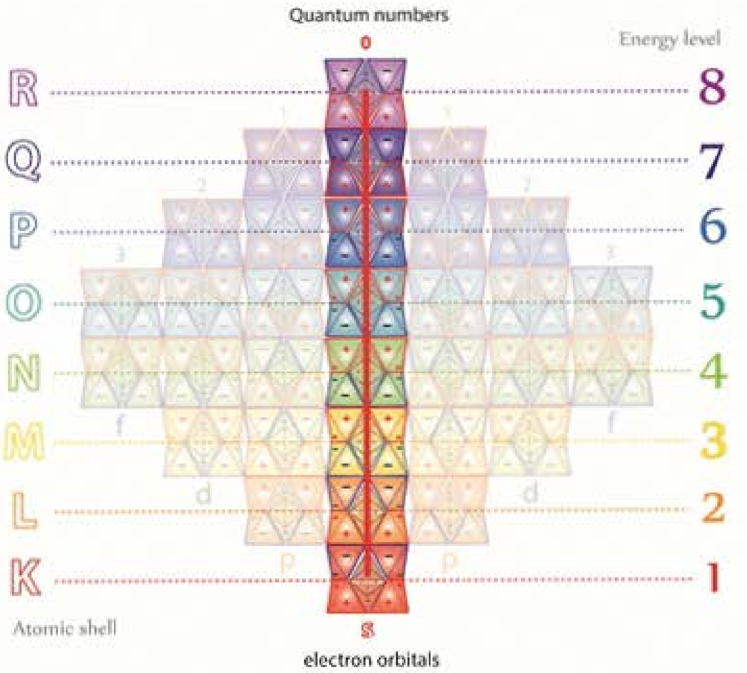


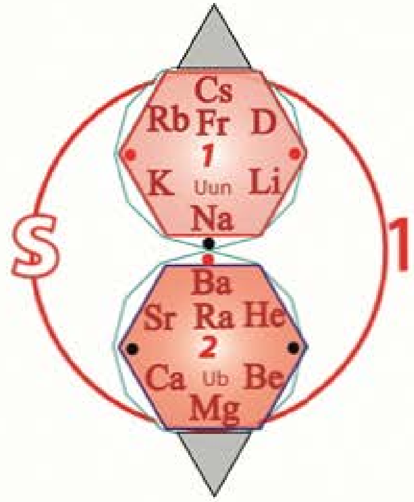
Orbitals & sub-Orbitals
Electron Spins can be either up or down providing they obey the Pauli exclusion principle

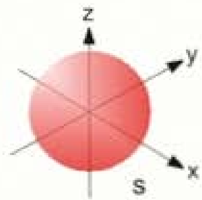
s Orbital

1 Orbit (2 electrons max)

Alkali Metals & Alkali Earths







erroneous computer model of 's' electron orbitals

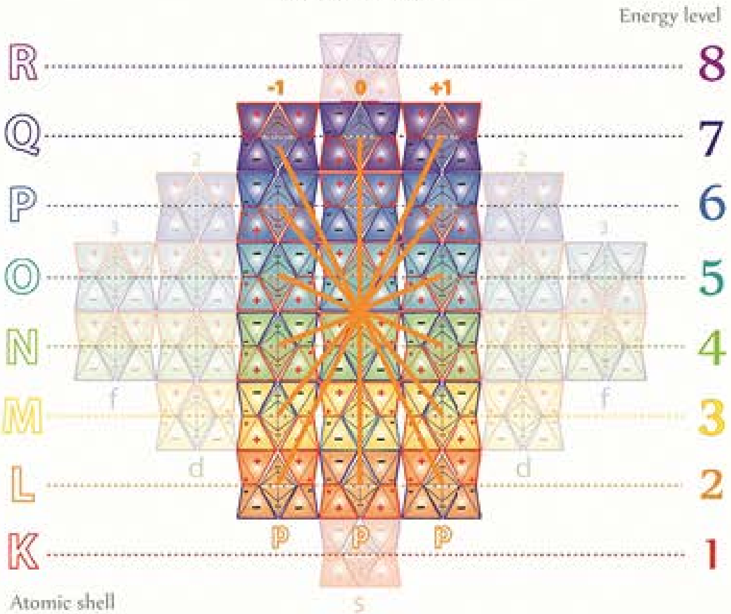
		n
azmithal number	0	l
magnetic numbers	0	m
spins	-1/2 +1/2	s

p Orbital

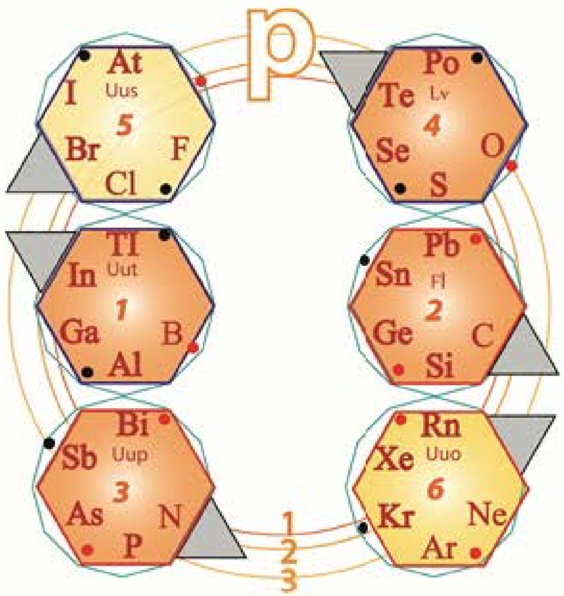
3 Orbits (6 electrons max)

Non-Metals, Halogens & Nobel gases

Quantum numbers



electron orbitals



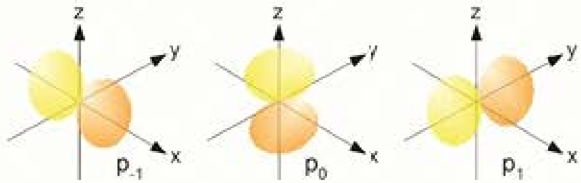
n

ℓ

m

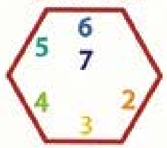
s

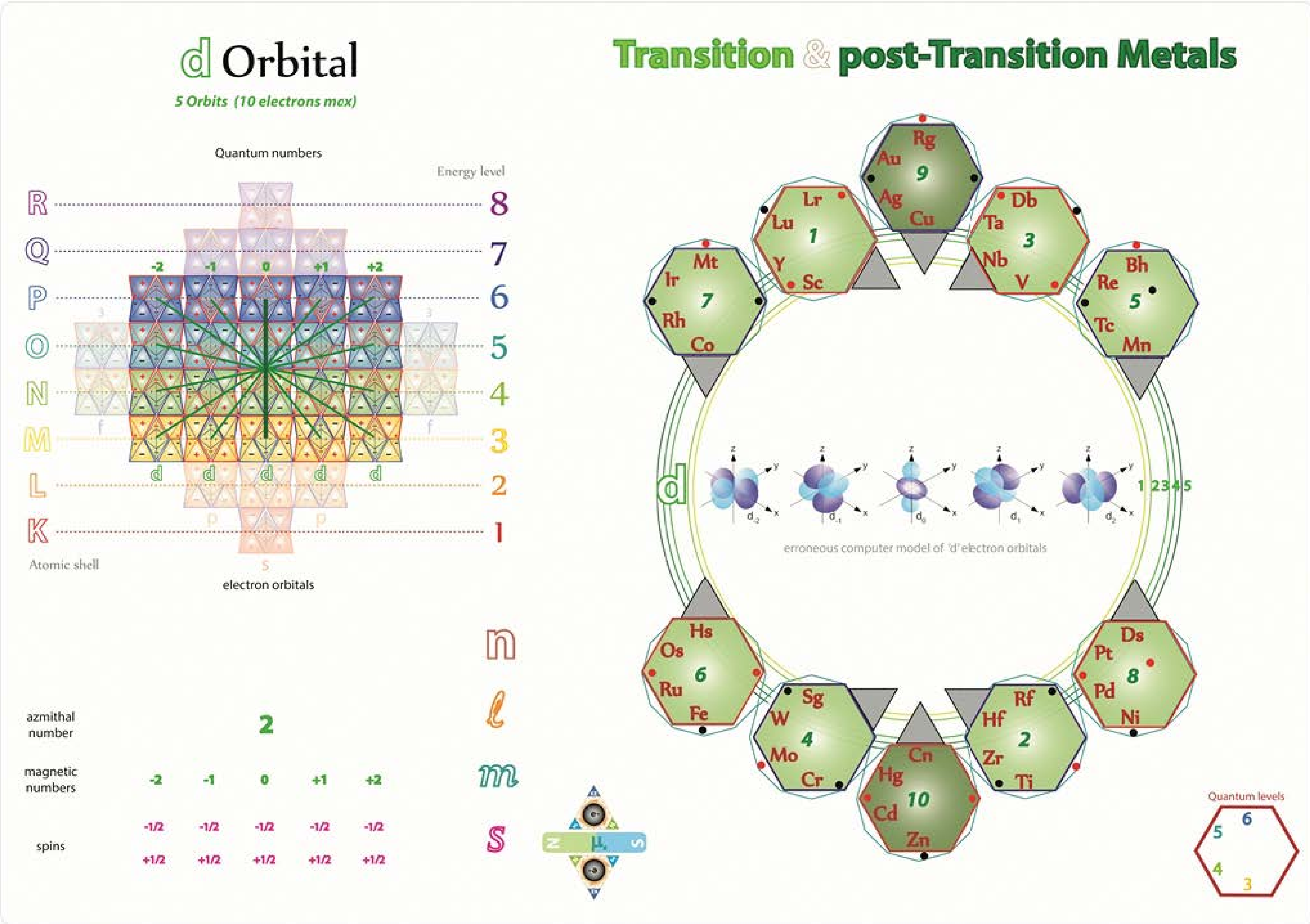
azmithal number		1	
magnetic numbers	-1	0	+1
spins	-1/2	-1/2	-1/2
	+1/2	+1/2	+1/2

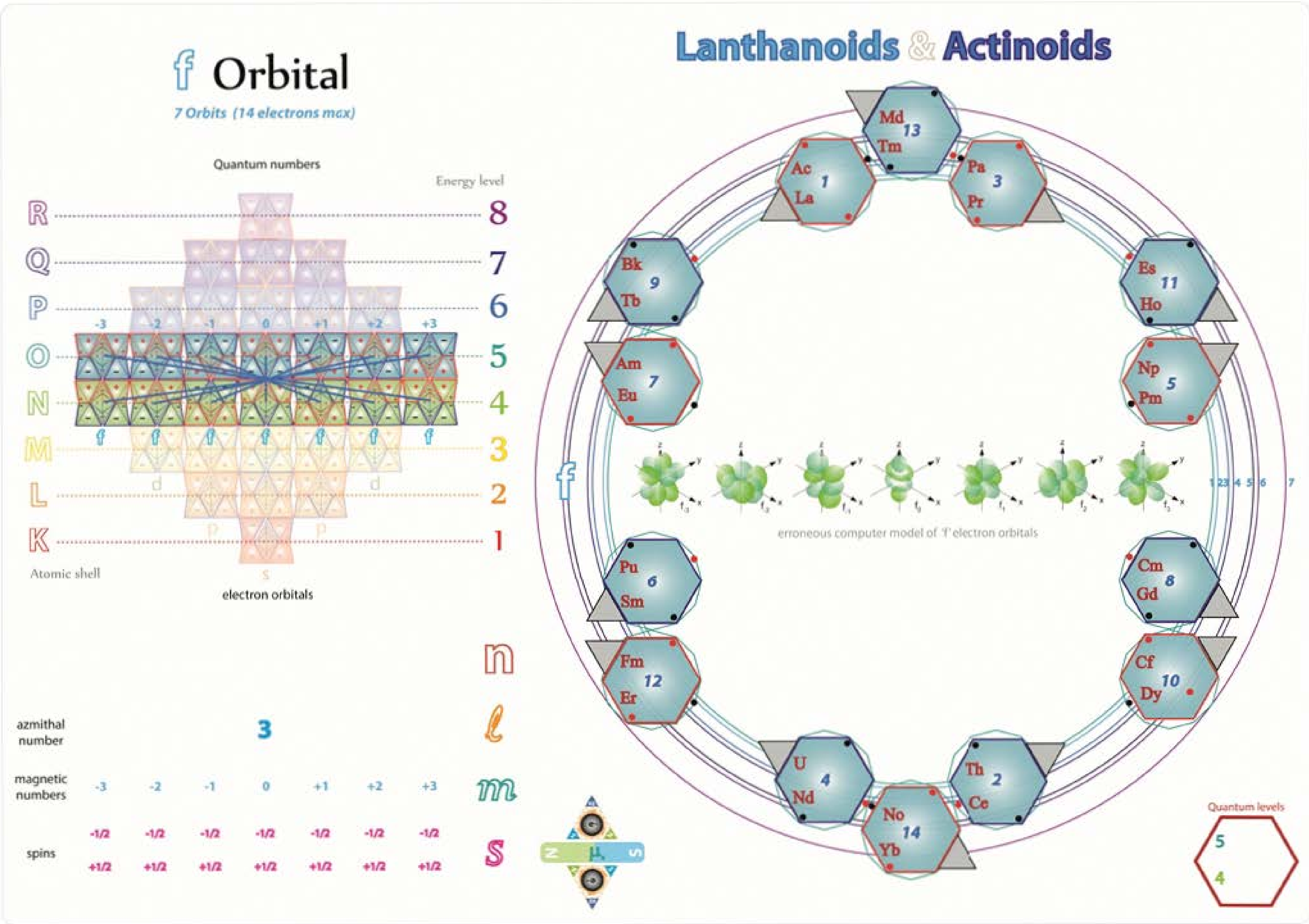


erroneous computer model of 'p' electron orbitals

Quantum levels



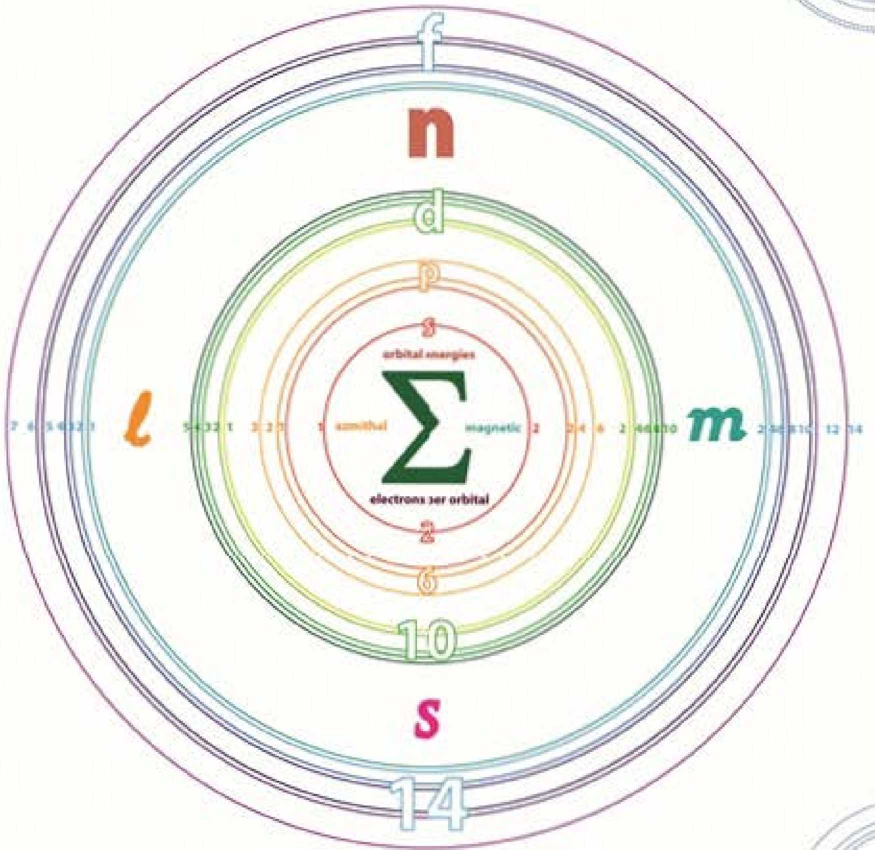

d Orbital
5 Orbits (10 electrons max)
Quantum numbers
Energy level
R
Q
P
O
N
M
L
K
8
7
6
5
4
3
2
1
-2 -1 0 +1 +2
d d d d d
Atomic shell
electron orbitals
n
l
m
s
azimthal number
2
magnetic numbers
-2 -1 0 +1 +2
spins
-1/2 -1/2 -1/2 -1/2 -1/2
+1/2 +1/2 +1/2 +1/2 +1/2
Transition & post-Transition Metals
Rg Au Ag Cu 9
Lr Lu Y Sc 1
Db Ta Nb V 3
Mt Ir Rh Co 7
Bh Re Tc Mn 5
Hs Os Ru Fe 6
Ds Pt Pd Ni 8
Sg W Mo Cr 4
Rf Hf Zr Ti 2
Cn Hg Cd Zn 10
d
1 2 3 4 5
erroneous computer model of 'd' electron orbitals
Quantum levels
5 6 4 3

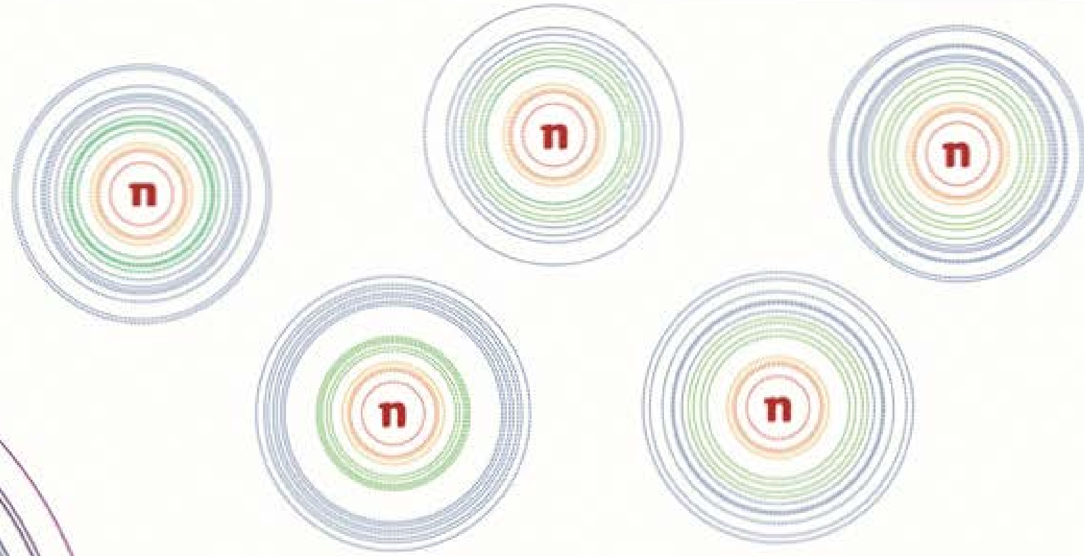


Tetryonics 47.06 - 'f' Orbital

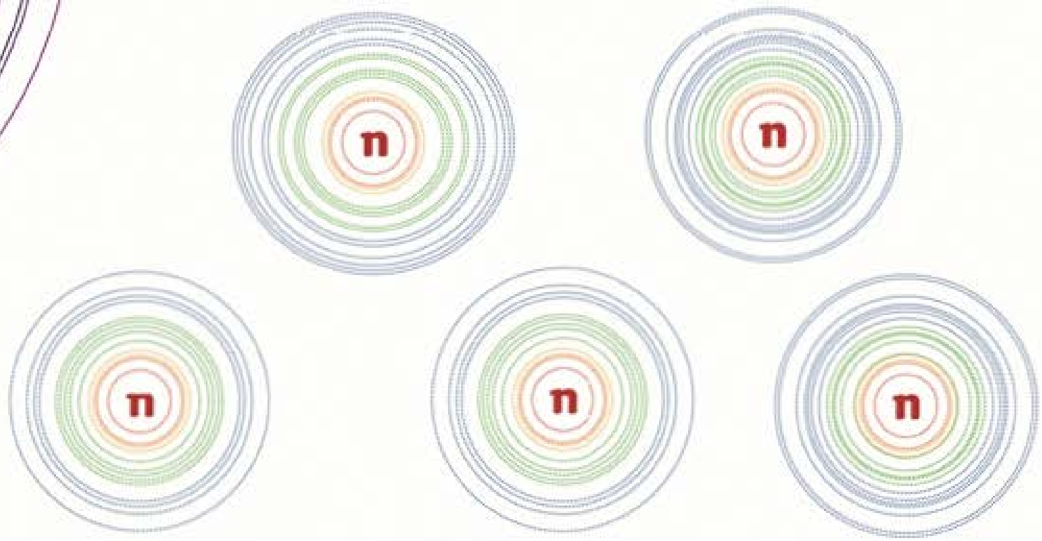
Orbital energy variations

All Elements have stable core electron configurations of s & p orbitals for each energy level as revealed through diffraction studies

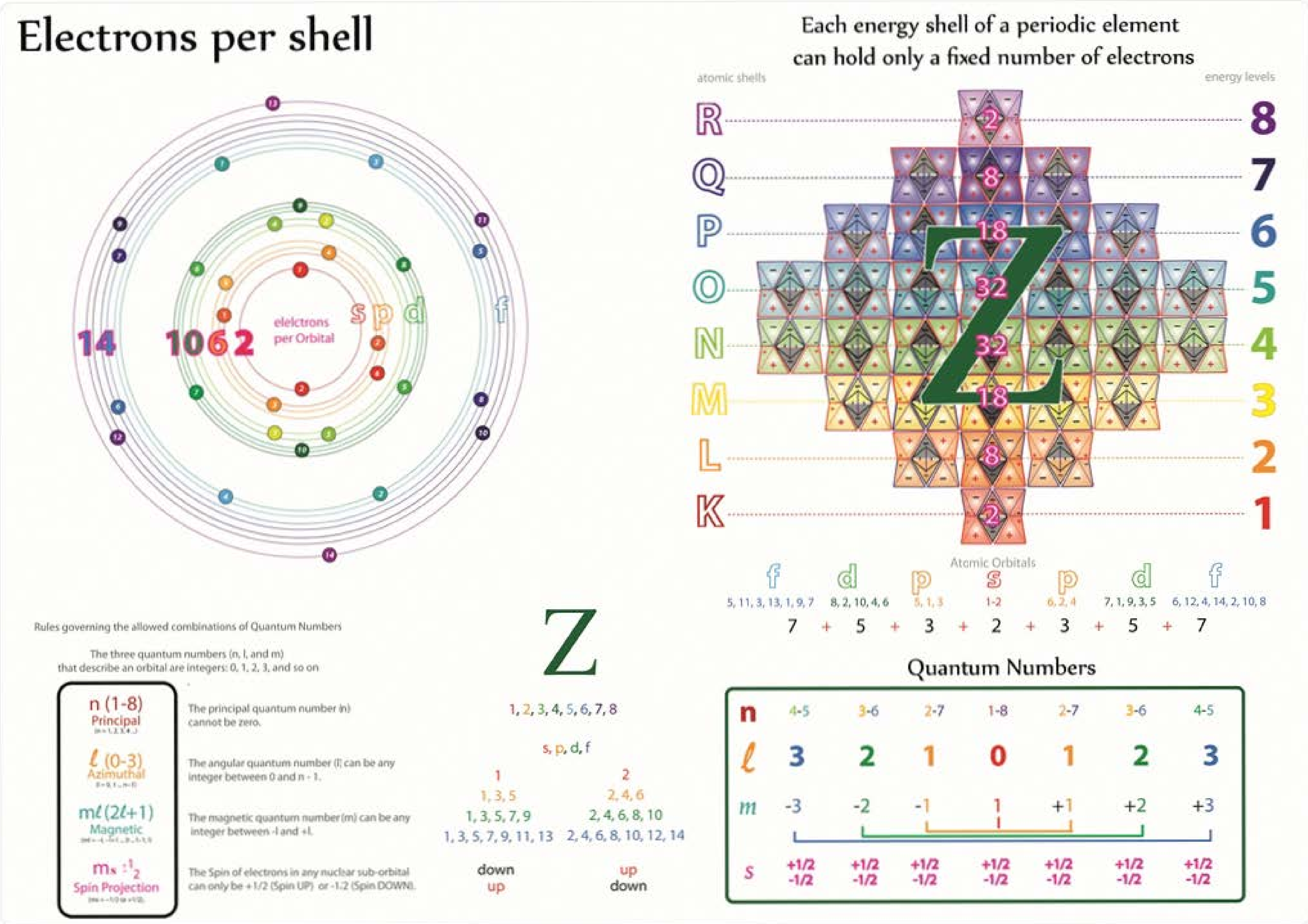




As additional nuclei bind to form d & f orbitals they can do so by bonding in many positions, with each location producing different orbital energies for each electron that binds to nuclei in that position



The final energy levels of each orbital is the result of the energy of the Baryons in the nuclei and the spin coupling energies of the photo-electrons bound to them


Electrons per shell
Each energy shell of a periodic element
can hold only a fixed number of electrons
atomic shells
energy levels
R Q P O N M L K
8 7 6 5 4 3 2 1
2 8 18 32 32 18 8 2
Z
elelctrons
per Orbital
s p d f
14 10 6 2
Atomic Orbitals
f d p s p d f
5, 11, 3, 13, 1, 9, 7
8, 2, 10, 4, 6
5, 1, 3
1-2
6, 2, 4
7, 1, 9, 3, 5
6, 12, 4, 14, 2, 10, 8
7 + 5 + 3 + 2 + 3 + 5 + 7
Rules governing the allowed combinations of Quantum Numbers
The three quantum numbers (n, l, and m)
that describe an orbital are integers: 0, 1, 2, 3, and so on
n (1-8)
Principal
The principal quantum number (n)
cannot be zero.
ℓ (0-3)
Azimuthal
The angular quantum number (l) can be any
integer between 0 and n - 1.
mℓ (2ℓ+1)
Magnetic
The magnetic quantum number (m) can be any
integer between -l and +l.
ms ±1/2
Spin Projection
The Spin of electrons in any nuclear sub-orbital
can only be +1/2 (Spin UP) or -1/2 (Spin DOWN).
Z
1, 2, 3, 4, 5, 6, 7, 8
s, p, d, f
1
1, 3, 5
1, 3, 5, 7, 9
1, 3, 5, 7, 9, 11, 13
2
2, 4, 6
2, 4, 6, 8, 10
2, 4, 6, 8, 10, 12, 14
down
up
up
down
Quantum Numbers
n 4-5 3-6 2-7 1-8 2-7 3-6 4-5
ℓ 3 2 1 0 1 2 3
m -3 -2 -1 1 +1 +2 +3
s +1/2 -1/2 +1/2 -1/2 +1/2 -1/2 +1/2 -1/2 +1/2 -1/2 +1/2 -1/2 +1/2 -1/2

Erwin Schrödinger

(12 August 1887 – 4 January 1961)

Using Tetryonic charged geometries for mass-ENERGY-Matter,
an electron's position and velocity CAN be modelled simultaneously
(but any attempt to measure or interact with it, will affect its component energy-momenta)

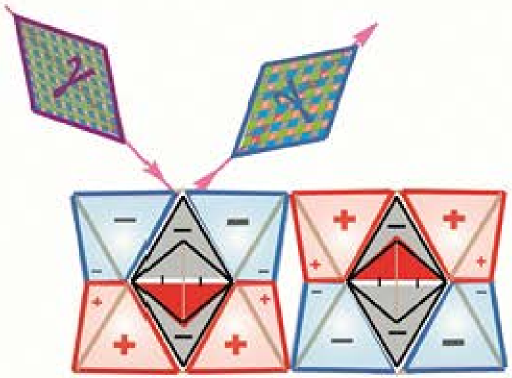
Electron Position Uncertainty

Atomic orbitals are typically described as "hydrogen-like" (meaning one-electron) wave functions over any spatial region of measurement, categorized by n, l, and m quantum numbers, which correspond to the electron's energy, angular momentum, and a vector momentum component, respectively

Werner Heisenberg

(5 December 1901 – 1 February 1976)

Lepton's are physically Spin 1 fermion particles that can easily be misconstrued as having entirely different spin numbers without the correct physical topologies to base the observed measurements on

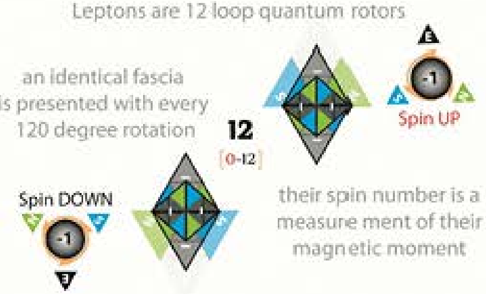


The energies of photo-electrons are determined by the Barryons they bind to & incident photons

Quantum Mechanics is a mathematical representation of equilateral energy momenta interactions and the charged geometries of mass-ENERGY-Matter

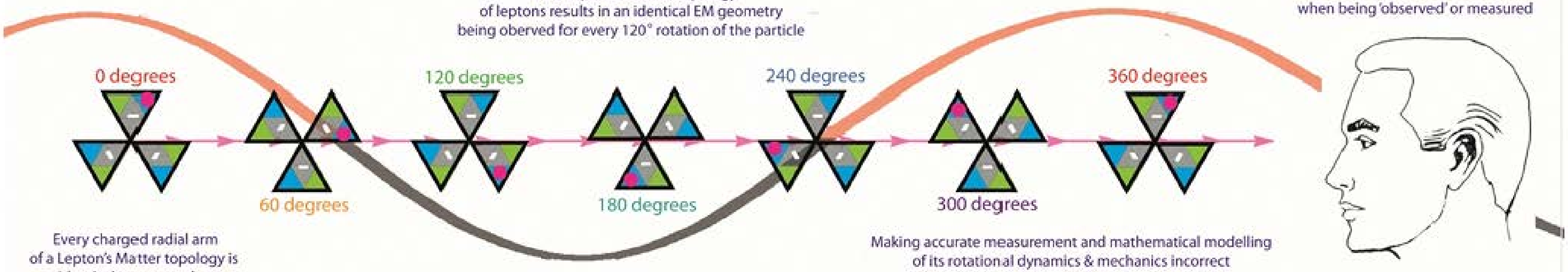
Determining the motion of electrons bound to atomic nuclei is akin to measuring the motion of variable speed electric fan blades mounted at various heights within a rotating carousel

Leptons are 12 loop quantum rotors



Leading to the interpretation that the Lepton disappears and re-appears when being 'observed' or measured

The unique 12 faceted topology of leptons results in an identical EM geometry being oberved for every 120° rotation of the particle

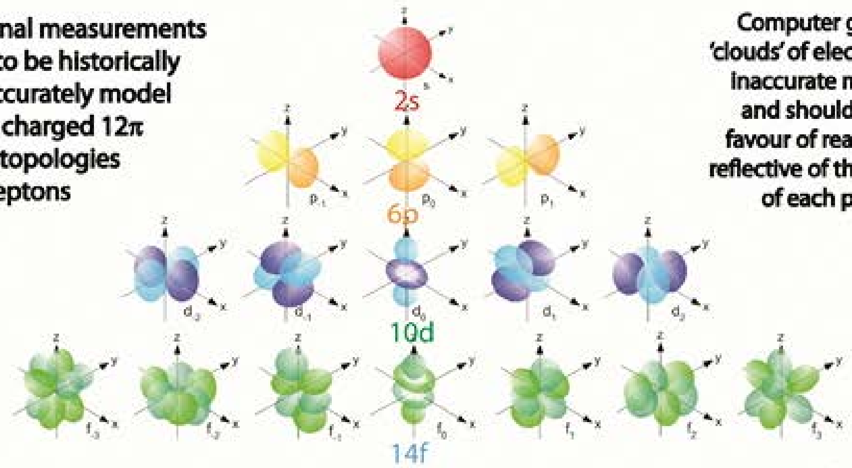


Every charged radial arm of a Lepton's Matter topology is identical to every other

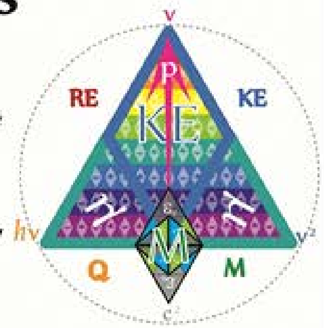
Making accurate measurement and mathematical modelling of its rotational dynamics & mechanics incorrect without the correct physical topologies

Electron modelling & probability calculations

Electron positional measurements have proven to be historically difficult to accurately model due to the charged 12π rotating topologies of leptons



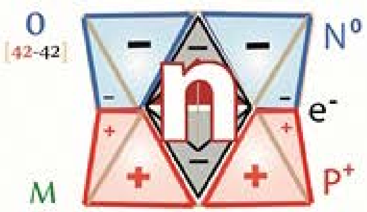
Computer generated plots of 'clouds' of electron probabilites are inaccurate mis-representations and should be abandoned in favour of realistic atomic models reflective of the charged geometry of each periodic element



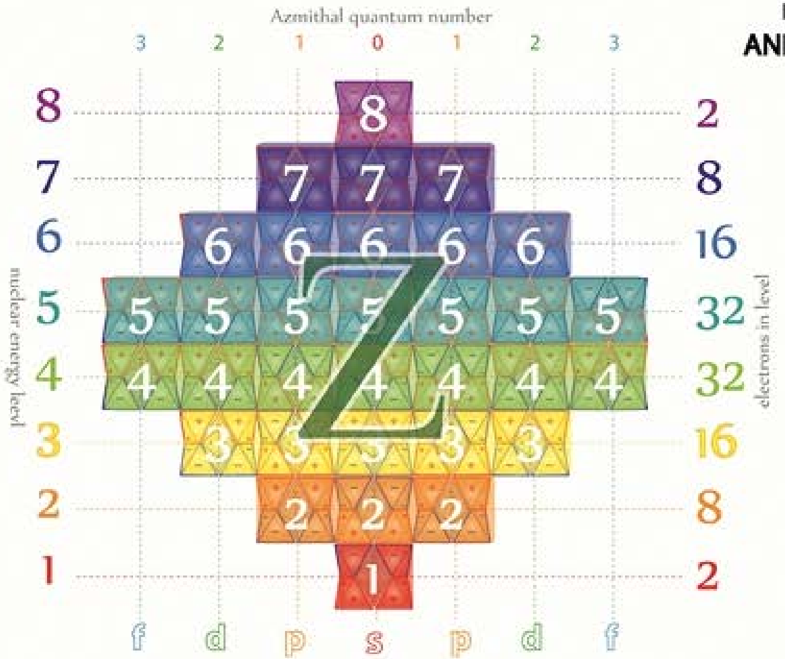
Every elemental atom can be viewed as a quantum carousel with a unique number of oscillating fans positioned around it.

Each fan has 3 blades and a fixed speed n[1-8] related to its height above ground level, AND the carousel is turning around on its axis

All periodic elements are made form Deuterium nuclei



The baryonic energies of nuclei determines the energies of bound photo-electrons

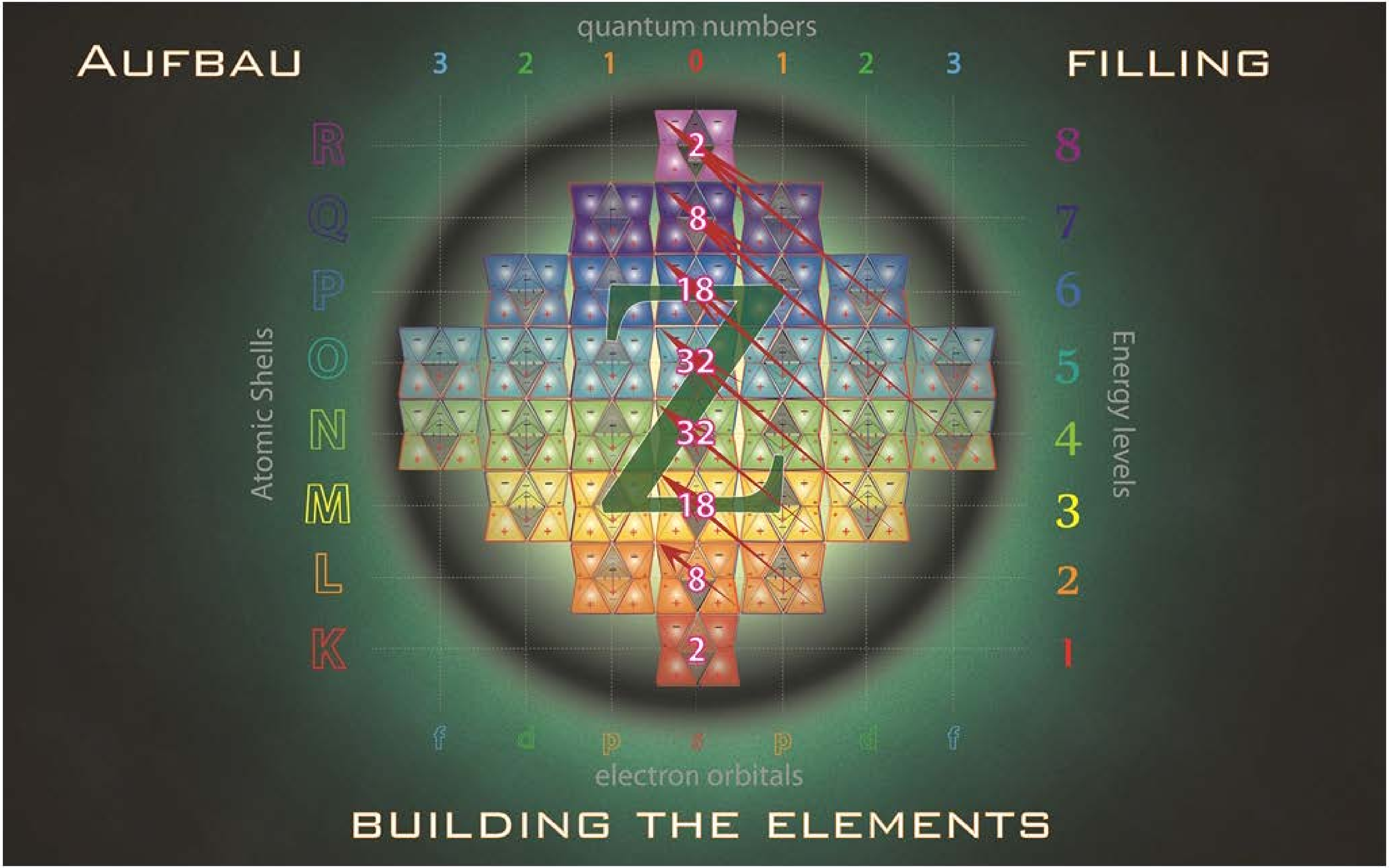


The current computer generated electron probability diagrams in popular use at present can now be show to be a misrepresentative model of mathematical modelling of electron sub-orbital energies

The nuclear quantum levels [n], intrinsic quantised angular momentum [h] and orbital angular momentum [l] of each electron bound within atomic nuclei are all the direct result of the Baryonic energies of the nuclei they are bound to

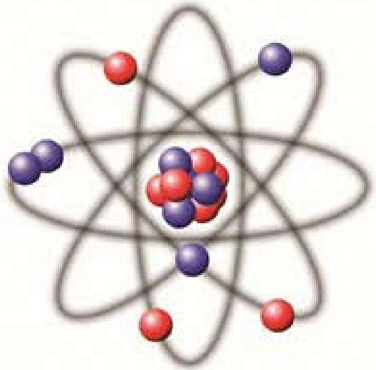
Each level of the quantum carousel can contain only a limited number of fans each running at a specific speed

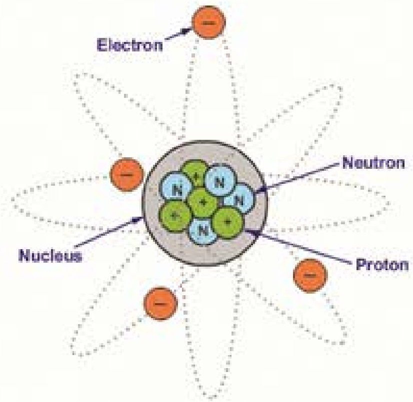
Imagine trying to measure (or model) the motion of any 1 quantum scale blade while the carousel rotates

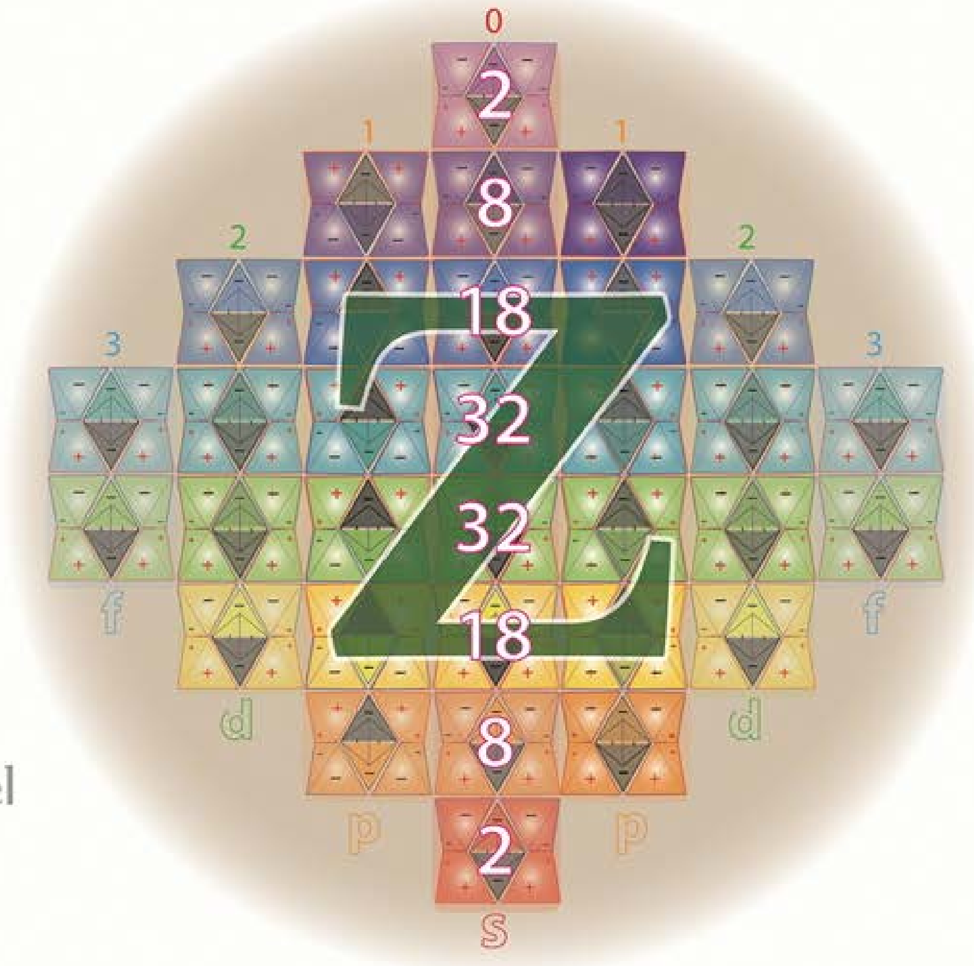


Tetryonics 48.01 - aufbau geometry

Quantum Topologies





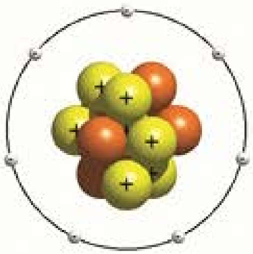


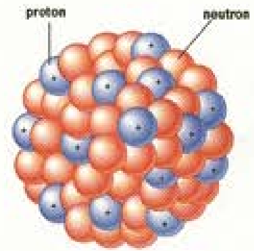
Dalton Model

Quantum Model

Thomson Model

Rutherford Model





Historically viewed as a spherical object
Tetryonic charge geometry has finally revealed the true quantum topology of all atoms

Element numbers

The rule dictating how many nuclei form each Atomic shell is known as the Aufbau principle.

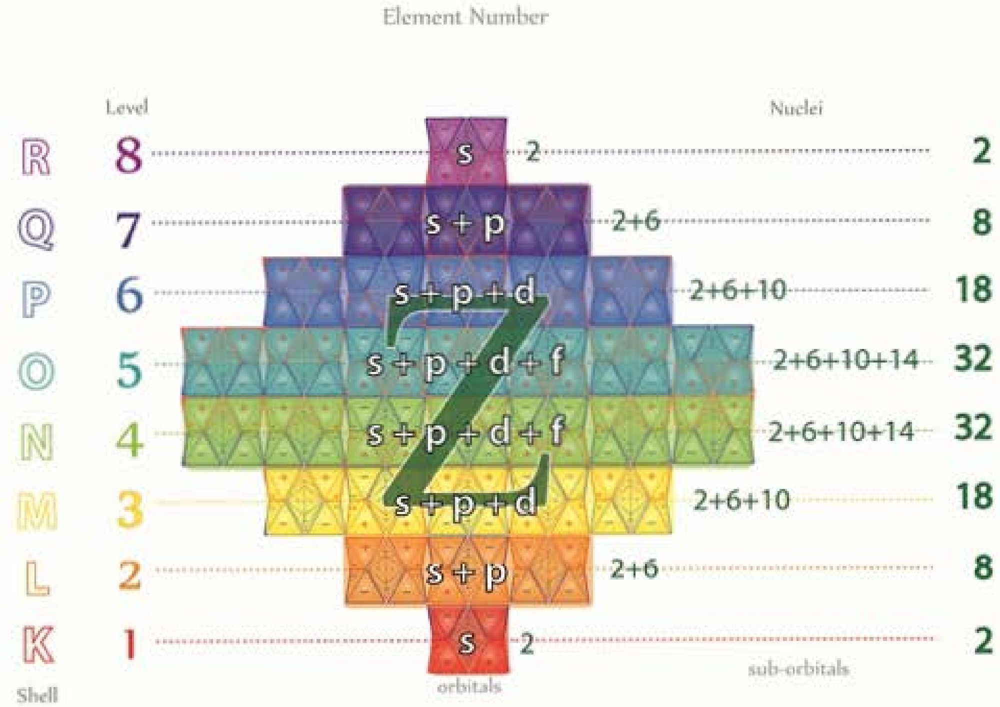
The physical and chemical properties of elements is determined by the atomic structure.
The atomic structure is, in turn, determined by the electrons and
which shells, subshells and orbitals they reside in.

The number of possible nuclei in each Quantum level follows aufbau principle 'numbers' which can be determined using the following summation formula

The maximum periodic elemental number is 120

$$Z = \sum_{1,2,3,4,4,3,2,1} 2(n^2) = 2 + 8 + 18 + 32 + 32 + 18 + 8 + 2$$

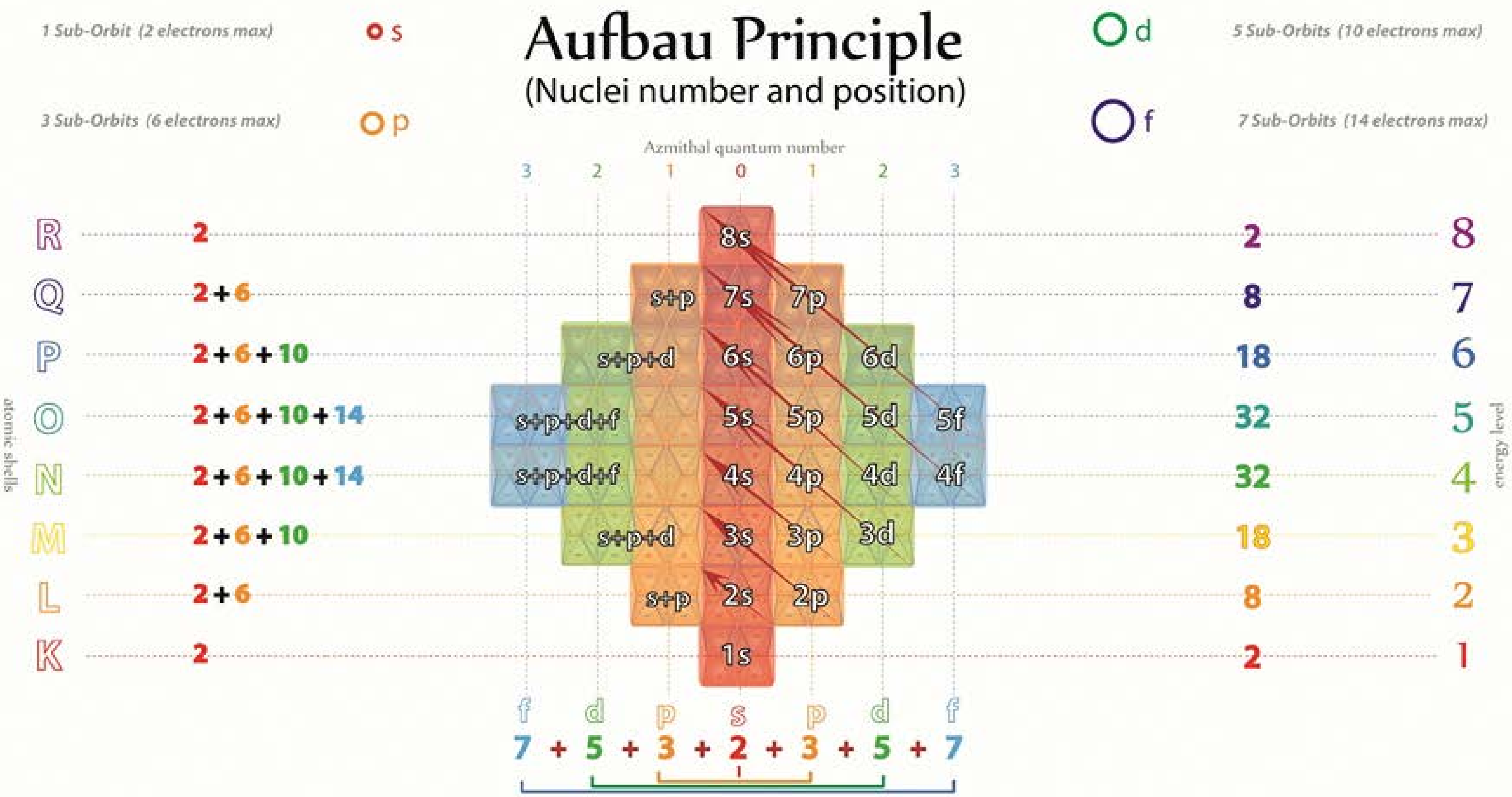
Number of nuclei per level	Element #
2	120, 119
8	118, 111
18	110, 93
32	92, 61
32	60, 29
18	28, 11
8	10, 3
2	2, 1



Deuterium is the building block of all elements

The number of nuclei per quantum level is reflective of photonic energy levels and provides the foundational geometry for all of the periodic elements

Each element has equal numbers of Protons, electron & Neutrons with their stored mass-energies making up the molar masses of elements not excess neutron as currently modelled



2 6 10 14

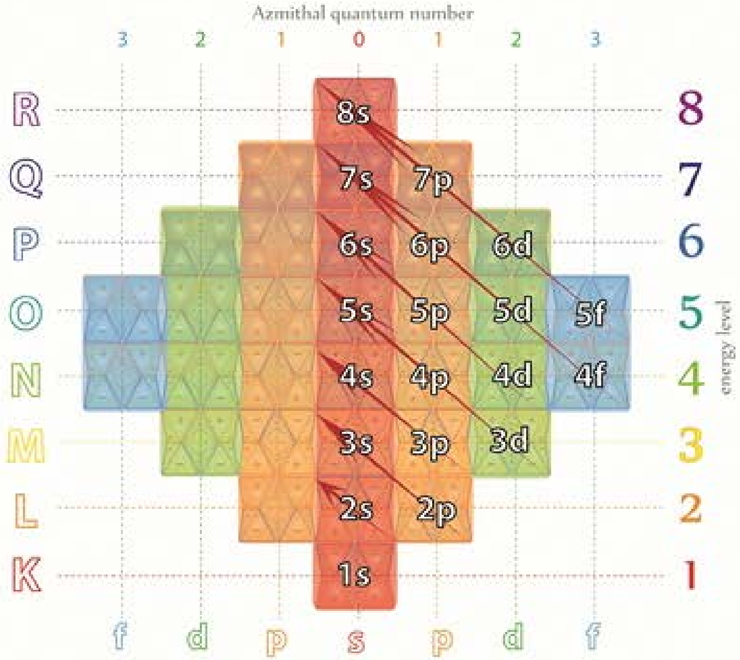
Nuclei	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	per level	
R	119	120																															8	2
Q	87	88	113	114	115	116	117	118																									7	8
P	55	56	81	82	83	84	85	86	103	104	105	106	107	108	109	110	111	112															6	18
O	37	38	49	50	51	52	53	54	71	72	73	74	75	76	77	78	79	80	89	90	91	92	93	94	95	96	97	98	99	100	101	102	5	32
N	19	20	31	32	33	34	35	36	39	40	41	42	43	44	45	46	47	48	57	58	59	60	61	62	63	64	65	66	67	68	69	70	4	32
M	11	12	13	14	15	16	17	18	21	22	23	24	25	26	27	28	29	30															3	18
L	3	4	5	6	7	8	9	10																									2	8
K	1	2																															1	2
Shells																																	Quantum number	
sub-orbitals	s1	s2	p1	p2	p3	p4	p5	p6	d1	d2	d3	d4	d5	d6	d7	d8	d9	d10	f1	f2	f3	f4	f5	f6	f7	f8	f9	f10	f11	f12	f13	f14		

A specific nuclear energy is associated with each electron configuration and, upon certain conditions, bound electrons are able to move from one orbital to another by emission or absorption of a quantum of energy, in the form of a photon.

The Aufbau principle can also be used to model the binding configuration of Protons and Neutrons in an atomic nucleus, according to their specific Baryonic Energy levels, in turn revealing the quantum geometry of all periodic Elements

Wolfgang Pauli

(25 April 1900 – 15 December 1958)



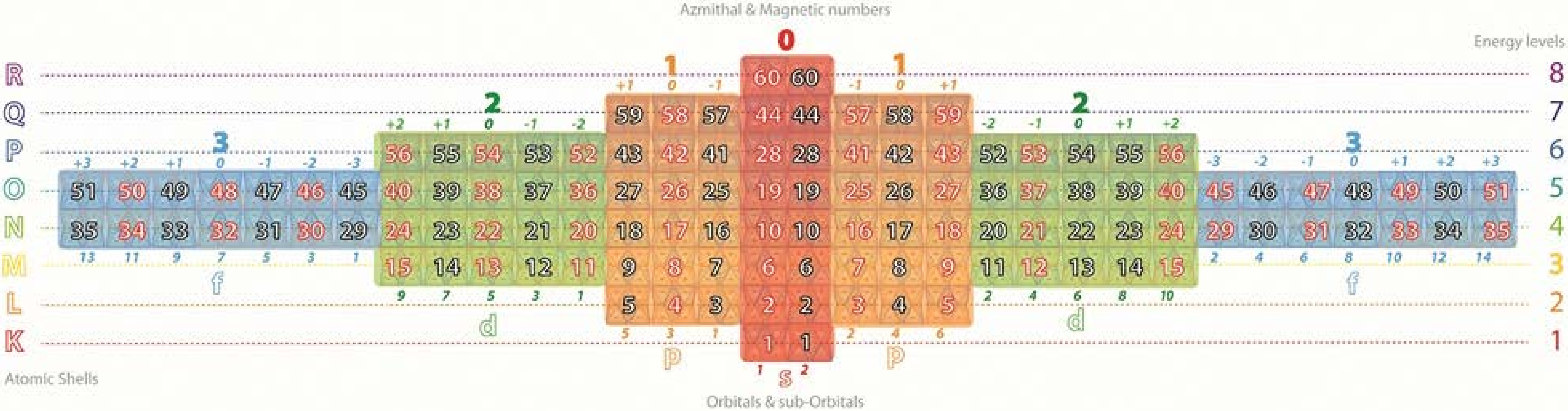
Friedrich Hermann Hund

(4 February 1896 - 31 March 1997)

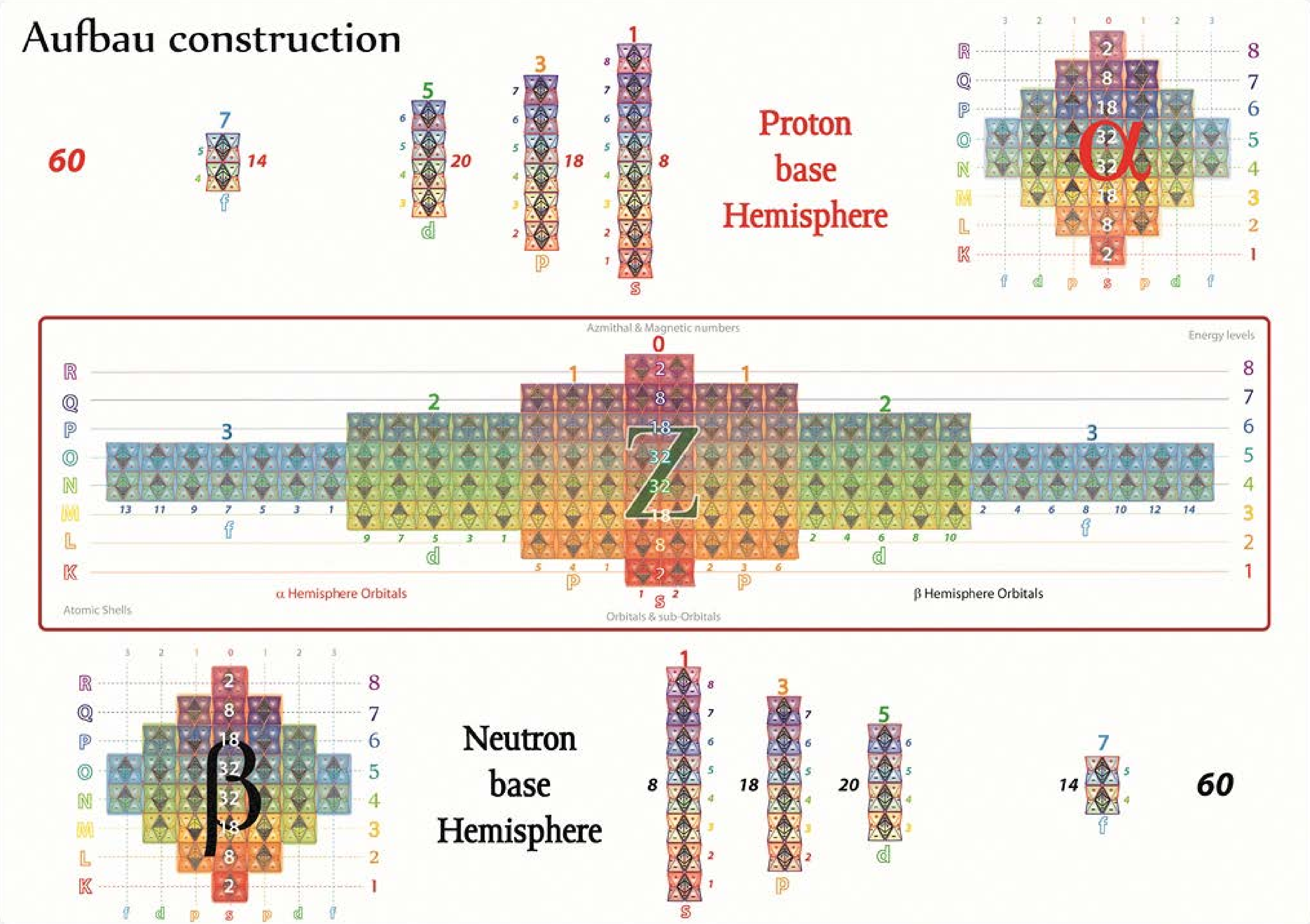
The orbitals of lower energy are filled in first with the electrons and only then are the higher energy orbitals filled.

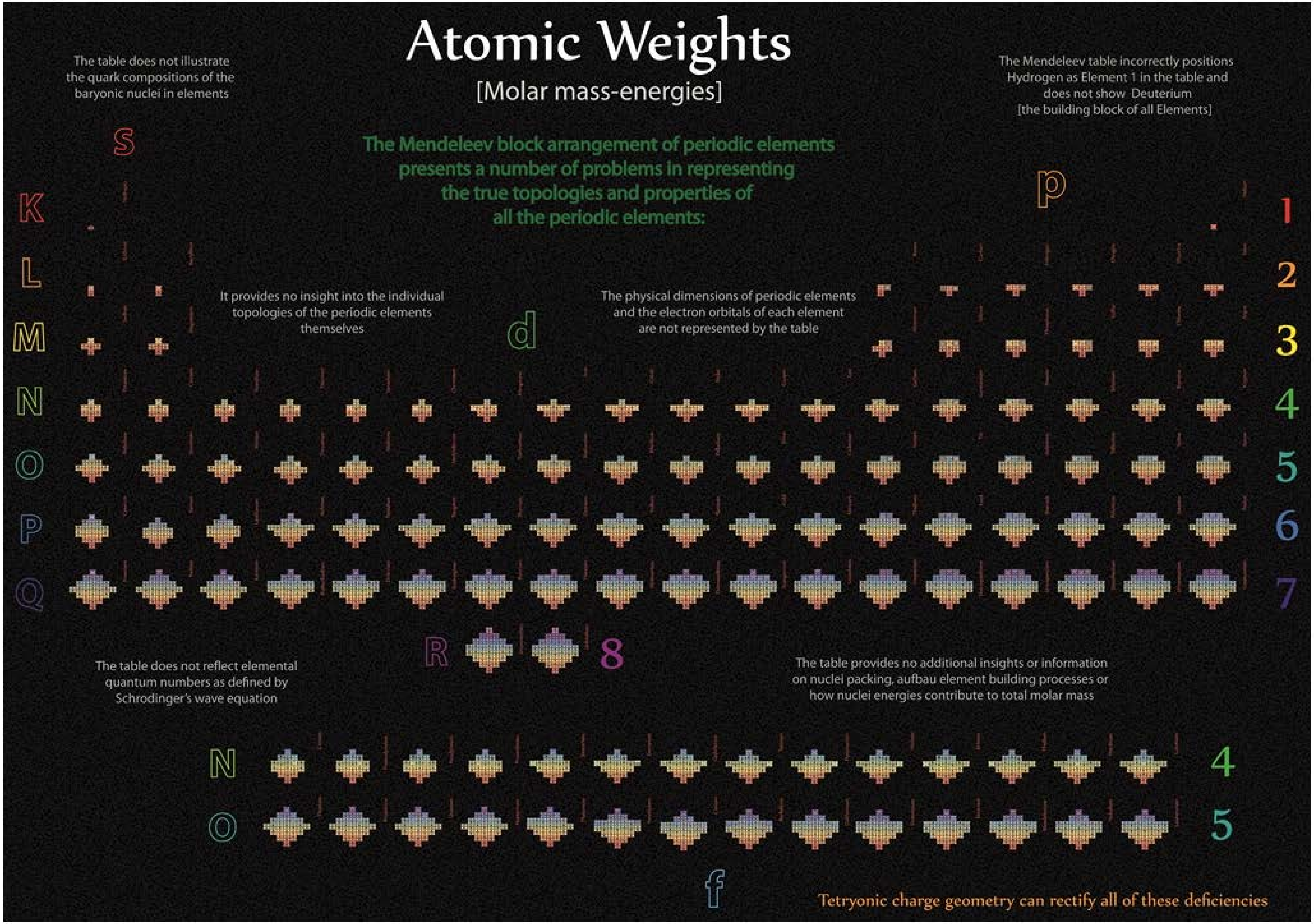
aufbau electron orbital filling

Orbitals of equal energy are each occupied by one electron before any orbital is occupied by a second electron, and all electrons in singly occupied orbitals must have the same spin state

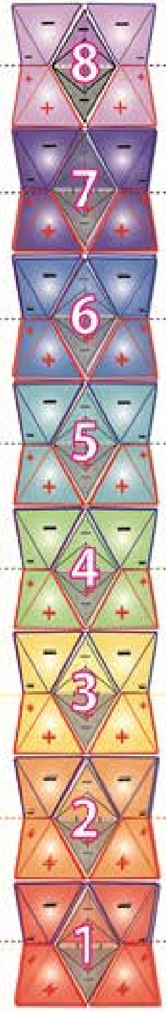


Aufbau construction



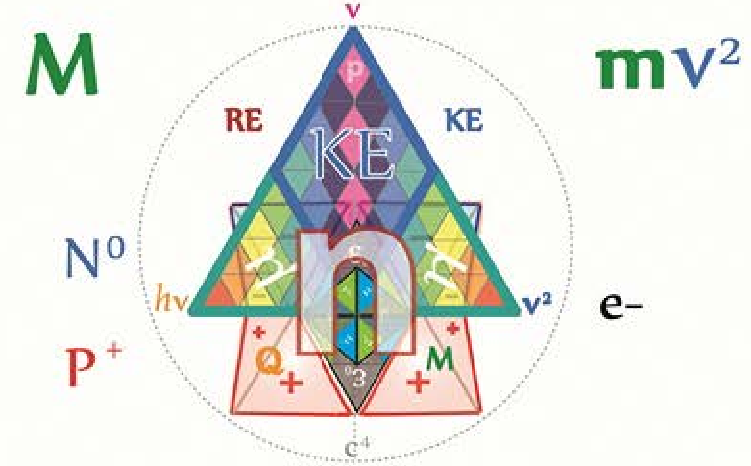

Atomic Weights
[Molar mass-energies]
The table does not illustrate the quark compositions of the baryonic nuclei in elements
The Mendeleev table incorrectly positions Hydrogen as Element 1 in the table and does not show Deuterium [the building block of all Elements]
The Mendeleev block arrangement of periodic elements presents a number of problems in representing the true topologies and properties of all the periodic elements:
s
p
d
f
K
L
M
N
O
P
Q
R
1
2
3
4
5
6
7
8
It provides no insight into the individual topologies of the periodic elements themselves
The physical dimensions of periodic elements and the electron orbitals of each element are not represented by the table
The table does not reflect elemental quantum numbers as defined by Schrodinger's wave equation
The table provides no additional insights or information on nuclei packing, aufbau element building processes or how nuclei energies contribute to total molar mass
Tetryonic charge geometry can rectify all of these deficiencies

Baryon mass-energies n	E — *The quantum level mass-energies of Baryons determines the kinetic energies of electrons* 1n - 1 e19v		electron KEM field hv^2
73,728	n32	v8	3.268969693 e15
69,192	n31	v7	2.502804921 e15
64,800	n30	v6	1.838795452 e15
60,552	n29	v5	1.276941286 e15
56,448	n28	v4	8.172424232 e14
52,488	n27	v3	4.596988631 e14
48,672	n26	v2	2.043106058 e14
45,000	n25	v1	5.107765145 e13
Compton frequencies	1.2 e20 electron rest Matter is velocity invariant		spectral frequencies
930 MeV	496 keV		13.6 eV



Atomic nuclei mass-energies

Each element's weight [mass-Matter in a gravitational field] is the result of the total quanta comprising that element



The nuclei forming each atomic shell have specific mass-energy quanta

Baryon rest masses — lepton rest mass — KEM

$$\sum_{1}^{8} n \left[[72(n)^2] + [12e19] + [m_e v^2] \right]$$

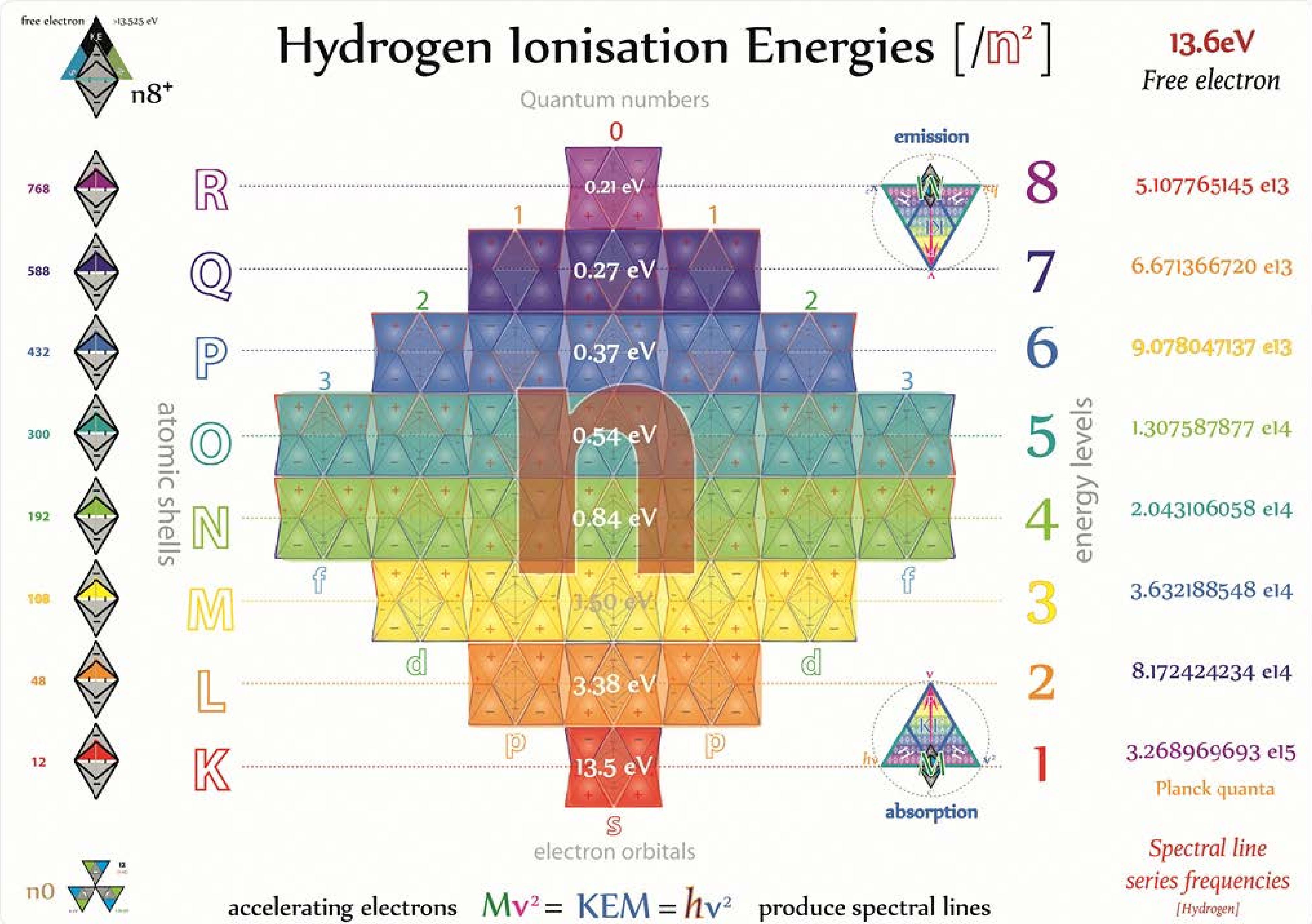
Deuterium mass-energy per shell

Despite having differing mass-energies each Deuterium nuclei has the same velocity invariant Matter geometry [84π]

spin orbital coupling in synchronous quantum convertors

Electrons act as quantum scale rotating armatures in atomic nuclei and can only have specific energies reflective of the electron orbital energy level of the Baryons in which they are found

They acheive these energy levels by absorbing or emitting photons to acheive the specific angular momentum required

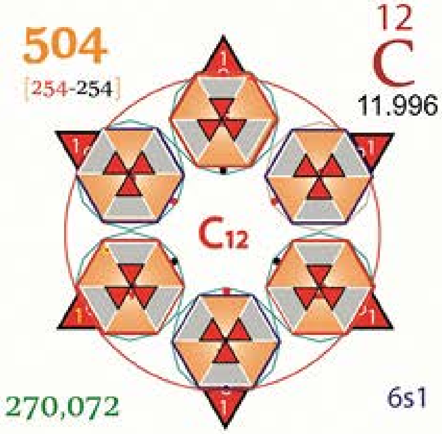


Hydrogen Ionisation Energies [/n²]
13.6eV
Free electron
free electron
n8⁺
Quantum numbers
0
1
1
2
2
3
3
emission
R
Q
P
O
N
M
L
K
768
588
432
300
192
108
48
12
atomic shells
0.21 eV
0.27 eV
0.37 eV
0.54 eV
0.84 eV
1.50 eV
3.38 eV
13.5 eV
8
7
6
5
4
3
2
1
energy levels
5.107765145 e13
6.671366720 e13
9.078047137 e13
1.307587877 e14
2.043106058 e14
3.632188548 e14
8.172424234 e14
3.268969693 e15
Planck quanta
f
f
d
d
p
p
s
electron orbitals
absorption
n0
Spectral line
series frequencies
[Hydrogen]
accelerating electrons Mv² = KEM = hv² produce spectral lines

Redefining Atomic weights

Atomic weight (symbol: Ar) is a dimensionless physical quantity,
the ratio of the average mass of atoms of an element (from a given source) to
1/12 of the mass of an atom of carbon-12 (known as the unified atomic mass unit)

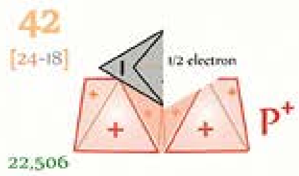
Carbon 12



6 Protons [24-12]
6 Neutrons [18-18] n1
6 electrons [0-12]

1/12 C_{12}

A_r = 22,506



1.660096209e-27 kg

1 Proton [24-12] n1
.5 electron 0-6

The 'unified atomic mass unit' currently in use
is known to be inaccurate and must be corrected
in order to bring clarity & increased accuracy
to the atomic weights of all elements

A_r = 22,512
Hydrogen

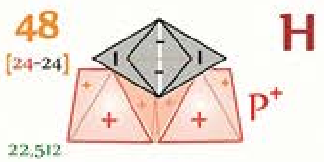
Defining Hydrogen as having an exact
atomic Planck mass of 22512n quanta
provides uniformity with Tetryonics

Deuterium is the building block of all elements in the period table

A_r = 45,012
Deuterium

Defining Deuterium as having an exact
atomic Planck mass of 45012n quanta
reflects the true charged geometries
of all Elements & their topologies

Unified atomic Matter unit

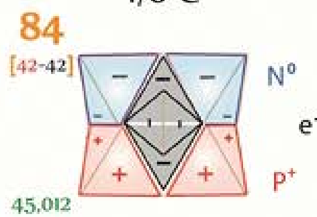


1.660538783e-27 kg

1 Proton [24-12] n1
1 electron [0-12]

D

1/6 C



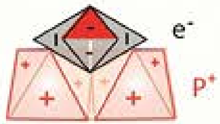
3.320192418e-27 kg

1 Proton [24-12]
1 Neutron [18-18] n1
1 electron [0-12]

Planck mass-energy units

NAu = 0.001 kg

48
[24-24]



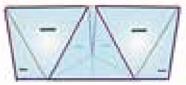
^{1}H

22,512

1.660538841 e-27 kg

One Da is approximately equal to the mass of one proton or one neutron

36
[18-18]

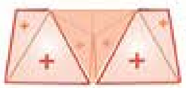


N^0 0.499866702 H

22,500

1.659653693 e-27 kg

36
[24-12]

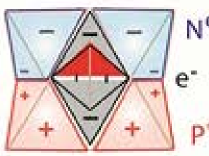


P^+ 0.499866702 H

22,500

Deuterium is the building block of all elements

84
[42-42]



^{2}H

45,012

3.320192534 e-27 kg

The unified atomic mass unit (symbol: u) or Dalton (symbol: Da) is a unit that is used for indicating mass on an atomic or molecular scale

270,072

1/12 the mass of a C12 graphene atom at rest in its electronic ground state

1.660538782(83)x10−27 kg

22,506

is an inaccurate means of determining the exact rest mass of a Hydrogen atom

22,512

Carbon 12 has 270,072n planck quanta (270,072 / 12 = 22,506)

Hydrogen has a mass of 22,512n (22,500+12) requiring all mass to be calculated directly using the Planck mass-energy quantum (.001kg / N_A / 22,512) & Tetryonic charge geometries

Using Tetryonic theory to define n Planck mass = 7.376238634 x 10^{-32} Kg
(see Tetryonics QM 15.04)

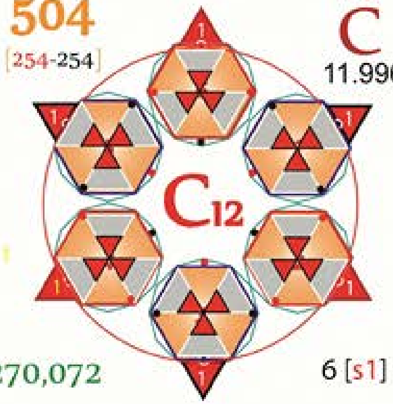
exact atomic rest masses for all particles, elements and compounds can be determined directly from atomic theory

N_A = 6.02214179 e23

The mole is the amount of substance of a system which contains as many elementary entities as there are atoms in 0.012 kilogram of carbon 12; its symbol is "mol".

NA(12u) = 0.012 kg

504
[254-254]



^{12}C
11.996

270,072

6 [s1]

6 Protons	[24-12]	n1
6 Neutrons	[18-18]	
6 electrons	[0-12]	

Carbon has a number of differing atomic configurations (allotropes)

6 Protons	[24-12]	n1-2
6 Neutrons	[18-18]	
6 electrons	[0-12]	

504
[252-252]

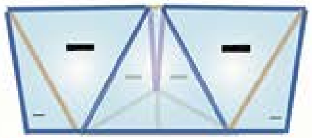
^{6}C
12.6493

284,760

[He] 2s2 2p2

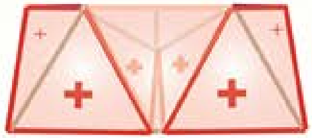
Planck mass-energy contributions to the measured weights of periodic, elementary mass-Matter topologies

36
[18-18]
N^0
45,000n



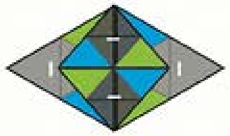
1.659653693 e-27 kg

36
[24-12]
P^+
45,000n



8.851486361 e-31 kg

12
[0-12]
e-
12n



2.41110961l e-35 kg

n
[v-v]
γ
0

KEM

Baryons have 2,25e23 Planck quanta comprising their rest Matter topologies

[930.974 MeV]

Δ 1875 x

[496.5 keV]

Leptons have 1.2 e20 Planck quanta comprising their rest Matter topologies

[496.5 keV]

Δ 36,711 x

[13.6 eV]

Photons are planar geometries [Matter-less]
(purely Kinetic mass-Energy and momenta)

The Lyman alpha spectral line mass-energy contribution to the mass of a Deuterium nucleus is negligible

Electron quantum level energies are determined by the energy of the Nuclei they bind to in elements

D^+

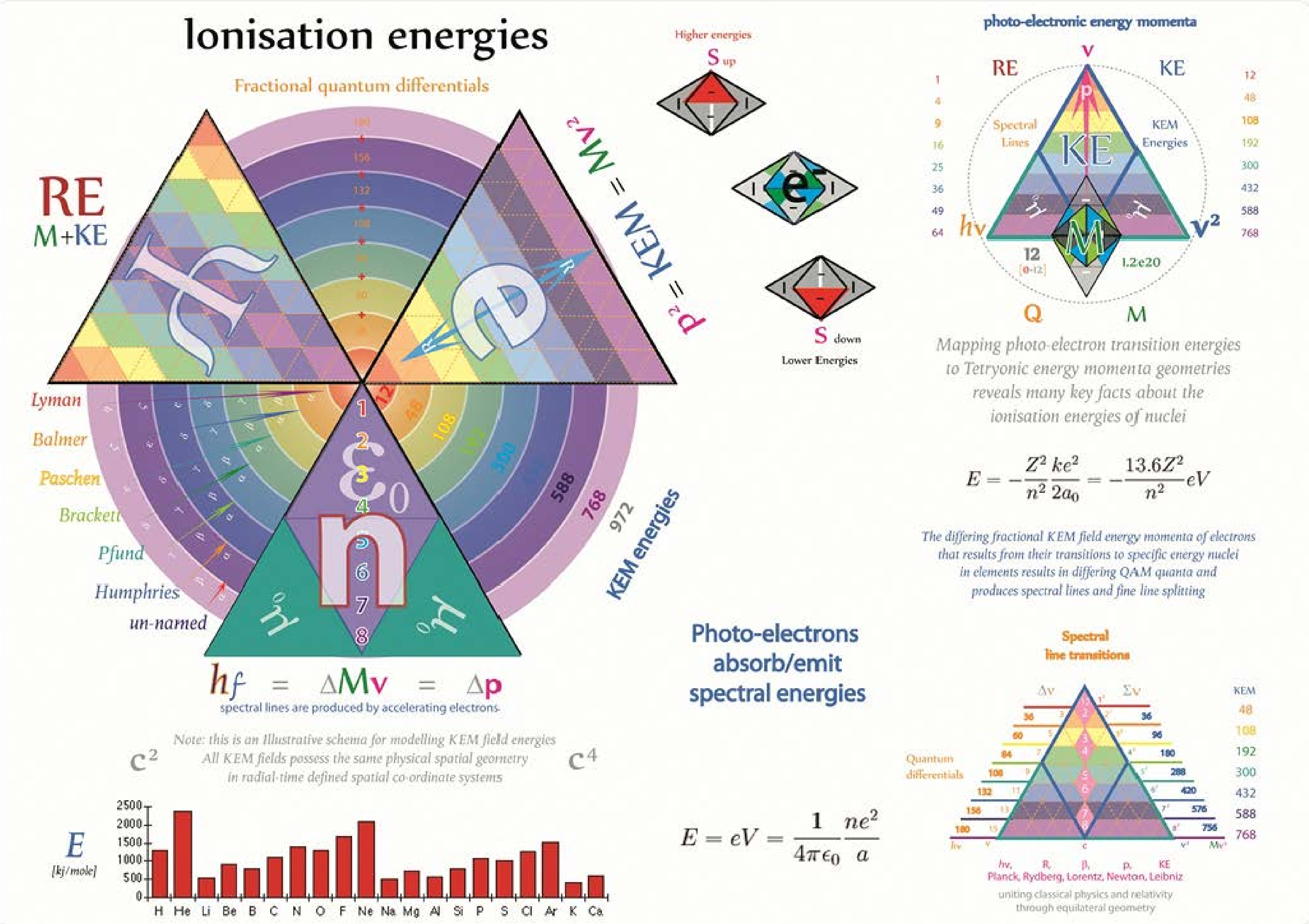
[1.862 GeV]

84
[42-42]

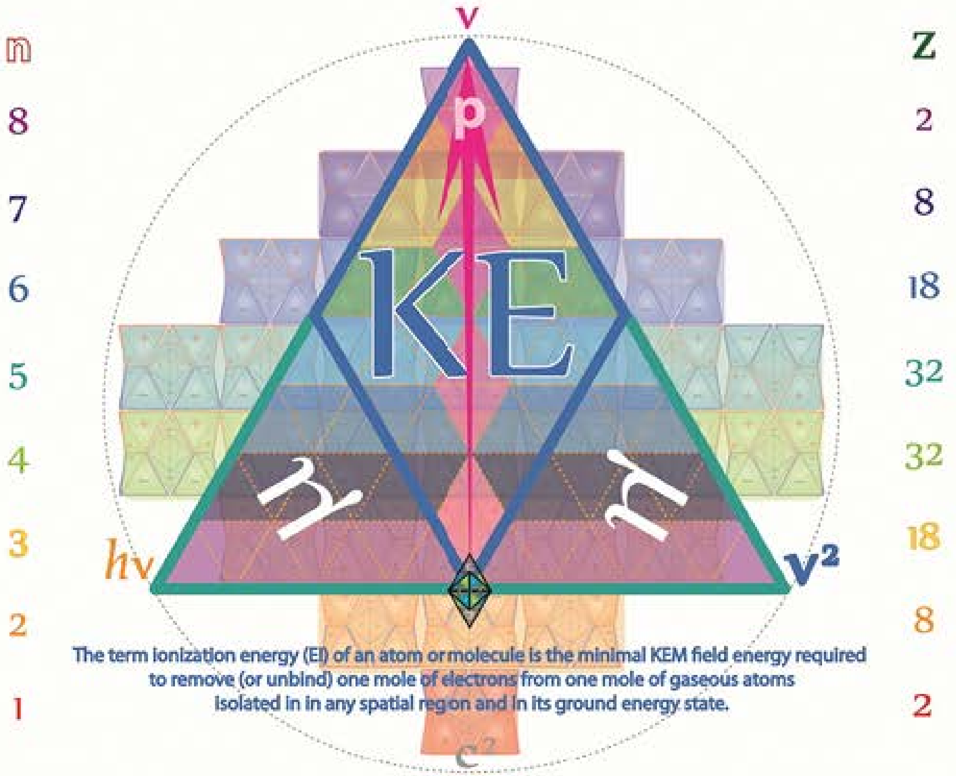
90,012n+

Photons contribute spectral mass-energies to the nuclei mass but are themselves Matterless [2D zero rest mass-energies]

Photons are 2π charge mass-energy geometries


Ionisation energies
Fractional quantum differentials
RE
M+KE
$p^2 = KEM = Mv^2$
Lyman
Balmer
Paschen
Brackett
Pfund
Humphries
un-named
KEM energies
12
48
108
192
300
432
588
768
972
$hf = \Delta Mv = \Delta p$
spectral lines are produced by accelerating electrons
Note: this is an Illustrative schema for modelling KEM field energies
All KEM fields possess the same physical spatial geometry
in radial-time defined spatial co-ordinate systems
c^2
c^4
E
[kj/mole]
H He Li Be B C N O F Ne Na Mg Al Si P S Cl Ar K Ca
Higher energies
S up
S down
Lower Energies
Photo-electrons absorb/emit spectral energies
$E = eV = \frac{1}{4\pi\epsilon_0}\frac{ne^2}{a}$
photo-electronic energy momenta
RE
KE
Spectral Lines
KEM Energies
hv
v^2
Q
M
1.2e20
Mapping photo-electron transition energies to Tetryonic energy momenta geometries reveals many key facts about the ionisation energies of nuclei
$E = -\frac{Z^2}{n^2}\frac{ke^2}{2a_0} = -\frac{13.6Z^2}{n^2}eV$
The differing fractional KEM field energy momenta of electrons that results from their transitions to specific energy nuclei in elements results in differing QAM quanta and produces spectral lines and fine line splitting
Spectral line transitions
Quantum differentials
KEM
hv, R, β, p, KE
Planck, Rydberg, Lorentz, Newton, Leibniz
uniting classical physics and relativity through equilateral geometry

Elementary ionisation energies



The term "ionization energy" is sometimes used as a name for the work needed to remove (or un-bind) the highest energy photoelectron from an atom or molecule.

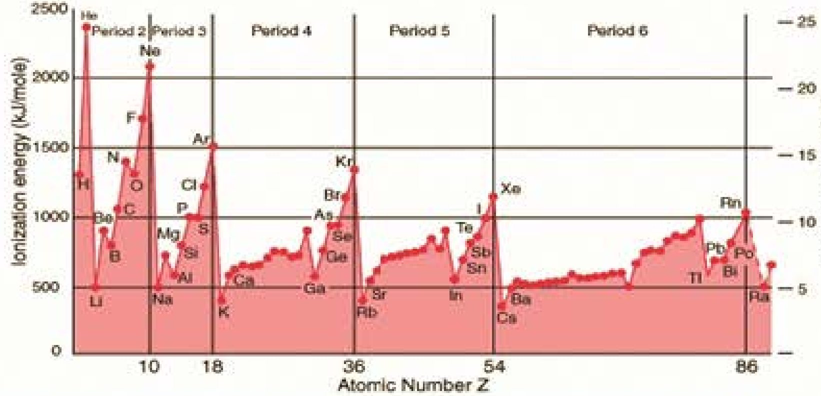
However, due to interactions with surfaces, this value differs from the ionization energy of the atom or molecule in question when it is located by itself in free space.

So, in the case of surface-adsorbed atoms and molecules, it may be better to use the more general term "electron binding energy", in order to avoid confusion.

Both these names are also sometimes used to describe the work needed to remove an electron from a "lower" orbital (i.e., not the topmost orbital) for both free and adsorbed atoms; in such cases it is necessary to specify the orbital from which the electron has been removed

$$E = -\frac{Z^2}{n^2}\frac{ke^2}{2a_0} = -\frac{13.6Z^2}{n^2}eV$$

Every electron in each elementary orbit has a unique ionisation energy

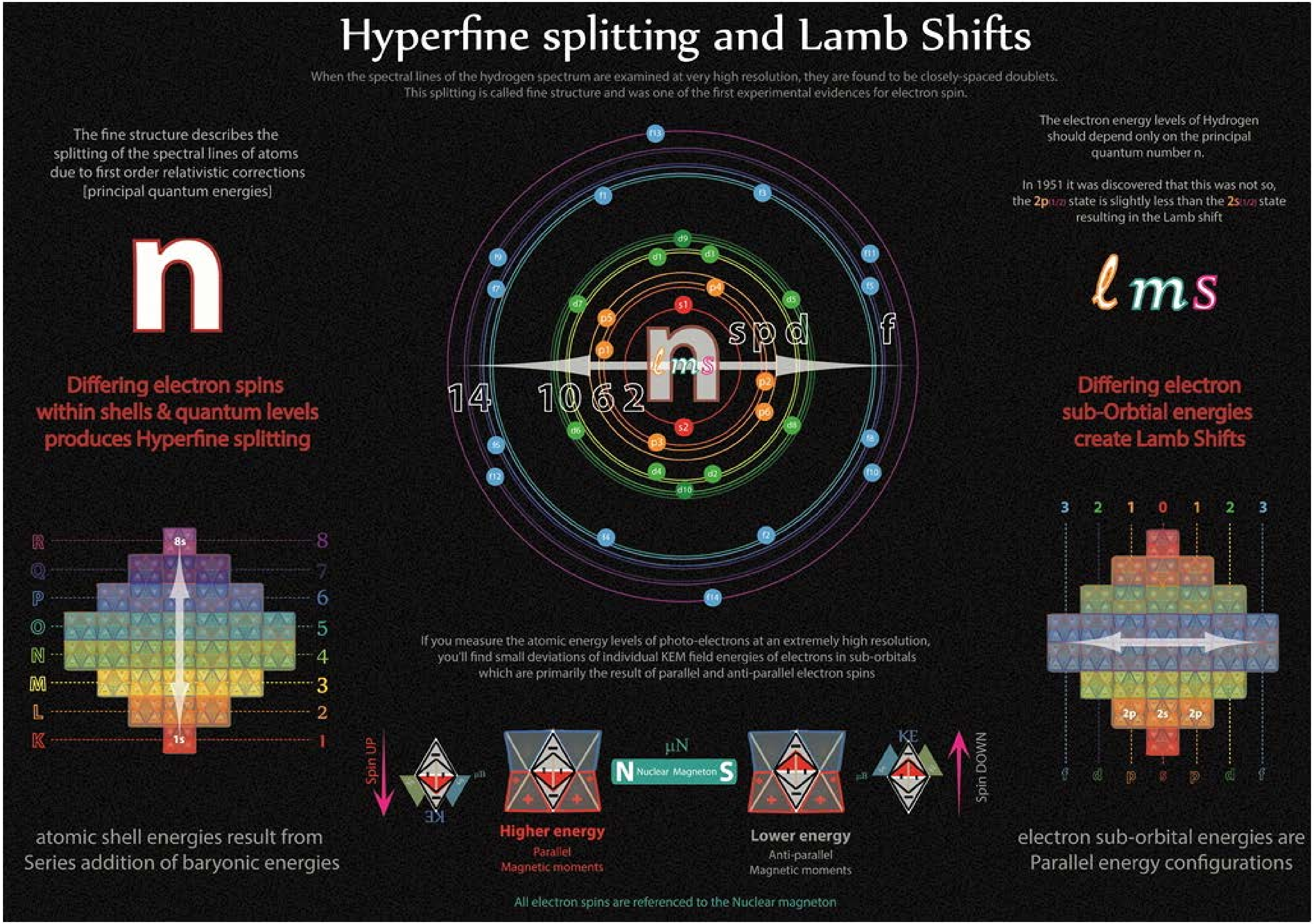


Element number

Nuclei	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	Energy level	per shell
R	119	120																															8	2
Q	87	88	113	114	115	116	117	118																									7	8
P	55	56	81	82	83	84	85	86	103	104	105	106	107	108	109	110	111	112															6	18
O	37	38	49	50	51	52	53	54	71	72	73	74	75	76	77	78	79	80	89	90	91	92	93	94	95	96	97	98	99	100	101	102	5	32
N	19	20	31	32	33	34	35	36	39	40	41	42	43	44	45	46	47	48	57	58	59	60	61	62	63	64	65	66	67	68	69	70	4	32
M	11	12	13	14	15	16	17	18	21	22	23	24	25	26	27	28	29	30															3	18
L	3	4	5	6	7	8	9	10																									2	8
K	1	2																															1	2
Shells	s		p						d										f															
	s1	s2	p1	p2	p3	p4	p5	p6	d1	d2	d3	d4	d5	d6	d7	d8	d9	d10	f1	f2	f3	f4	f5	f6	f7	f8	f9	f10	f11	f12	f13	f14		

Orbitals

sub-orbitals

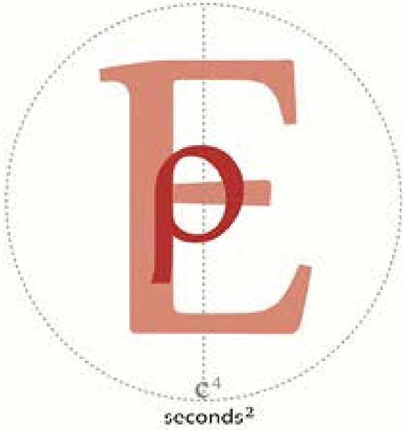


Hyperfine splitting and Lamb Shifts
When the spectral lines of the hydrogen spectrum are examined at very high resolution, they are found to be closely-spaced doublets.
This splitting is called fine structure and was one of the first experimental evidences for electron spin.
The fine structure describes the splitting of the spectral lines of atoms due to first order relativistic corrections [principal quantum energies]
n
Differing electron spins within shells & quantum levels produces Hyperfine splitting
The electron energy levels of Hydrogen should depend only on the principal quantum number n.
In 1951 it was discovered that this was not so, the 2p(1/2) state is slightly less than the 2s(1/2) state resulting in the Lamb shift
ℓ m s
Differing electron sub-Orbtial energies create Lamb Shifts
s p d f
14 10 6 2
R Q P O N M L K
8 7 6 5 4 3 2 1
8s
1s
3 2 1 0 1 2 3
2p 2s 2p
f d p s p d f
If you measure the atomic energy levels of photo-electrons at an extremely high resolution, you'll find small deviations of individual KEM field energies of electrons in sub-orbitals which are primarily the result of parallel and anti-parallel electron spins
Spin UP
Spin DOWN
KE
μN
N Nuclear Magneton S
Higher energy
Parallel
Magnetic moments
Lower energy
Anti-parallel
Magnetic moments
atomic shell energies result from Series addition of baryonic energies
electron sub-orbital energies are Parallel energy configurations
All electron spins are referenced to the Nuclear magneton

M_0

3D Matter topologies are comprised of charged 2D mass-energies

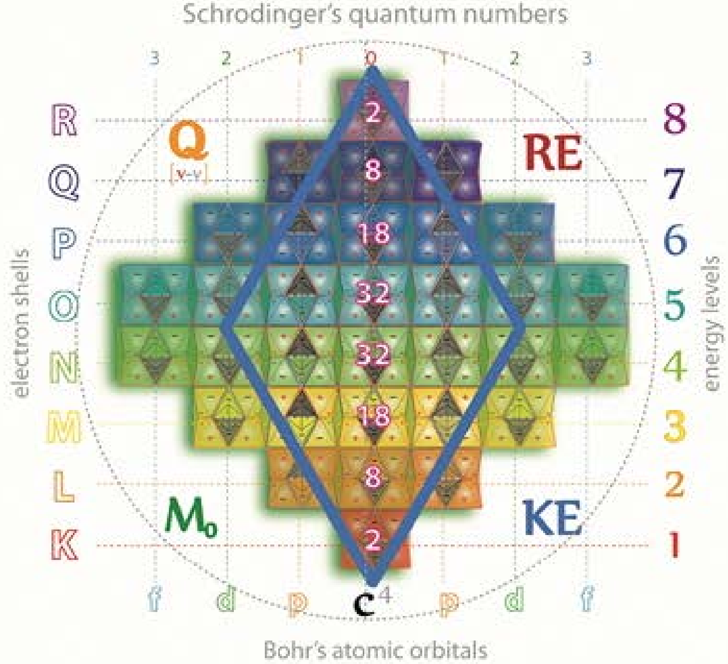
Energy per second²



RE

Relativistic mass-ENERGY-Matter

Relativity fails at the foundational level to explain and differentiate between mass-ENERGY and Matter in physical systems



Einstein's relativistic [Lorentz corrected] stress energy tensor aggregates all forms of energy into a single energy density gradient

KE

2D equilateral mass-energies are euclidean geometries

Energy per second

Matter Planck quanta

$$\frac{T\pi}{c^4}\left[\left[m\Omega v^2\right]\right]$$

mass velocity

mass-Matter

standing wave mass-energiescreate
the material substance of all chemical elements

atomic energies

$$\frac{Tm\underline{n}}{c^4} + \frac{mv^2}{c^2}$$

electron spins

3D rest Matter + Lorentz corrected 2D Kinetic Energies
= total Relativistic Energies

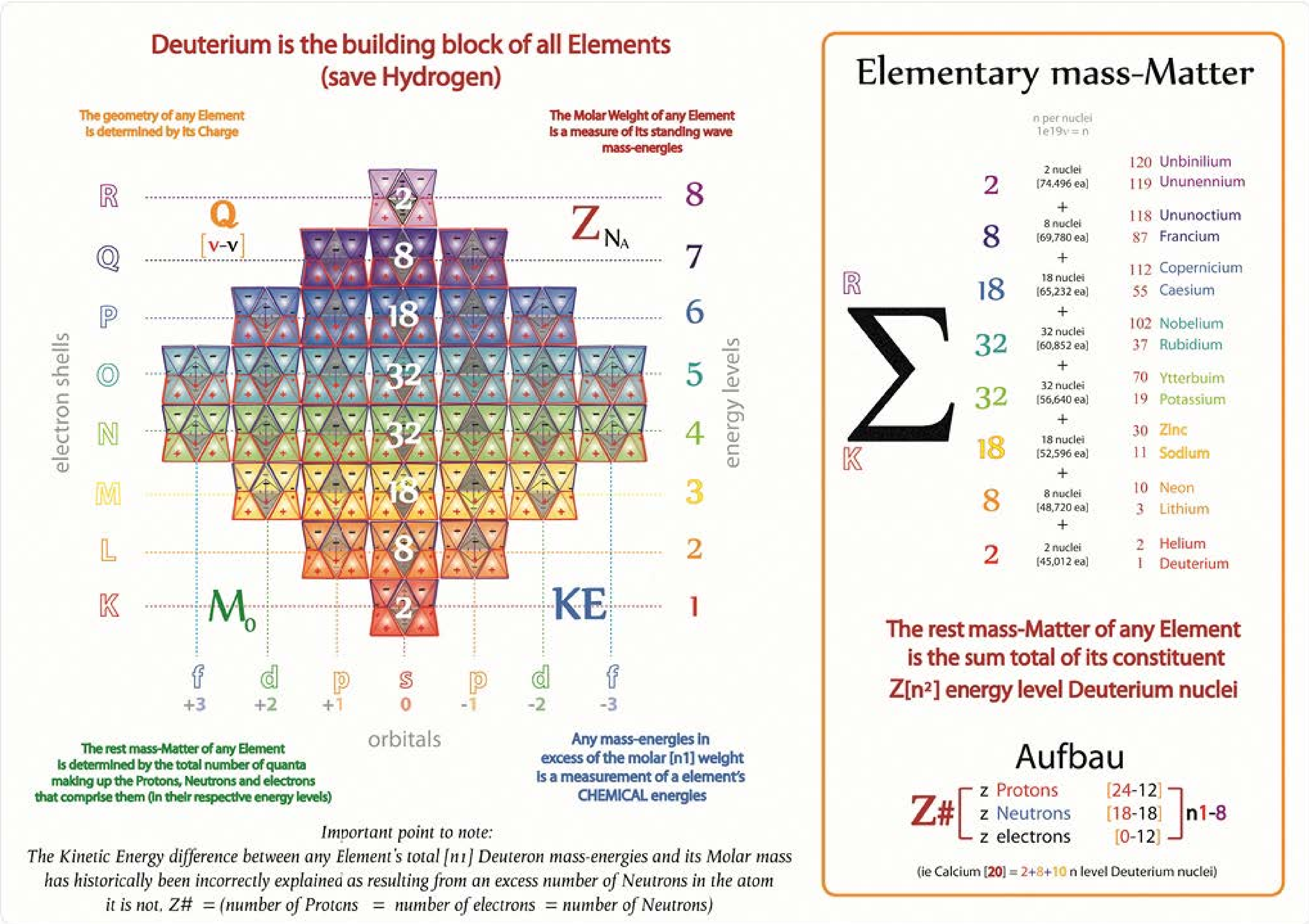
mass Planck quanta

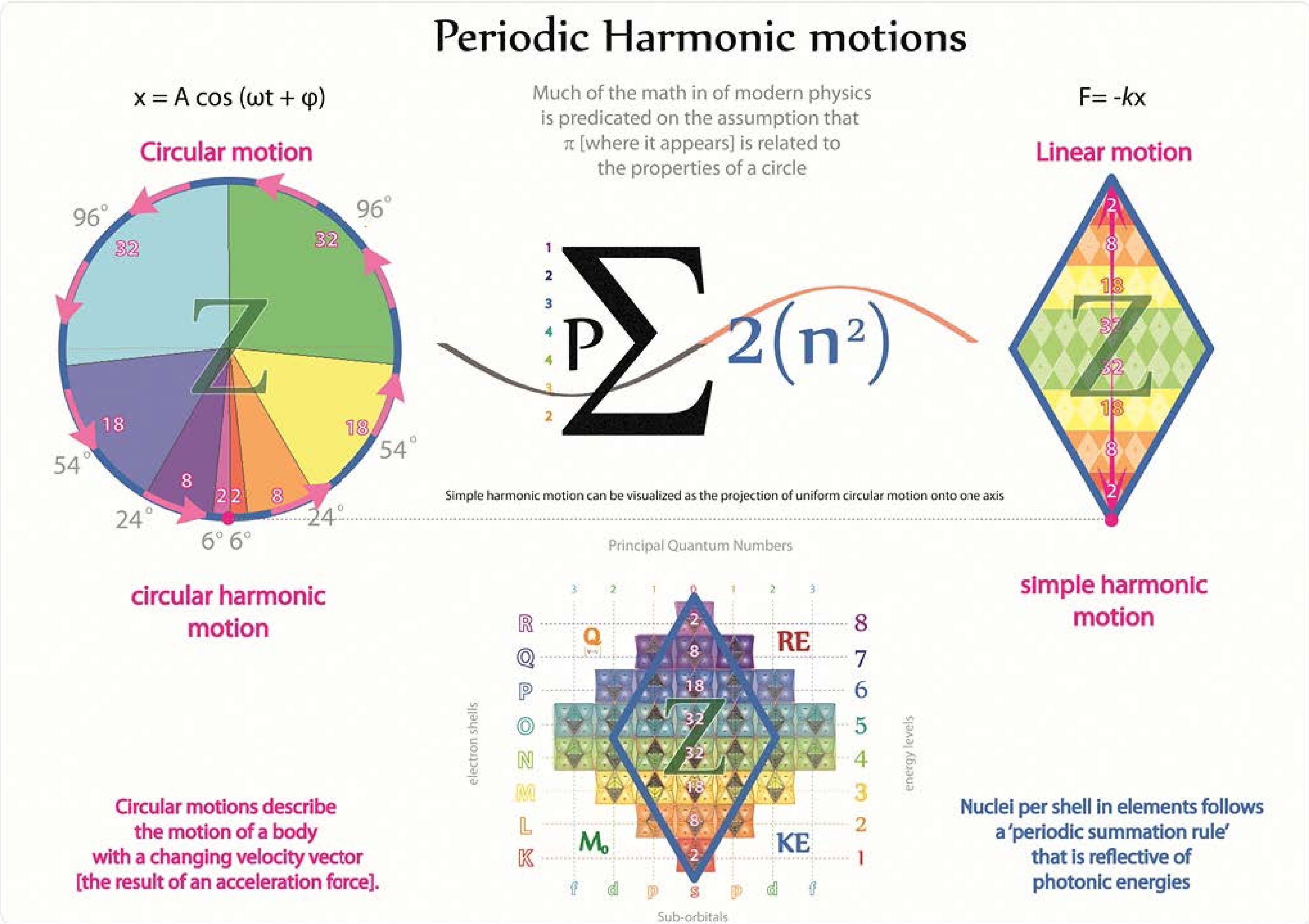
$$\frac{n\pi}{c^2}\left[\left[m\Omega v^2\right]\right]$$

mass velocity

mass-energies

radiant planar mass-energies create
EM fields, spectral lines & chemical interactions


Deuterium is the building block of all Elements
(save Hydrogen)
The geometry of any Element
is determined by its Charge
The Molar Weight of any Element
is a measure of its standing wave
mass-energies
R
Q
P
O
N
M
L
K
electron shells
Q
[v-v]
Z NA
M0
KE
2
8
18
32
32
18
8
2
8
7
6
5
4
3
2
1
energy levels
f
+3
d
+2
p
+1
s
0
p
-1
d
-2
f
-3
orbitals
The rest mass-Matter of any Element
is determined by the total number of quanta
making up the Protons, Neutrons and electrons
that comprise them (in their respective energy levels)
Any mass-energies in
excess of the molar [n1] weight
is a measurement of a element's
CHEMICAL energies
Important point to note:
The Kinetic Energy difference between any Element's total [n1] Deuteron mass-energies and its Molar mass
has historically been incorrectly explained as resulting from an excess number of Neutrons in the atom
it is not. Z# = (number of Protons = number of electrons = number of Neutrons)
Elementary mass-Matter
n per nuclei
1e19v = n
R
Σ
K
2
2 nuclei
[74,496 ea]
120 Unbinilium
119 Ununennium
+
8
8 nuclei
[69,780 ea]
118 Ununoctium
87 Francium
+
18
18 nuclei
[65,232 ea]
112 Copernicium
55 Caesium
+
32
32 nuclei
[60,852 ea]
102 Nobelium
37 Rubidium
+
32
32 nuclei
[56,640 ea]
70 Ytterbuim
19 Potassium
+
18
18 nuclei
[52,596 ea]
30 Zinc
11 Sodium
+
8
8 nuclei
[48,720 ea]
10 Neon
3 Lithium
+
2
2 nuclei
[45,012 ea]
2 Helium
1 Deuterium
The rest mass-Matter of any Element
is the sum total of its constituent
Z[n²] energy level Deuterium nuclei
Aufbau
Z#
z Protons [24-12]
z Neutrons [18-18]
z electrons [0-12]
n1-8
(ie Calcium [20] = 2+8+10 n level Deuterium nuclei)


Periodic Harmonic motions
x = A cos (ωt + φ)
Circular motion
Much of the math in of modern physics
is predicated on the assumption that
π [where it appears] is related to
the properties of a circle
F= -kx
Linear motion
96°
96°
32
32
18
18
54°
54°
8
2 2
8
24°
24°
6° 6°
Z
P∑2(n²)
1
2
3
4
4
3
2
Simple harmonic motion can be visualized as the projection of uniform circular motion onto one axis
2
8
18
32
32
18
8
2
Principal Quantum Numbers
circular harmonic
motion
simple harmonic
motion
3 2 1 0 1 2 3
R
Q
P
O
N
M
L
K
electron shells
Q
RE
Mₒ
KE
8
7
6
5
4
3
2
1
energy levels
f d p s p d f
Sub-orbitals
Circular motions describe
the motion of a body
with a changing velocity vector
[the result of an acceleration force].
Nuclei per shell in elements follows
a 'periodic summation rule'
that is reflective of
photonic energies

Periodic Summation

$${}_{K}^{R}\mathrm{P}\sum \mathrm{Z}$$

Periodic summation is a notation developed for Tetryonic theory to model the geometric series addtion of Z[n²] energy level Deuterium nuclei that form the periodic elements

STEP ONE

$$\sum_{K}^{R}$$ nuclei per shell

Periodic summation follows the atomic shell electron config

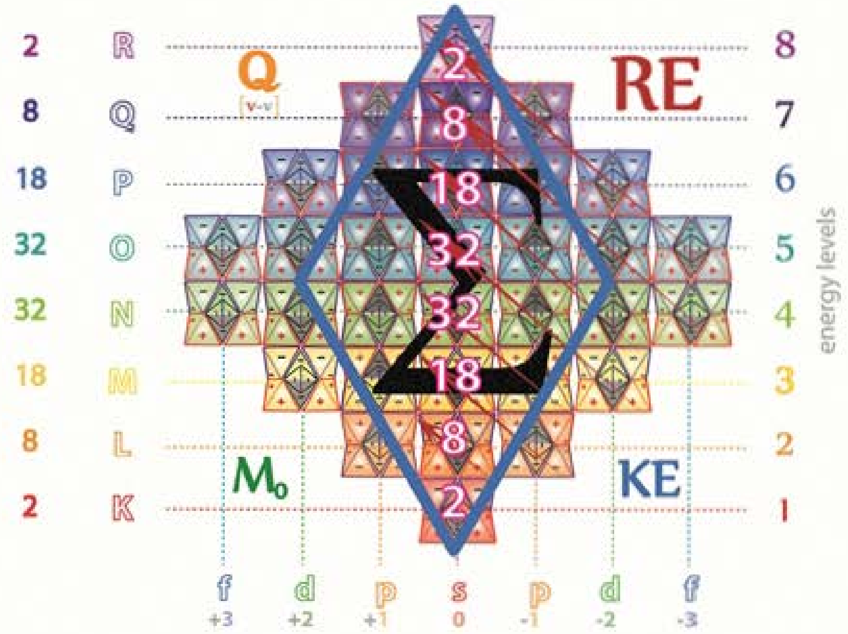
STEP TWO

$$\sum_{1}^{120} Z$$ element number

Periodic elements build up following the aufbau sequence

$${}_{K}^{R}\mathrm{P}\sum 2(x^2) =$$

(R 1, 2, 3, 4, 4, 3, 2, 1 K)



$\mathrm{P}\sum R = 2$	2 nuclei [74,496 ea] +	120	Unbinilium
$\mathrm{P}\sum Q = 8$	8 nuclei [69,780 ea] +	118	Ununoctium
$\mathrm{P}\sum P = 18$	18 nuclei [65,232 ea] +	110	Darmstadtium
$\mathrm{P}\sum O = 32$	32 nuclei [60,852 ea] +	92	Uranium
$\mathrm{P}\sum N = 32$	32 nuclei [56,640 ea] +	60	Neodymuim
$\mathrm{P}\sum M = 18$	18 nuclei [52,596 ea] +	28	Argon
$\mathrm{P}\sum L = 8$	8 nuclei [48,720 ea] +	10	Neon
$\mathrm{P}\sum K = 2$	2 nuclei [45,012 ea]	2	Helium
		0	Hydrogen

Each atomic shell can hold only a fixed number of deuterium nuclei

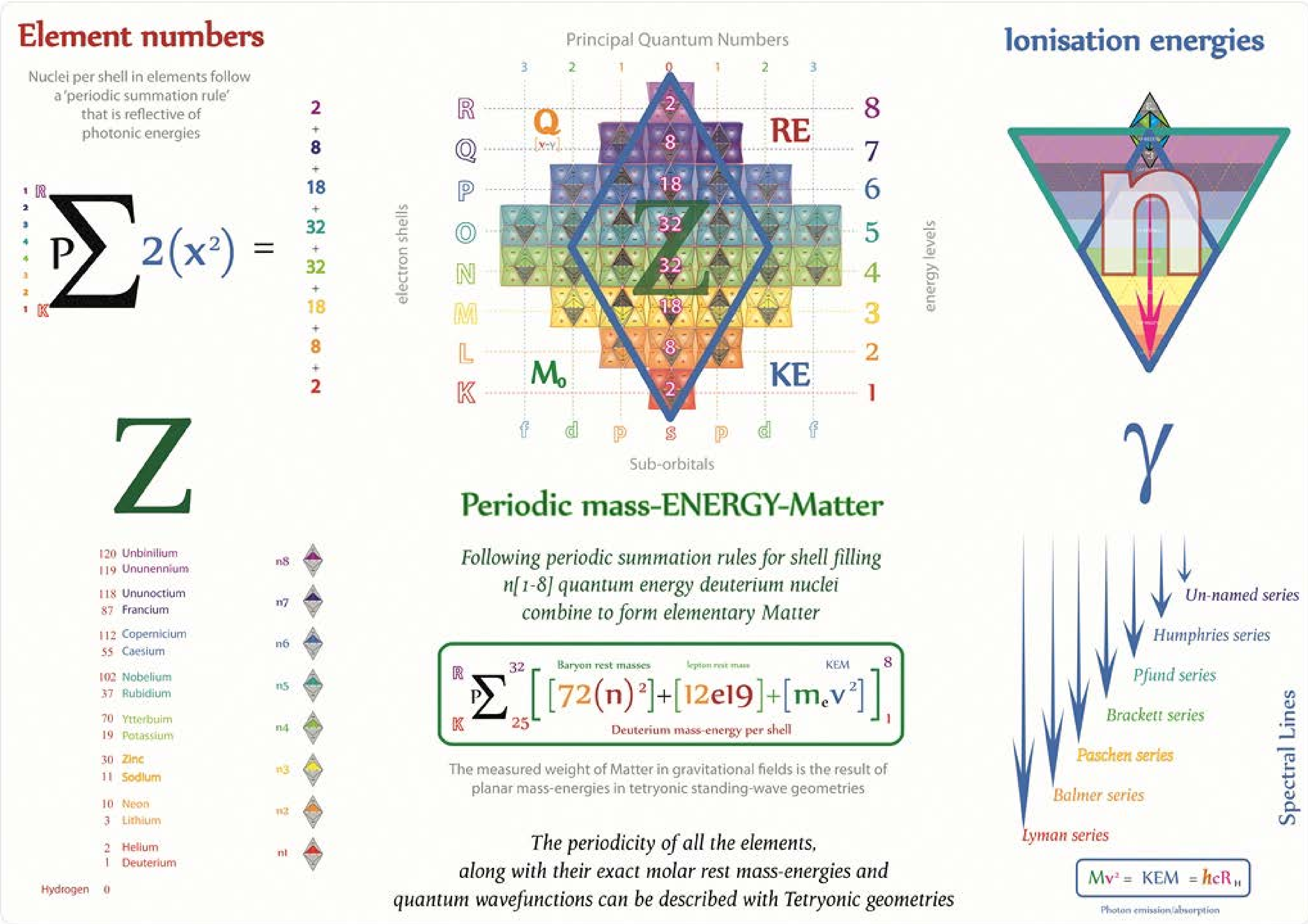
THe LHS of the notation determine the number of nuclei in each atomic shell, from the periodic mass-energy levels for atoms, and the RHS follows the aufbau building principle to determine the rest mass-Matter of any specific element

Aufbau

Each periodic element is made of Z [n² energy] deuterium nuclei

Z# [z Protons [24-12] ; z Neutrons [18-18] ; z electrons [0-12]] n1-8

Planck mass-energies form the surface integral of rest Matter topologies for each periodic element



Element numbers
Nuclei per shell in elements follow a 'periodic summation rule' that is reflective of photonic energies
$^{R}_{K}\sum 2(x^2) =$
2 + 8 + 18 + 32 + 32 + 18 + 8 + 2
Z
120 Unbinilium
119 Ununennium
118 Ununoctium
87 Francium
112 Copernicium
55 Caesium
102 Nobelium
37 Rubidium
70 Ytterbuim
19 Potassium
30 Zinc
11 Sodium
10 Neon
3 Lithium
2 Helium
1 Deuterium
Hydrogen 0
n8
n7
n6
n5
n4
n3
n2
n1
Principal Quantum Numbers
electron shells
energy levels
R
Q
P
O
N
M
L
K
8
7
6
5
4
3
2
1
RE
KE
M_0
f d p s p d f
Sub-orbitals
Periodic mass-ENERGY-Matter
Following periodic summation rules for shell filling n[1-8] quantum energy deuterium nuclei combine to form elementary Matter
Baryon rest masses
lepton rest mass
KEM
$^{R}_{K}\sum^{32}_{25}\left[[72(n)^2]+[12e19]+[m_e v^2]\right]^{8}_{1}$
Deuterium mass-energy per shell
The measured weight of Matter in gravitational fields is the result of planar mass-energies in tetryonic standing-wave geometries
The periodicity of all the elements, along with their exact molar rest mass-energies and quantum wavefunctions can be described with Tetryonic geometries
Ionisation energies
n
γ
Un-named series
Humphries series
Pfund series
Brackett series
Paschen series
Balmer series
Lyman series
Spectral Lines
$Mv^2 =$ KEM $= hcR_H$
Photon emission/absorption

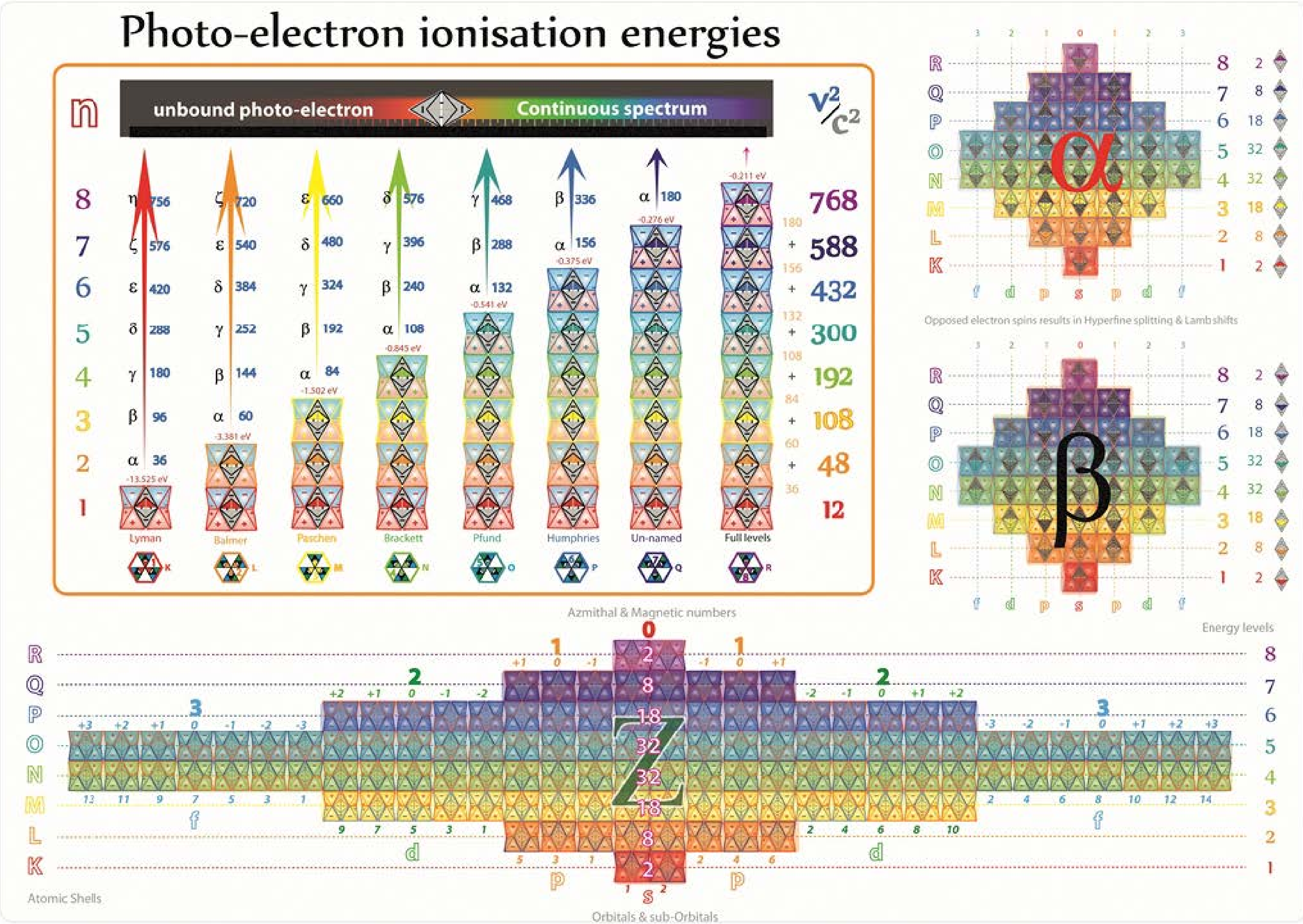
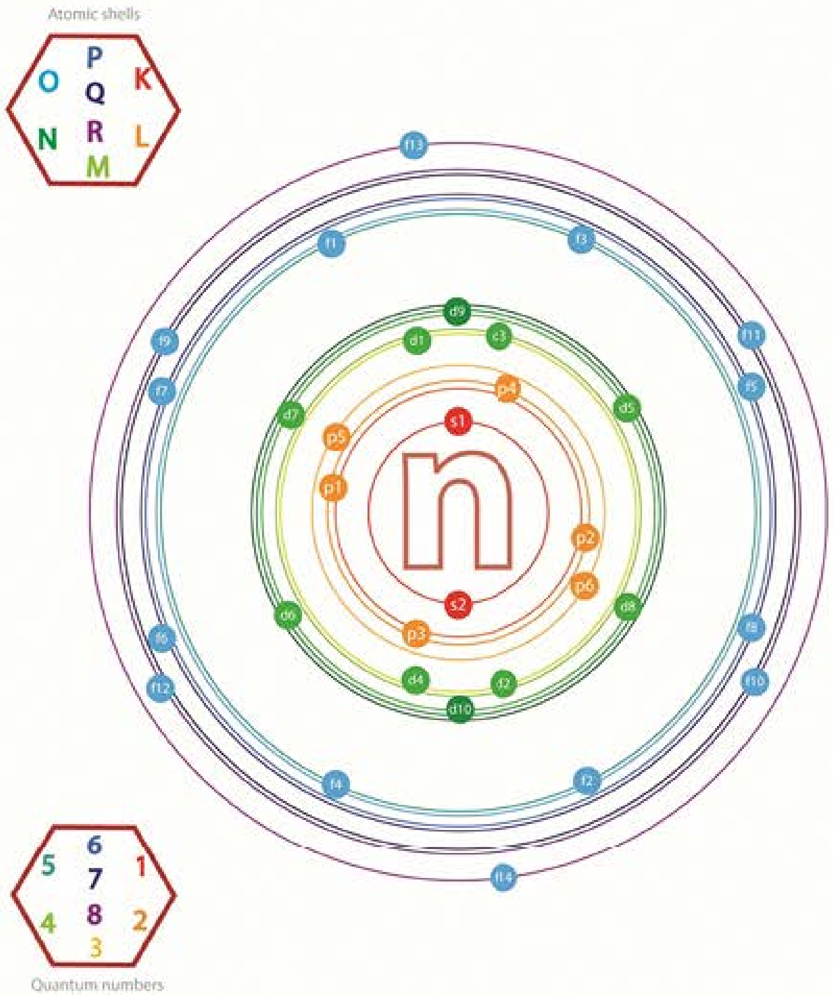
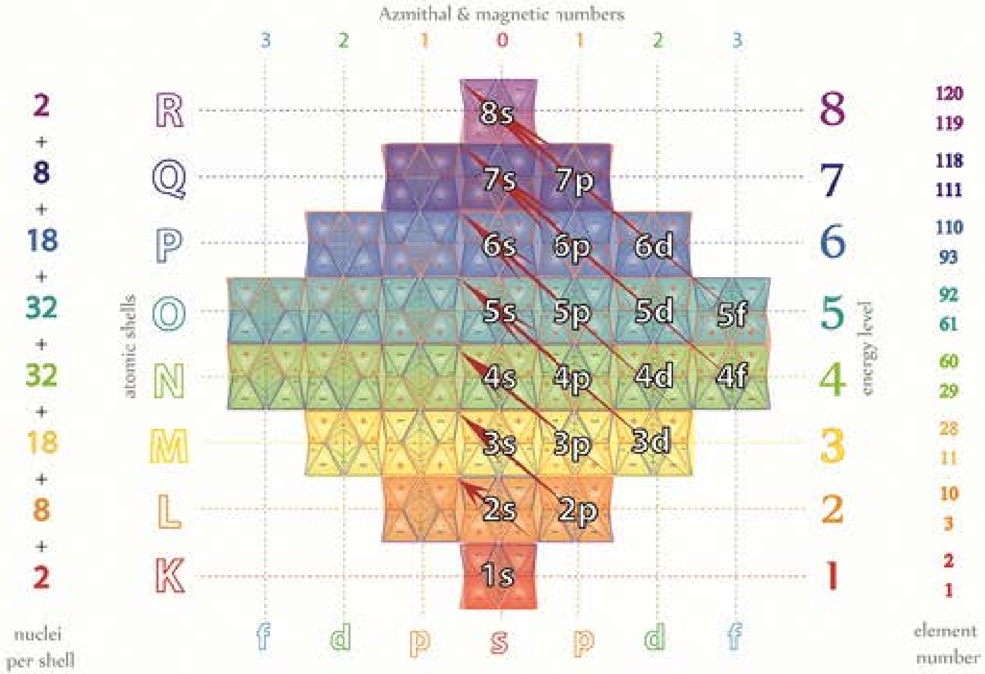


Photo-electron ionisation energies
n
unbound photo-electron
Continuous spectrum
v²/c²
8 7 6 5 4 3 2 1
-13.525 eV
-3.381 eV
-1.502 eV
-0.845 eV
-0.541 eV
-0.375 eV
-0.276 eV
-0.211 eV
768
588
432
300
192
108
48
12
Lyman
Balmer
Paschen
Brackett
Pfund
Humphries
Un-named
Full levels
Opposed electron spins results in Hyperfine splitting & Lamb shifts
Azmithal & Magnetic numbers
Energy levels
Atomic Shells
Orbitals & sub-Orbitals

Eigenstate - Ionisation energies

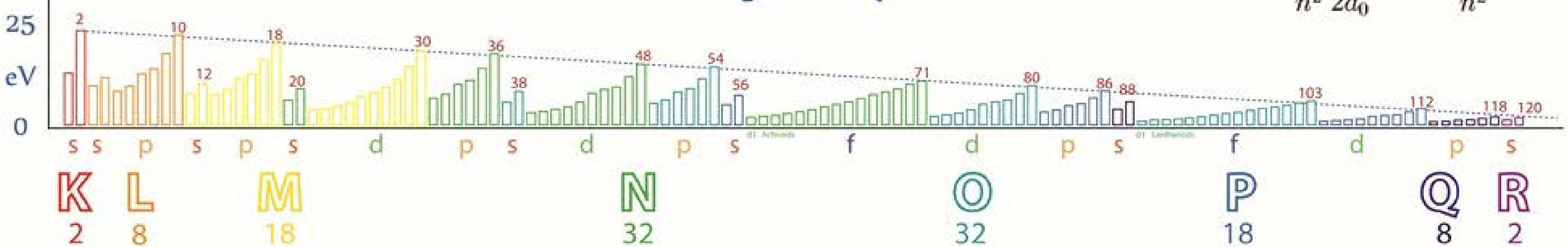




The ionisation energies of individual atoms varies due to many factors, namely:
electron spin-orbital coupling with Baryons of specific energies,
the relativistic energies of photo-electrons bound in nuclei
and Zitterbewegung effects on bound electrons

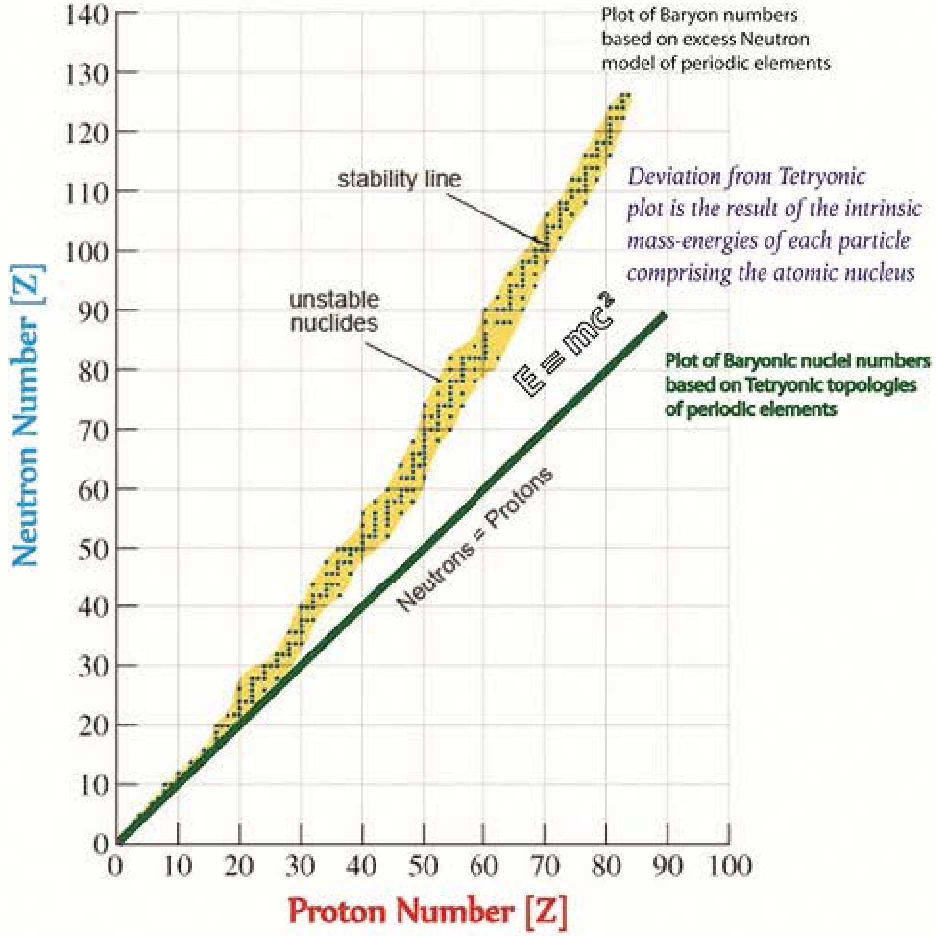
First ionisation energies for all periodic elements

$$E = -\frac{Z^2}{n^2}\frac{ke^2}{2a_0} = -\frac{13.6Z^2}{n^2}eV$$



Proton - Neutron Curve

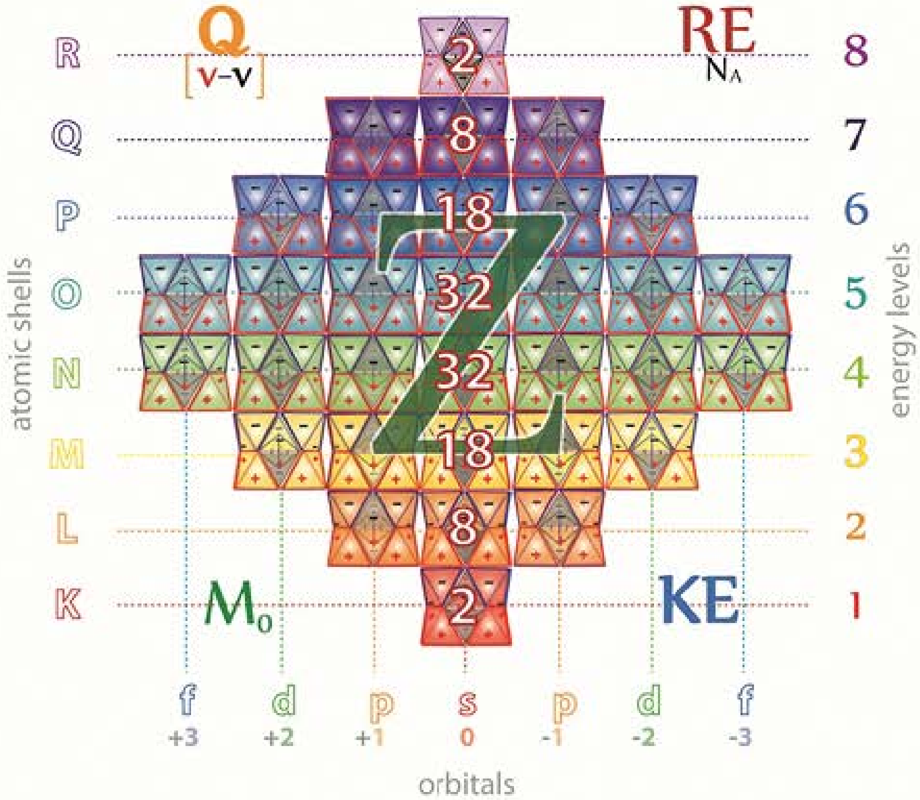
The graph below is a plot of neutron number against proton number.
It is used as rule to determine which nuclei are stable or unstable.



Historically, Proton-electron numbers are viewed as being equivalent in neutral elementary matter with the excess molar mass measured being the result of 'excess or extra' Neutrons in the atom

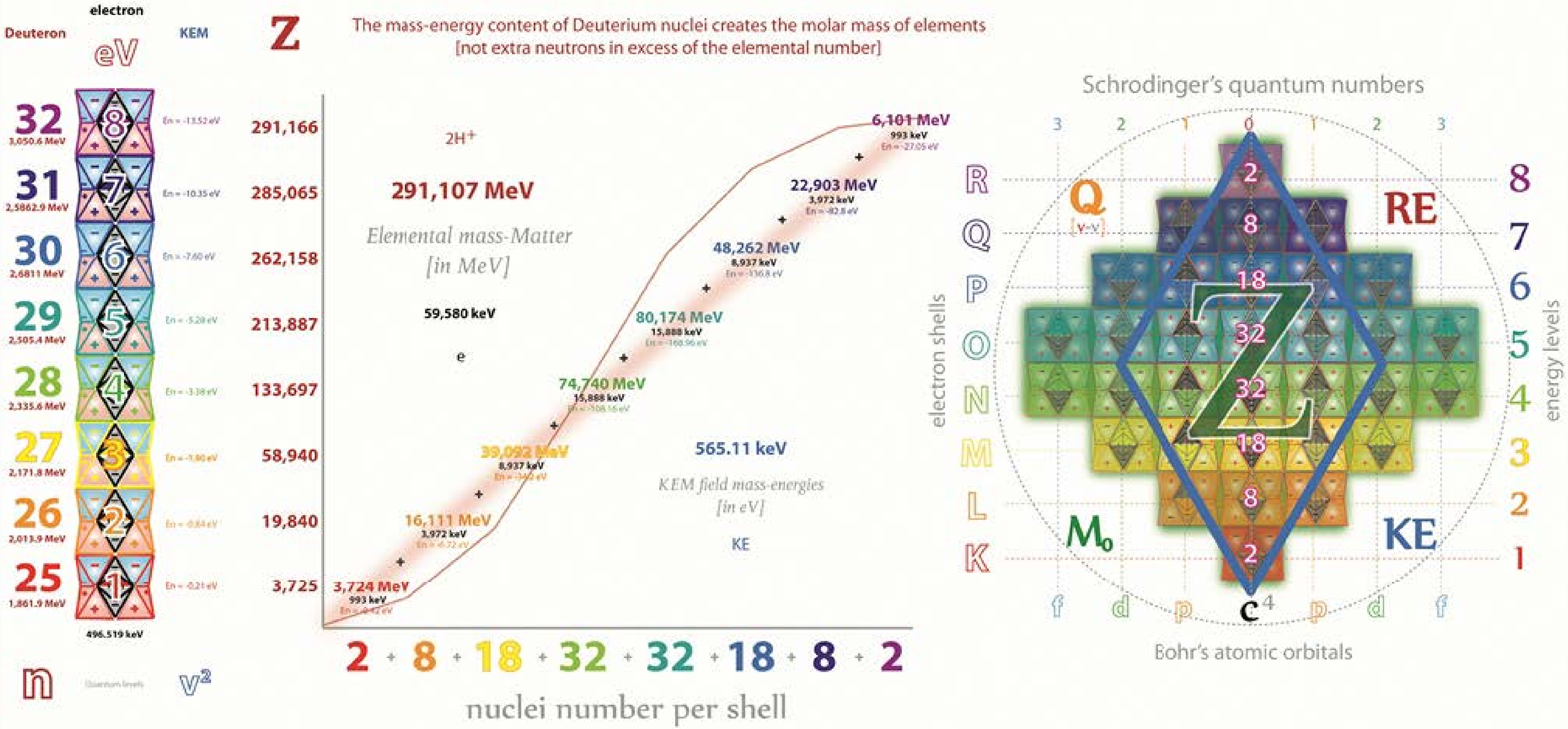
Atomic Nuclei Numbers

All periodic elements have an EQUAL number of Protons, Neutrons & Electrons with their molar mass-Matter being determined by their quantum level mass-energies



Tetryonic modelling of the charged mass-ENERGY-Matter topologies of elementary atoms and the nuclei that comprise them, reveals a DIRECT LINEAR relationship for the number of Protons-electrons-Neutrons in all periodic elements and nuclear isotopes

Planck mass-energy contributions to elementary Matter and isotopes



n1
Elementary nuclei

are comprised of equal numbers of Protons, Neutrons & electrons with varying energy levels

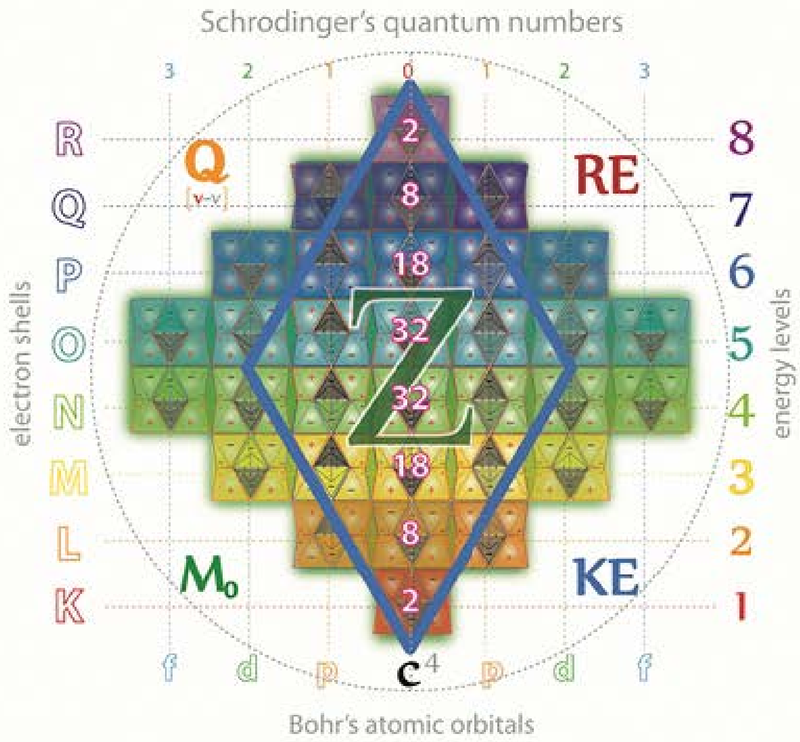
Baryons		electrons		KEM fields
930.947 MeV	+	496.519 keV	+	13.525 ev

The mass-energy content of Matter topologies is velocity invariant

The mass-energy content of Baryons determines the KEM field of electrons

Baryons		KEM fields		electrons
930.947 MeV	+	13.525 ev	+	496.519 keV

Mapping Planck mass-energy contributions to elementary Matter and isotopes



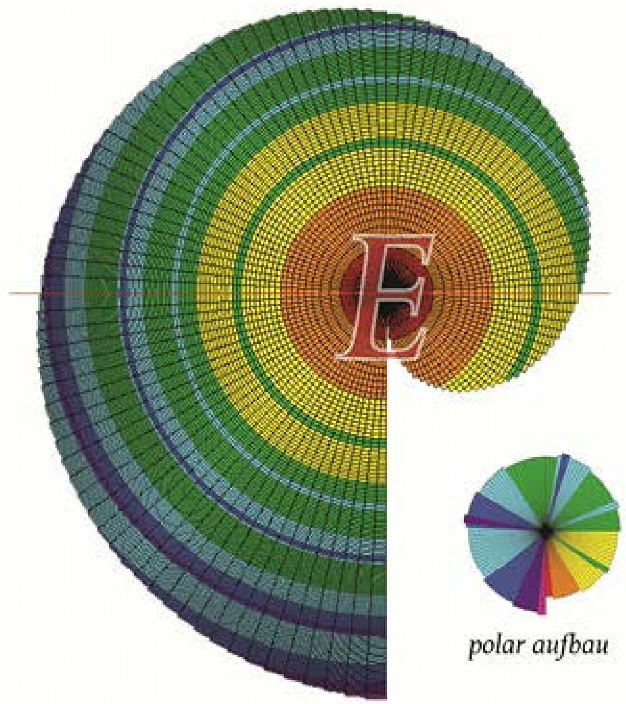
$$E = hv^2$$

$$n^2 + v^2 + e = Z$$

general form quatratic equation

$$ax^2 + bx + c = Z$$

$$E = nhv$$

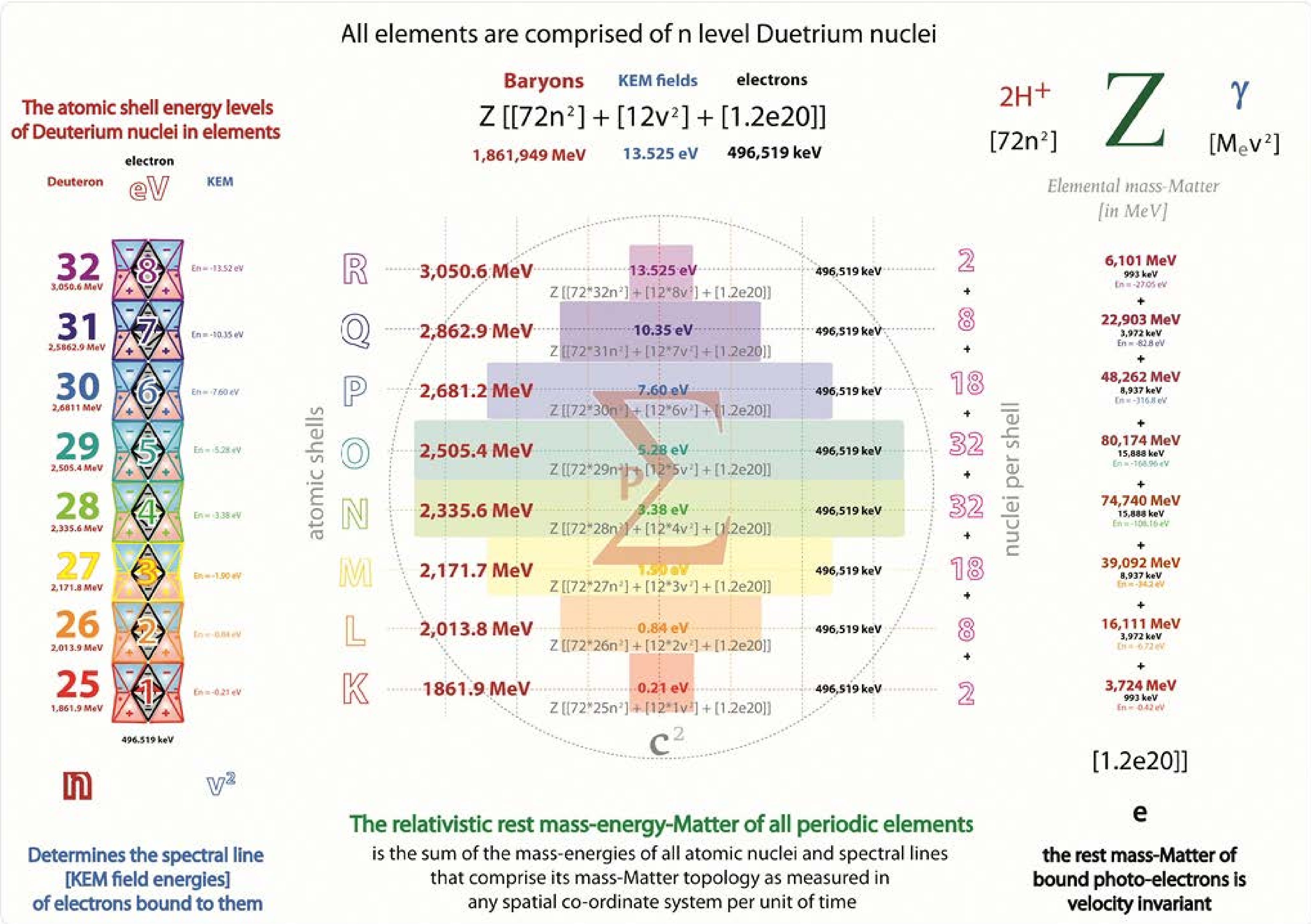


polar energy spirals courtesy of Rene Cormier

Identifying electron rest Matter topologies as velocity invariant we can re-arrange the component Planck mass-energy geometry formulation of periodic elements to

$$h\left[\underset{\text{Deuteron rest mass}}{72[v^2]} + \underset{\text{Spectral lines}}{v} + \underset{\text{electron rest mass}}{1.20\text{ e}20\ v}\right]$$

reveal a quadratic formulation for all Z numbers


All elements are comprised of n level Duetrium nuclei
Baryons
KEM fields
electrons
Z [[72n²] + [12v²] + [1.2e20]]
1,861,949 MeV
13.525 eV
496,519 keV
2H+
[72n²]
Z
γ
[Mev²]
Elemental mass-Matter [in MeV]
The atomic shell energy levels of Deuterium nuclei in elements
electron
Deuteron
eV
KEM
32
3,050.6 MeV
31
2,5862.9 MeV
30
2,6811 MeV
29
2,505.4 MeV
28
2,335.6 MeV
27
2,171.8 MeV
26
2,013.9 MeV
25
1,861.9 MeV
496,519 keV
m
v²
R
3,050.6 MeV
13.525 eV
Z [[72*32n²] + [12*8v²] + [1.2e20]]
496,519 keV
Q
2,862.9 MeV
10.35 eV
Z [[72*31n²] + [12*7v²] + [1.2e20]]
P
2,681.2 MeV
7.60 eV
Z [[72*30n²] + [12*6v²] + [1.2e20]]
O
2,505.4 MeV
5.28 eV
Z [[72*29n²] + [12*5v²] + [1.2e20]]
N
2,335.6 MeV
3.38 eV
Z [[72*28n²] + [12*4v²] + [1.2e20]]
M
2,171.7 MeV
1.90 eV
Z [[72*27n²] + [12*3v²] + [1.2e20]]
L
2,013.8 MeV
0.84 eV
Z [[72*26n²] + [12*2v²] + [1.2e20]]
K
1861.9 MeV
0.21 eV
Z [[72*25n²] + [12*1v²] + [1.2e20]]
atomic shells
c²
2 + 8 + 18 + 32 + 32 + 18 + 8 + 2
nuclei per shell
6,101 MeV
993 keV
22,903 MeV
3,972 keV
48,262 MeV
8,937 keV
80,174 MeV
15,888 keV
74,740 MeV
15,888 keV
39,092 MeV
8,937 keV
16,111 MeV
3,972 keV
3,724 MeV
993 keV
[1.2e20]]
e
Determines the spectral line [KEM field energies] of electrons bound to them
The relativistic rest mass-energy-Matter of all periodic elements
is the sum of the mass-energies of all atomic nuclei and spectral lines that comprise its mass-Matter topology as measured in any spatial co-ordinate system per unit of time
the rest mass-Matter of bound photo-electrons is velocity invariant

Avagadro's number

6.022141579 e26
atoms in 1KG of Matter

1 KG mass
[of Matter]

1.660538841 e-27 kg
atomic rest mass-Matter

Hydrogen

01

using SI units Avagadro's number can be expressed exactly as the inverse rest mass of Hydrogen

Carbon

12

Weighted atomic mass

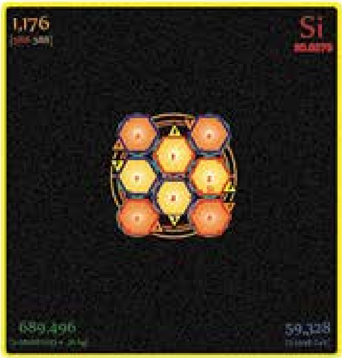
5.019789213 e25
atoms in 1KG of Matter

6.02214078 e 23

1.99211552 e-26 kg
atomic rest mass-Matter

Tetryonic charge geometries make weighted atomic mass measurements and calculations obsolete

22,506 1/12 of Carbon 12 [Graphene] is not equal to 1 Hydrogen atom 22,512
(Deuterium is the building block of all atomic elements)

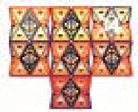


1.966225348 e25
atoms in 1KG of Matter

International Avagadro project

5.085887033 e-26 kg
atomic rest mass-Matter

Silicon

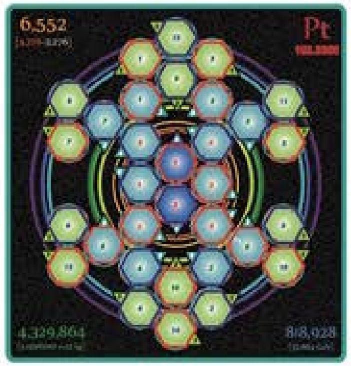


28

The gram was originally defined in 1795 as the mass of one cubic centimeter of water at 4°C,
making the kilogram equal to the mass of one liter of water.

The prototype kilogram, manufactured in 1799 and from which the current kilogram is based
has a mass equal to the mass of 1.000025 liters of water

In recent years two major experiments, namely the Watt balance & Avagadro projects, have been attempting to
measure and define 1KG of mass-Matter in terms of electrical force and the number of atoms respectively
in order to better define 1KG of mass-Matter precisely for all future physical references



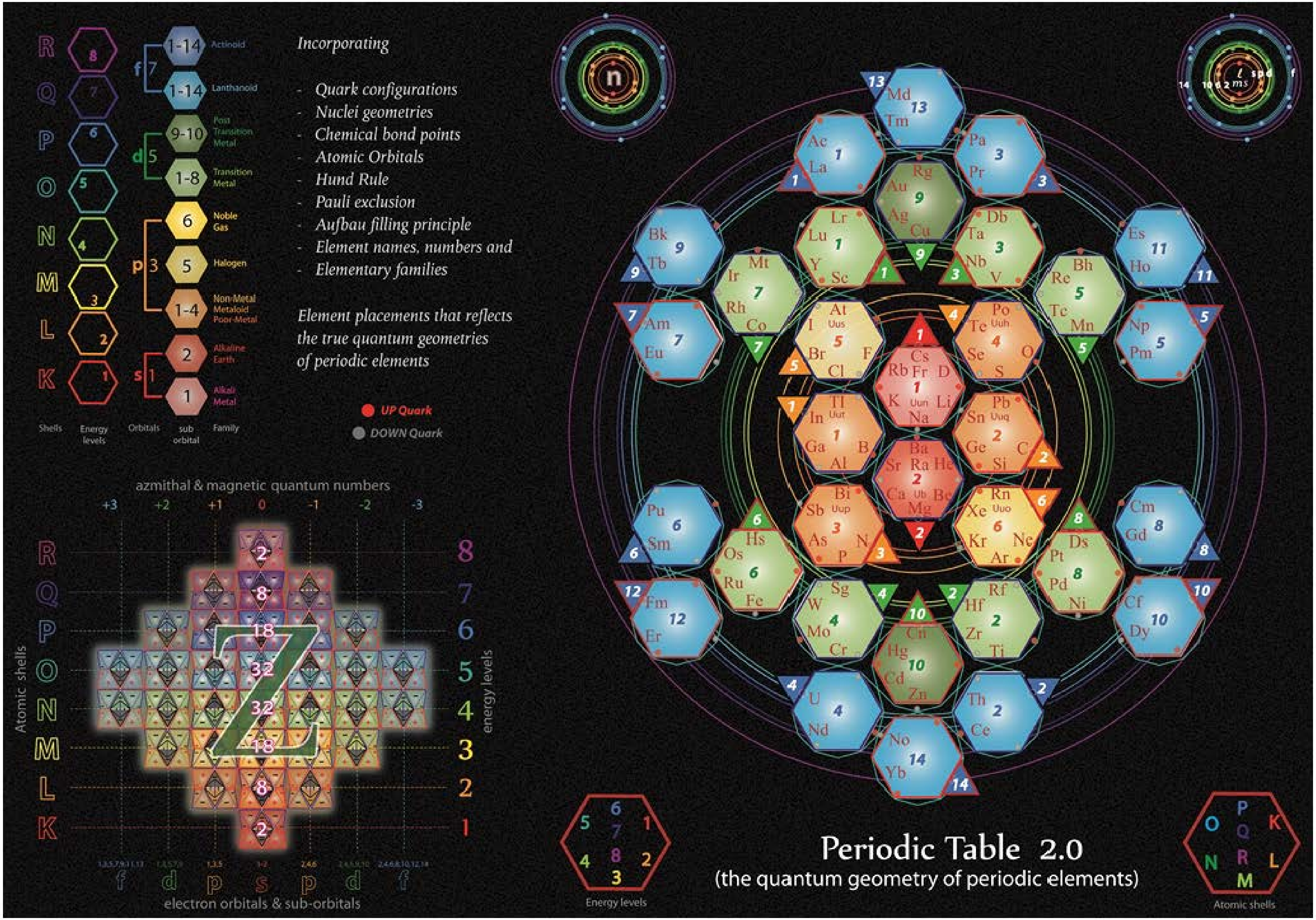
Platinum

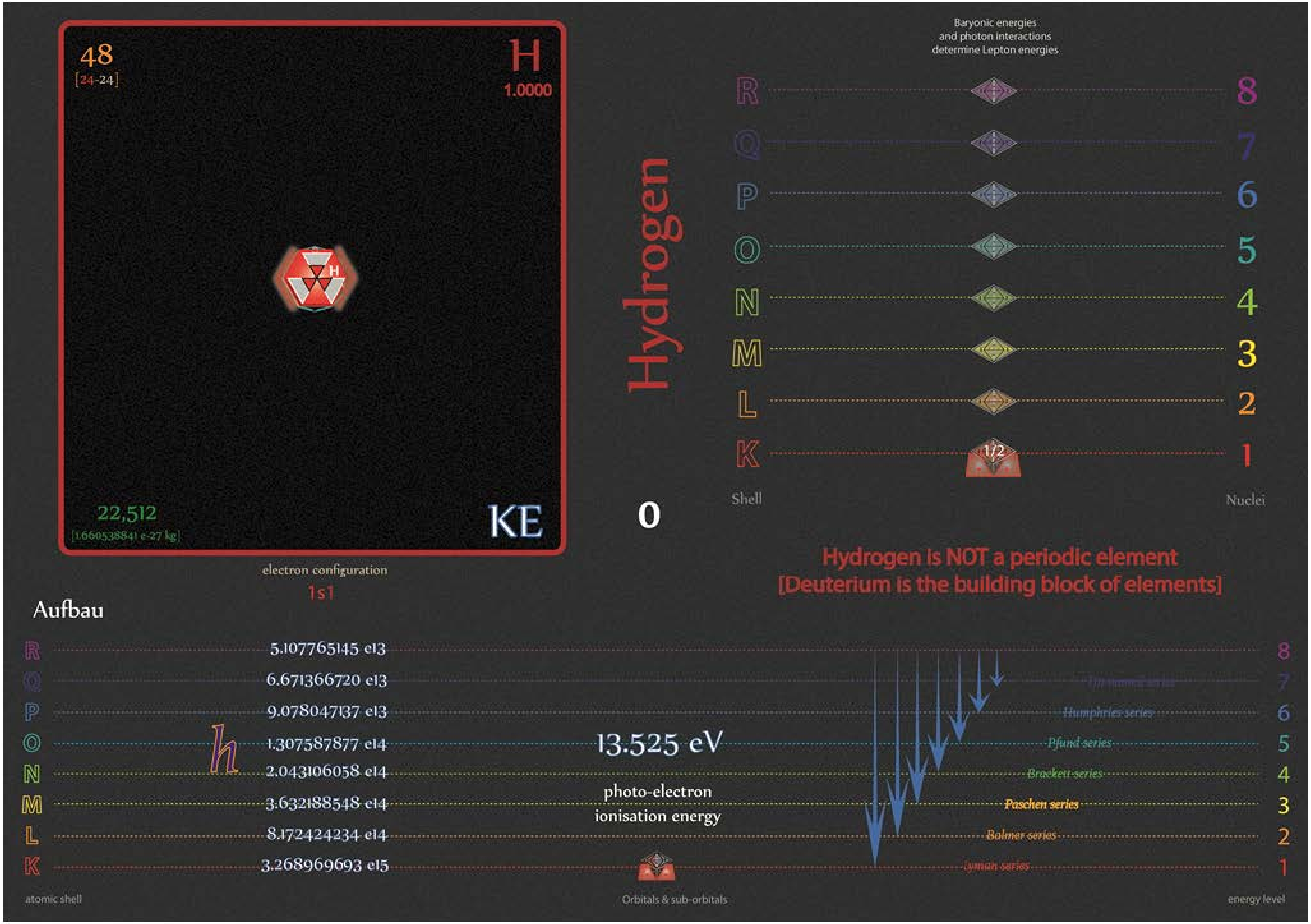
191

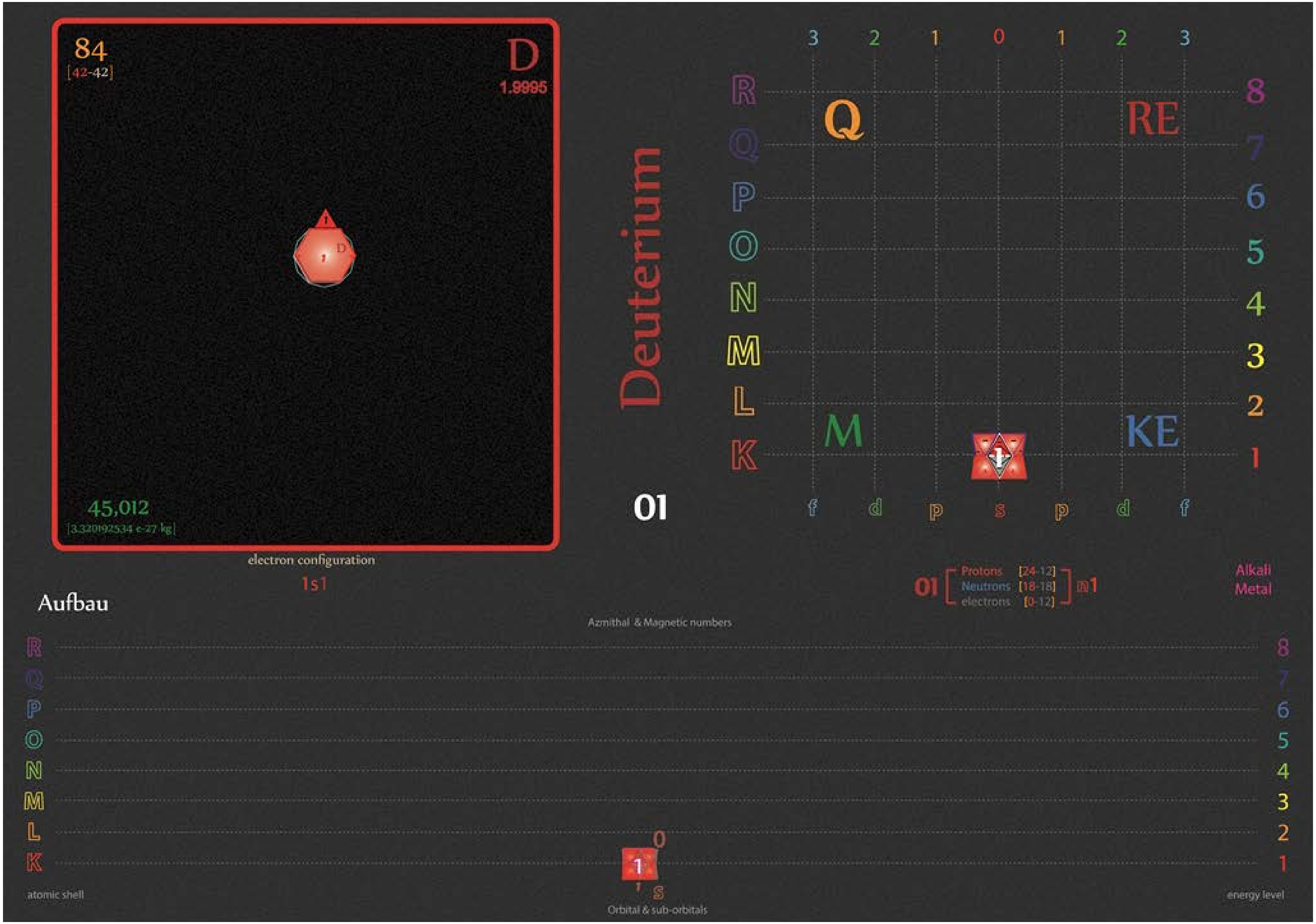
La Grande K

2.817950081 e24 atoms in 1KG of Matter	90%	*The La grande K is an alloy of 90% Platinum & 10% Iridium*	Pt	3.1893811012 e-25 kg atomic rest mass-Matter
3.181804449 e23	10%	*that has been slowly losing mass since its manufacture*	Ir	3.142870708 e-25 kg

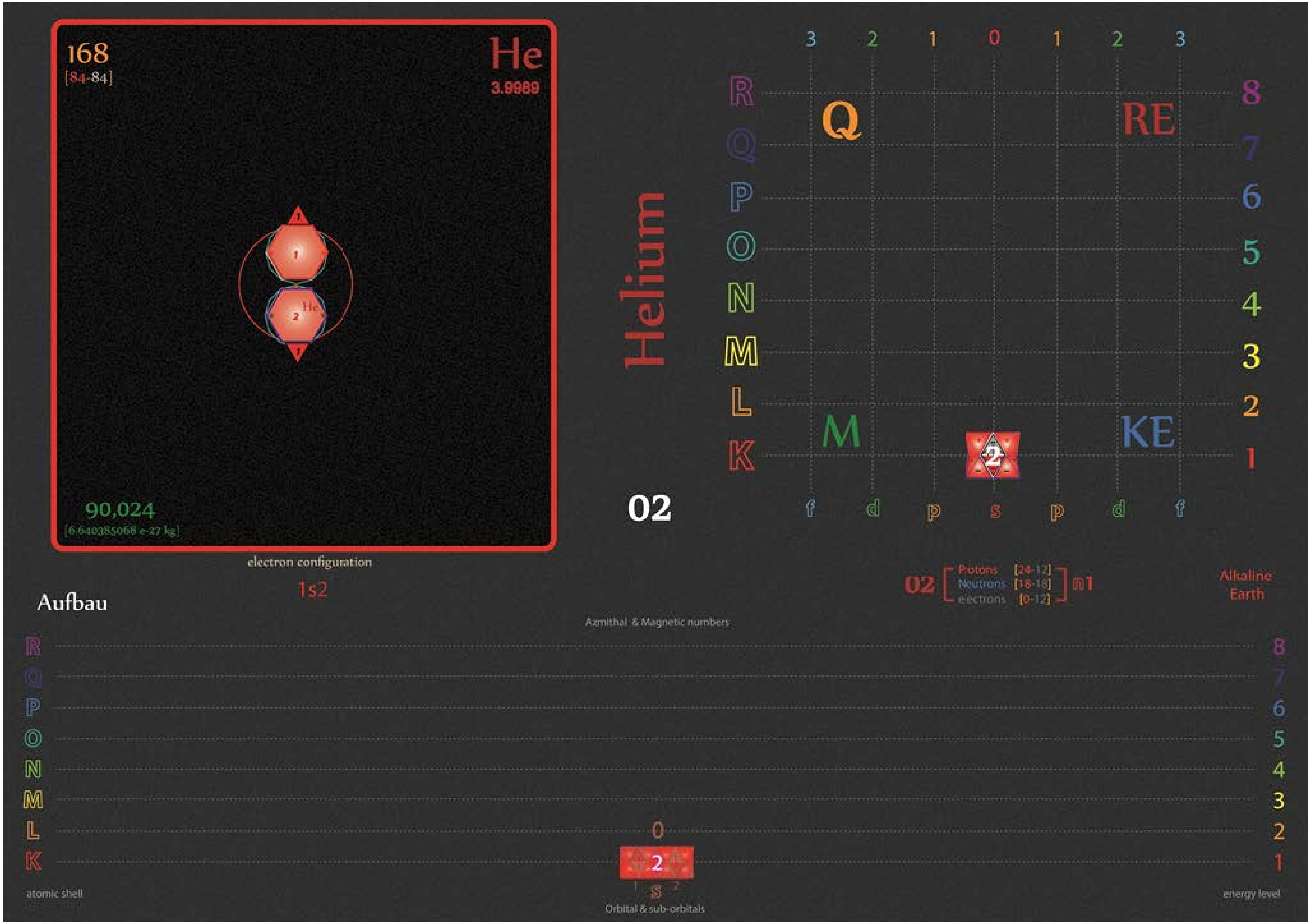
All atomic rest masses are for atoms at absolute zero and any deviation is a measure of the topological Matter's Kinetic energy content [chemical energy, KEM fields and/or spectral lines]


Incorporating
- Quark configurations
- Nuclei geometries
- Chemical bond points
- Atomic Orbitals
- Hund Rule
- Pauli exclusion
- Aufbau filling principle
- Element names, numbers and
- Elementary families
Element placements that reflects
the true quantum geometries
of periodic elements
UP Quark
DOWN Quark
Actinoid
Lanthanoid
Post Transition Metal
Transition Metal
Noble Gas
Halogen
Non-Metal Metaloid Poor-Metal
Alkaline Earth
Alkali Metal
Shells
Energy levels
Orbitals
sub orbital
Family
azmithal & magnetic quantum numbers
Atomic shells
energy levels
electron orbitals & sub-orbitals
Energy levels
Periodic Table 2.0
(the quantum geometry of periodic elements)
Atomic shells

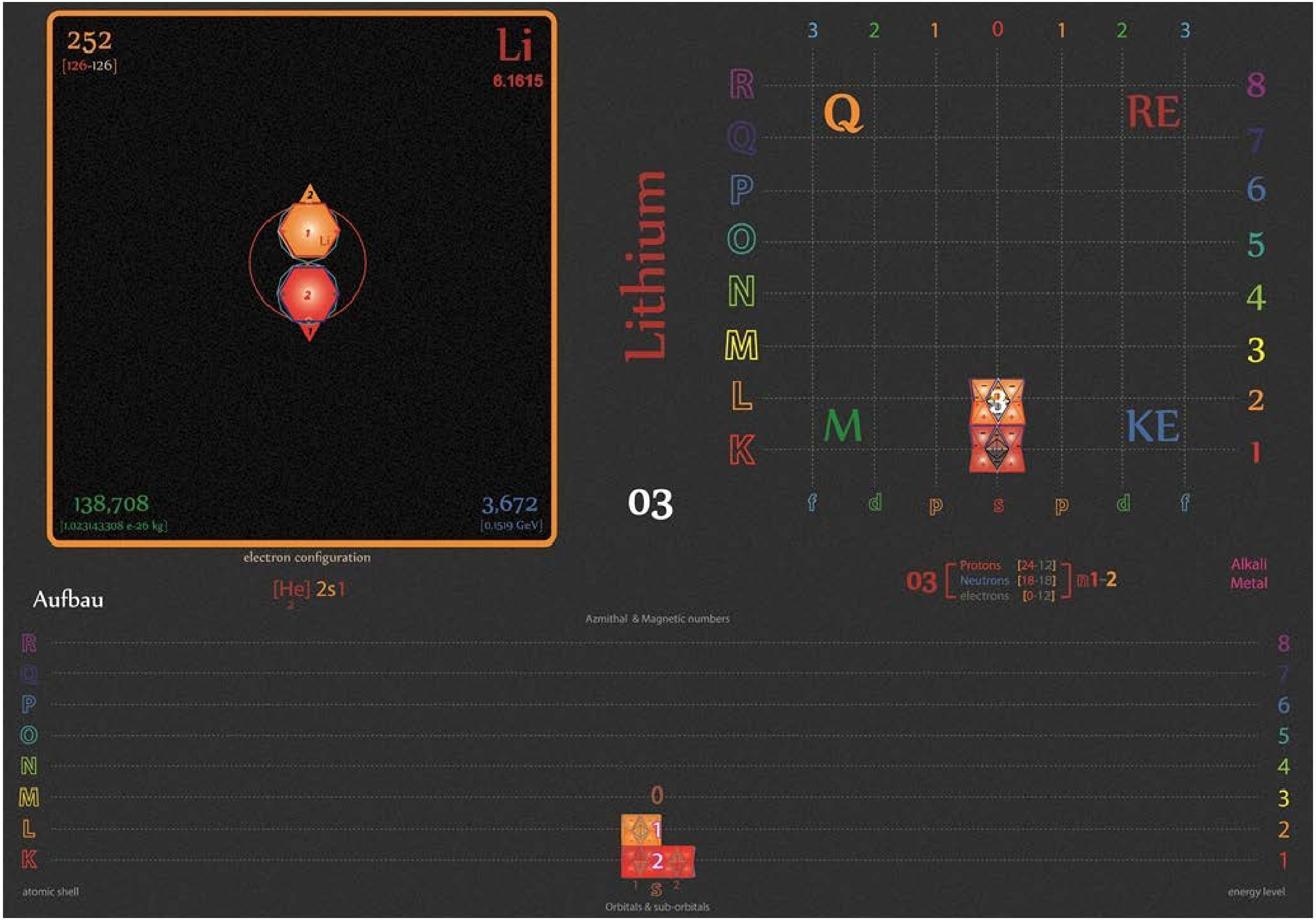

48
[24-24]
H
1.0000
22,512
[1.660538841 e-27 kg]
KE
electron configuration
1s1
Hydrogen
0
Baryonic energies
and photon interactions
determine Lepton energies
R 8
Q 7
P 6
O 5
N 4
M 3
L 2
K 1/2 1
Shell
Nuclei
Hydrogen is NOT a periodic element
[Deuterium is the building block of elements]
Aufbau
R 5.107765145 e13 8
Q 6.671366720 e13 7
P 9.078047137 e13 Humphries series 6
O h 1.307587877 e14 Pfund series 5
N 2.043106058 e14 Brackett series 4
M 3.632188548 e14 Paschen series 3
L 8.172424234 e14 Balmer series 2
K 3.268969693 e15 Lyman series 1
13.525 eV
photo-electron
ionisation energy
atomic shell
Orbitals & sub-orbitals
energy level



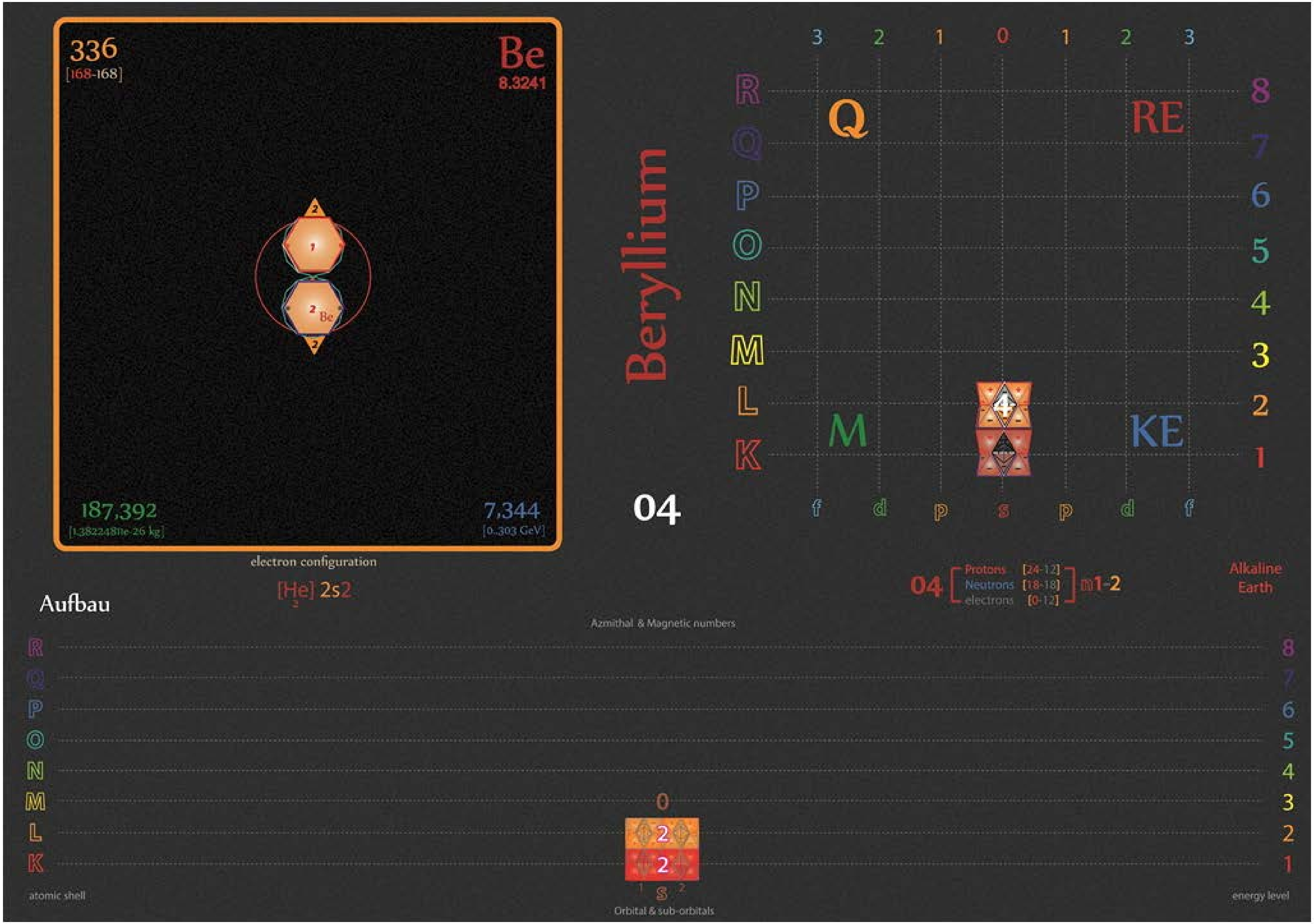
Tetryonics 51.01 - Deuterium atom



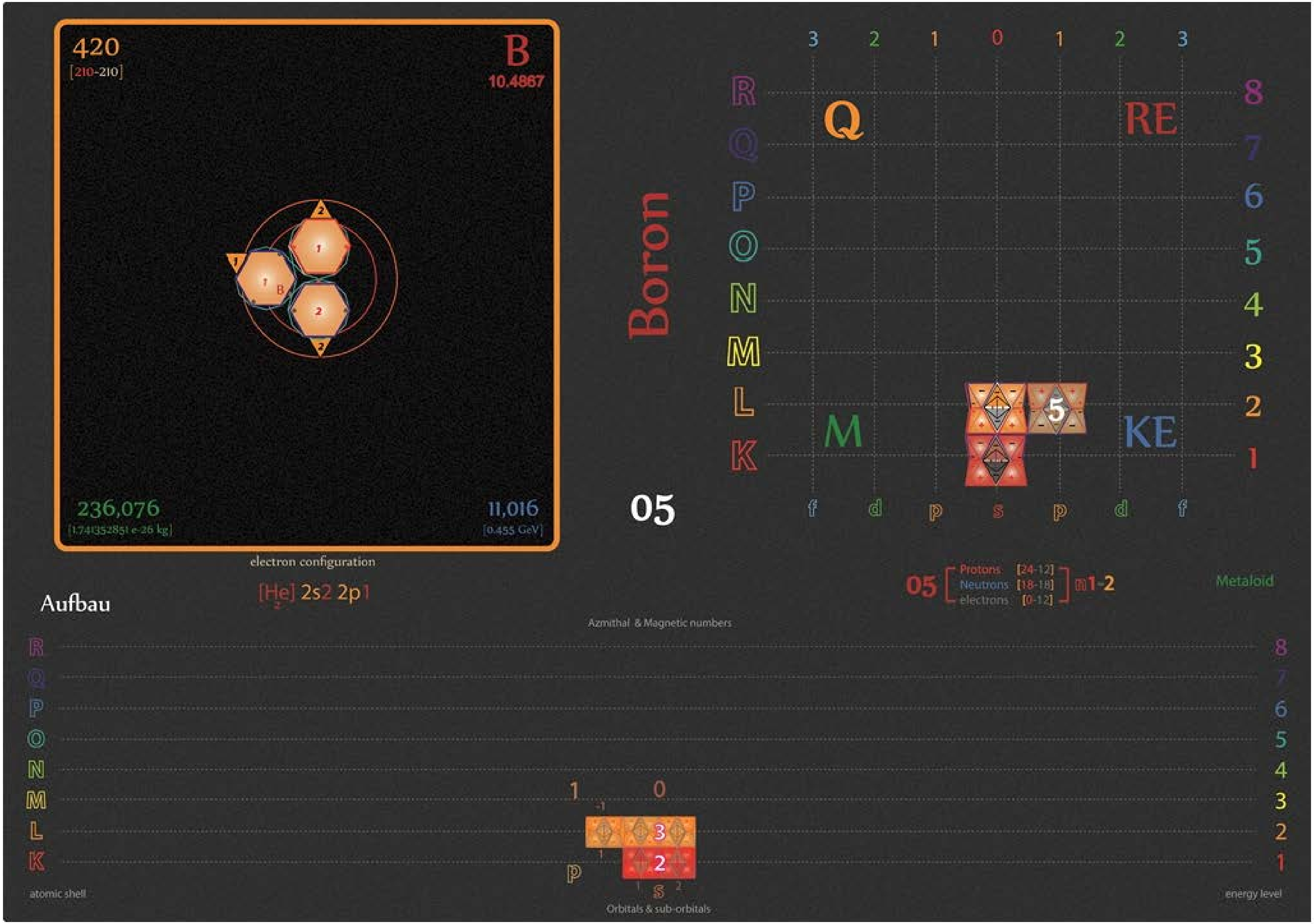
Tetryonics 51.02 - Helium atom



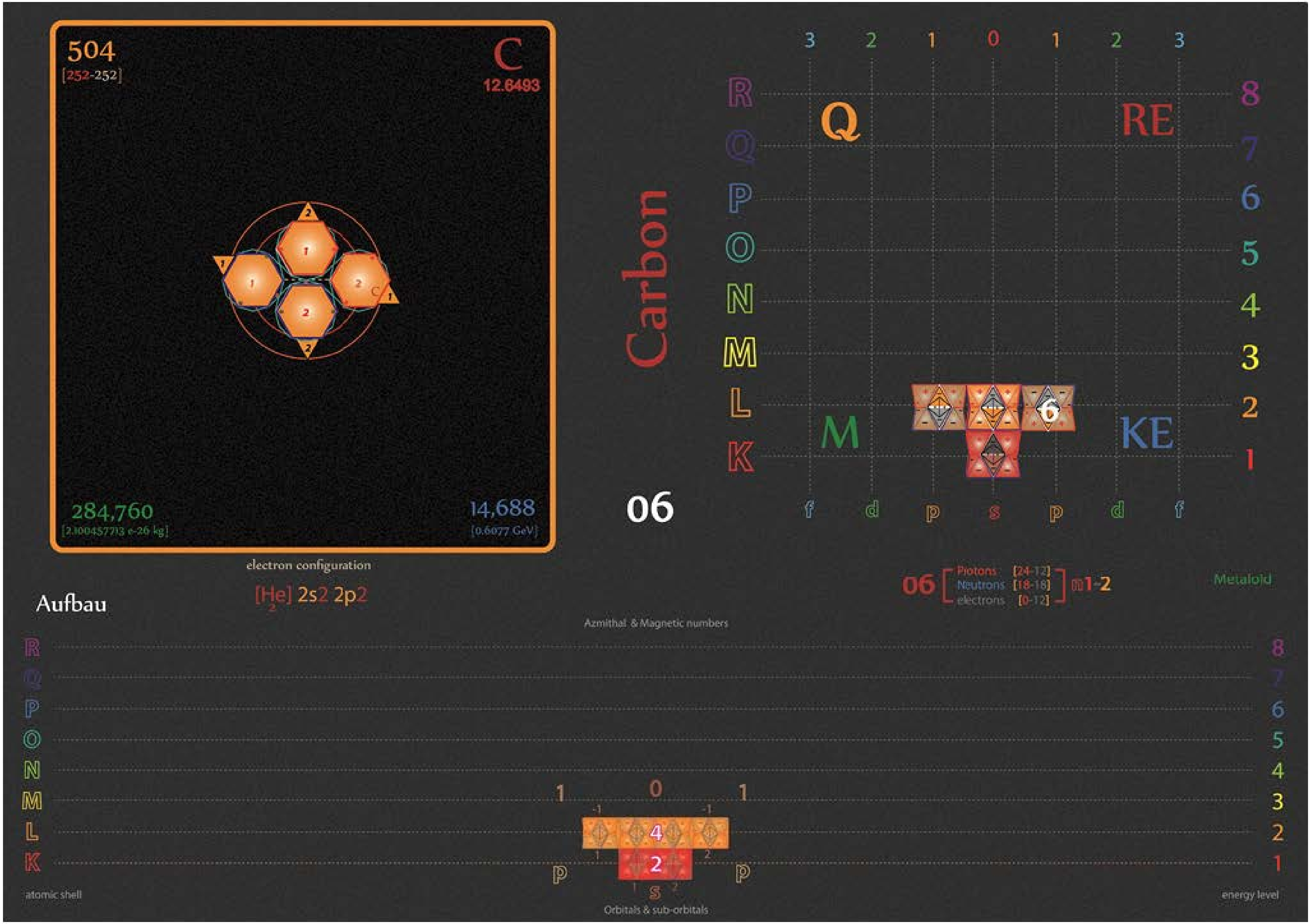
Tetryonics 51.03 - Lithium atom

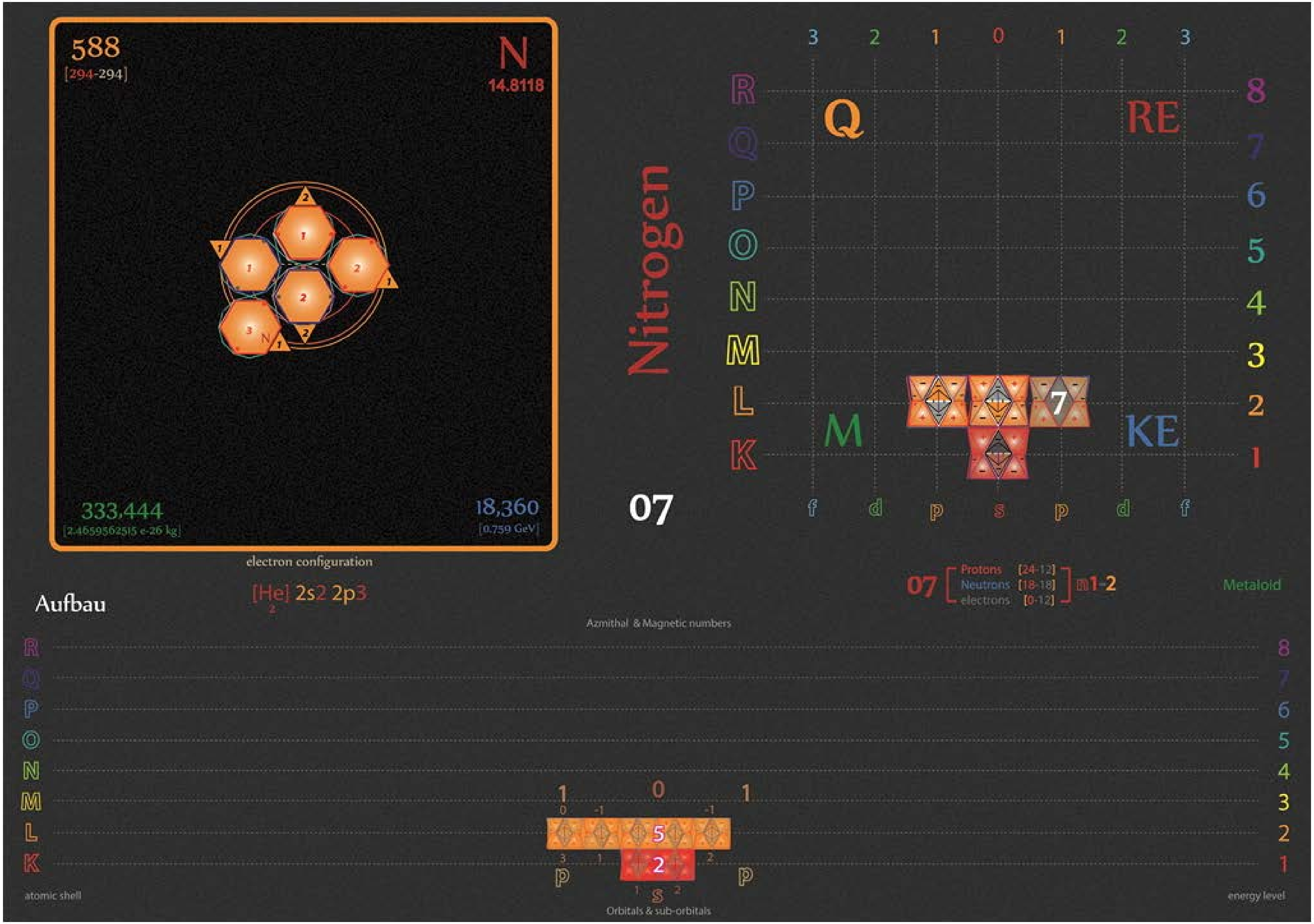


Tetryonics 51.04 - Beryllium atom

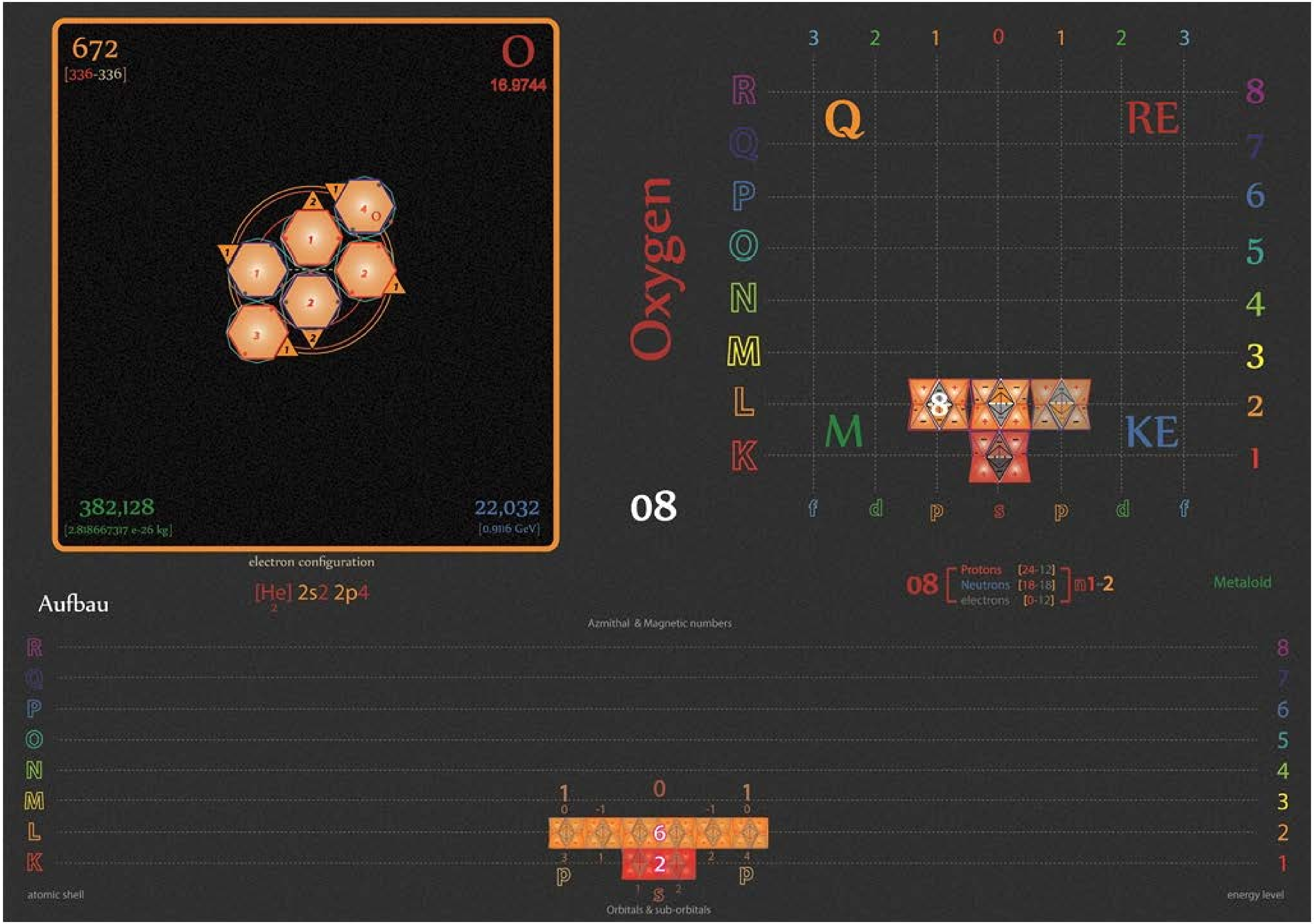


Tetryonics 51.05 - Boron atom

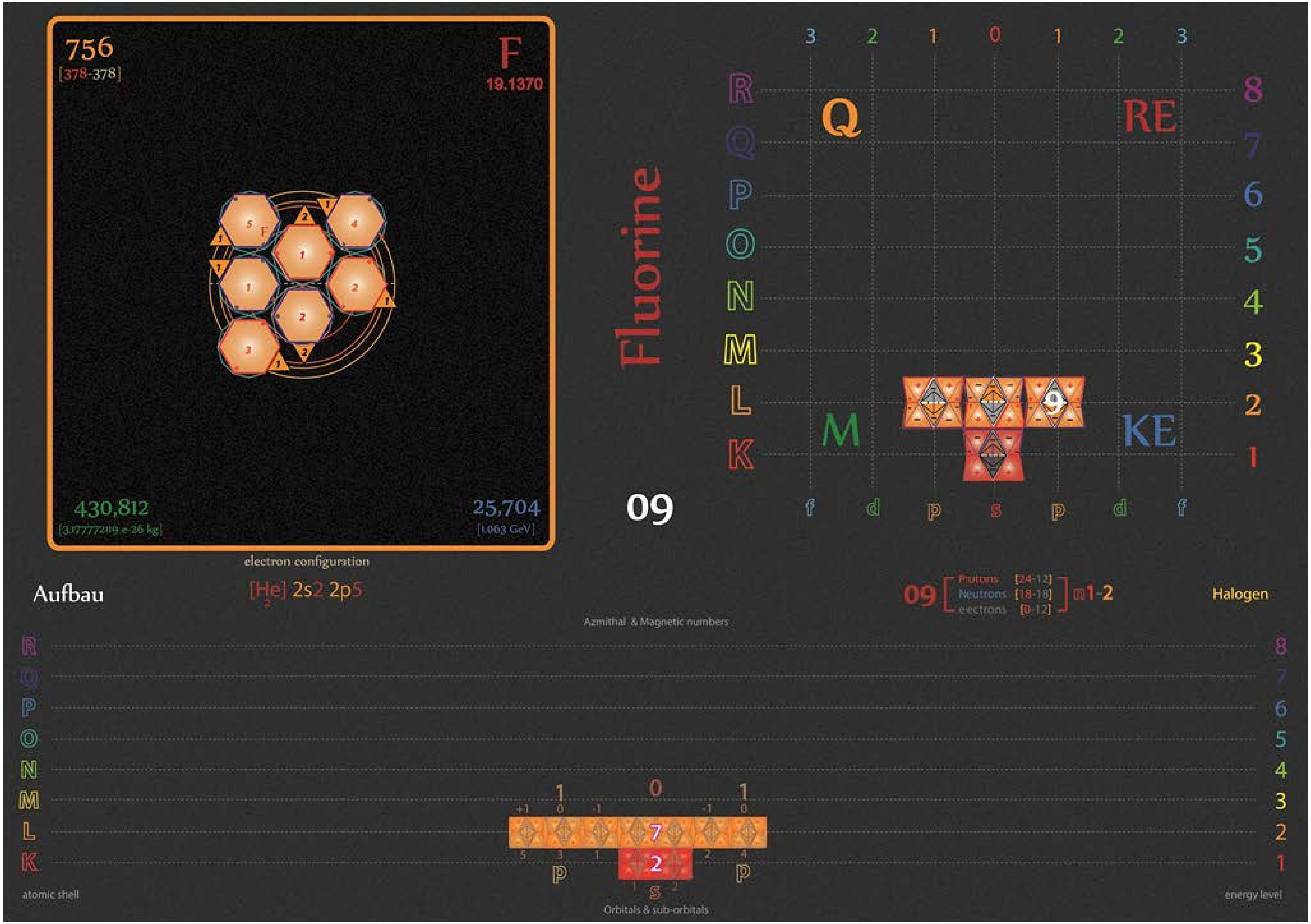

504
[252-252]
C
12.6493
284,760
[2.100457713 e-26 kg]
14,688
[0.6077 GeV]
Carbon
06
3 2 1 0 1 2 3
R Q P O N M L K
8 7 6 5 4 3 2 1
Q
RE
M
KE
f d p s p d f
06 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-2
Metaloid
electron configuration
[He] 2s2 2p2
Aufbau
Azmithal & Magnetic numbers
1 0 1
4
2
p s p
atomic shell
energy level
Orbitals & sub-orbitals



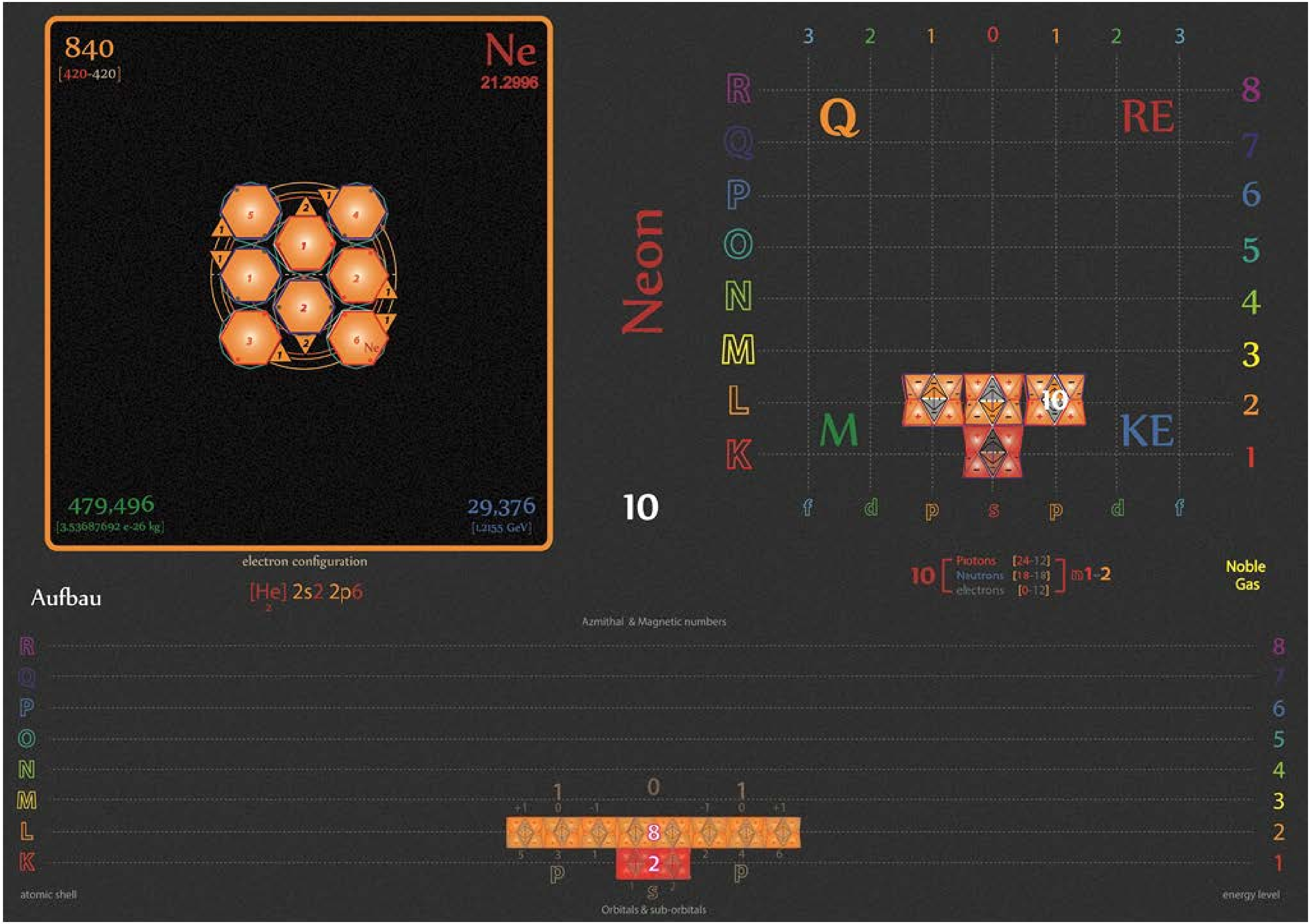
Tetryonics 51.07 - Nitrogen atom



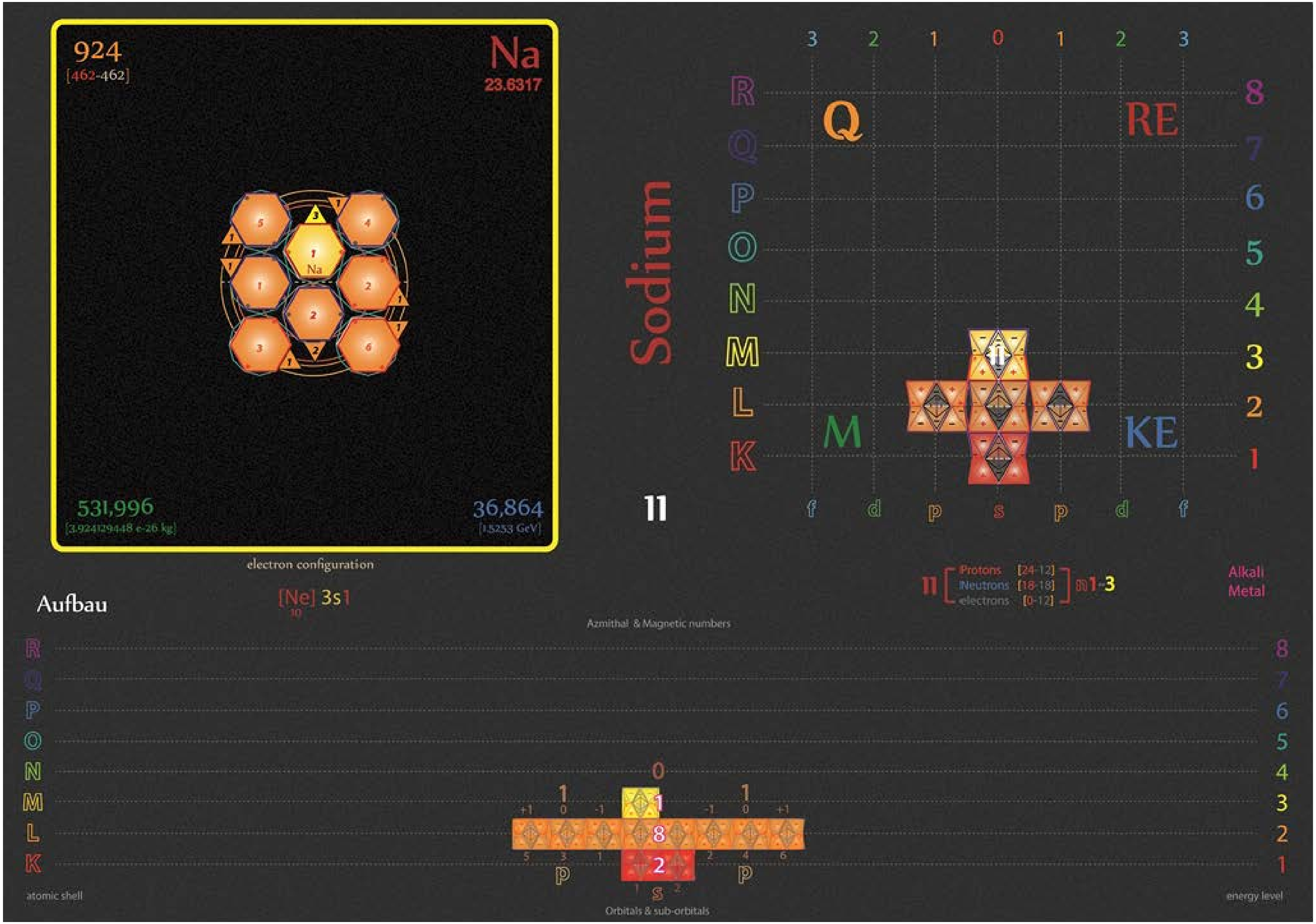
Tetryonics 51.08 - Oxygen atom



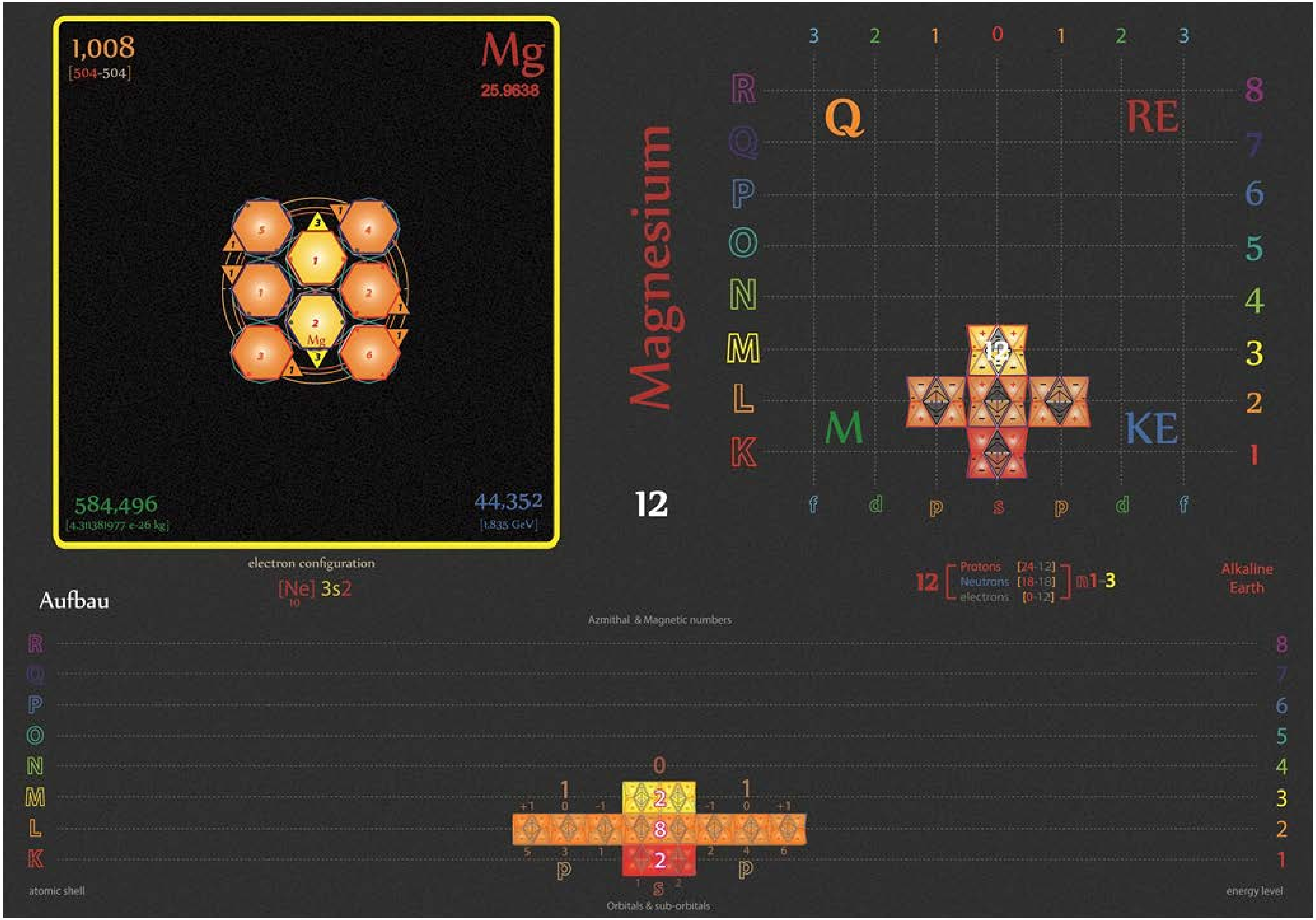
Tetryonics 51.09 - Fluorine atom

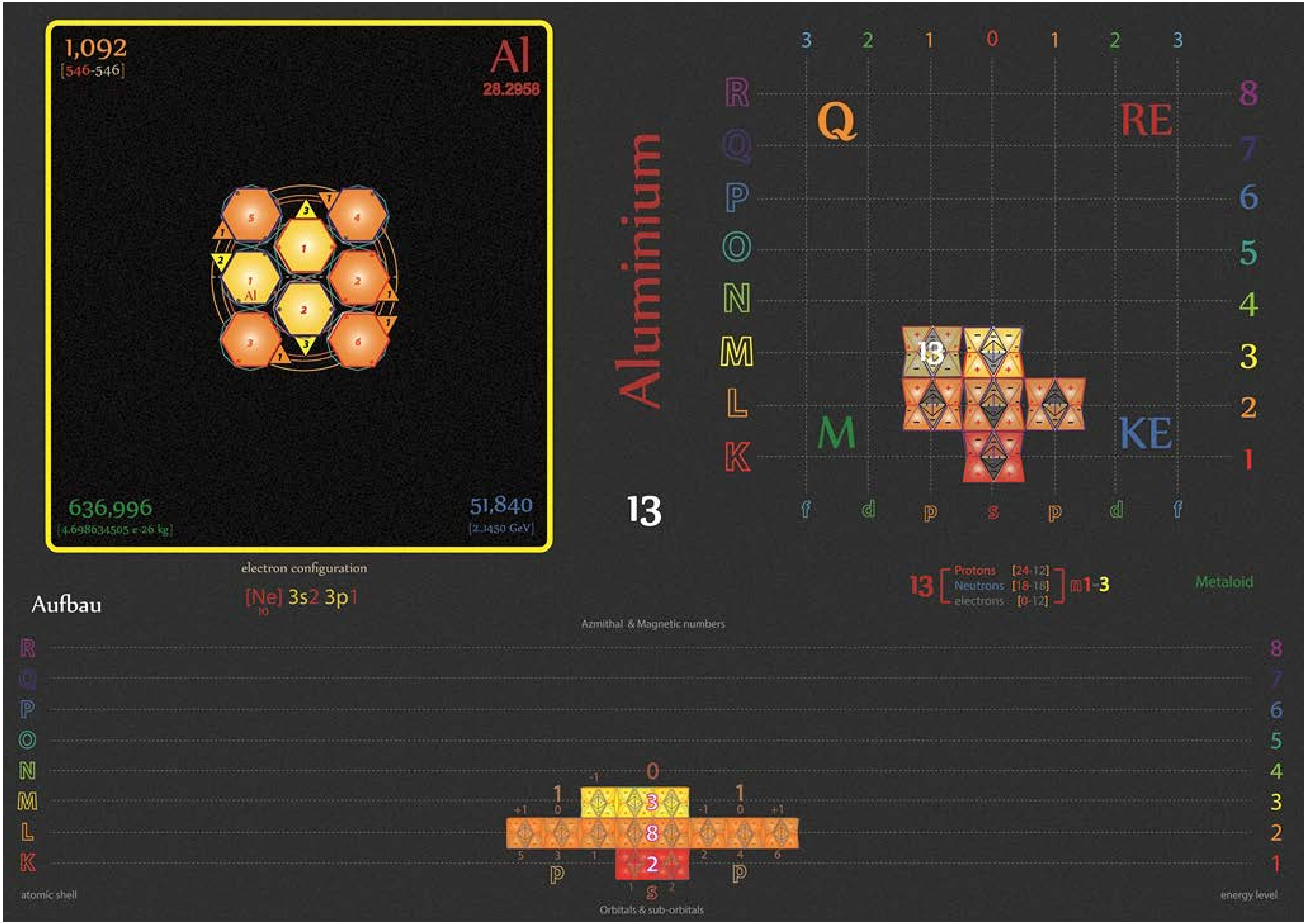


Tetryonics 51.10 - Neon atom

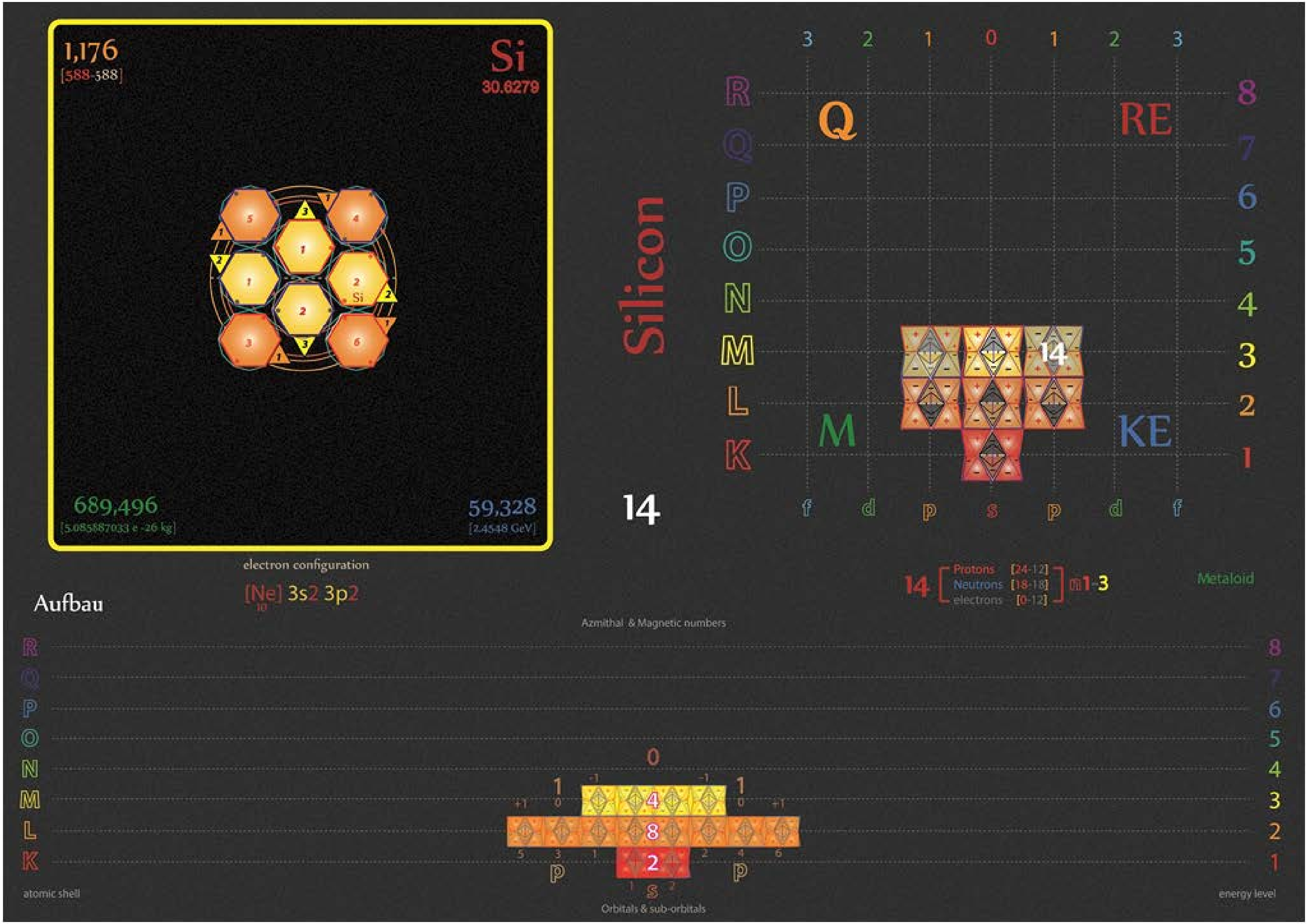


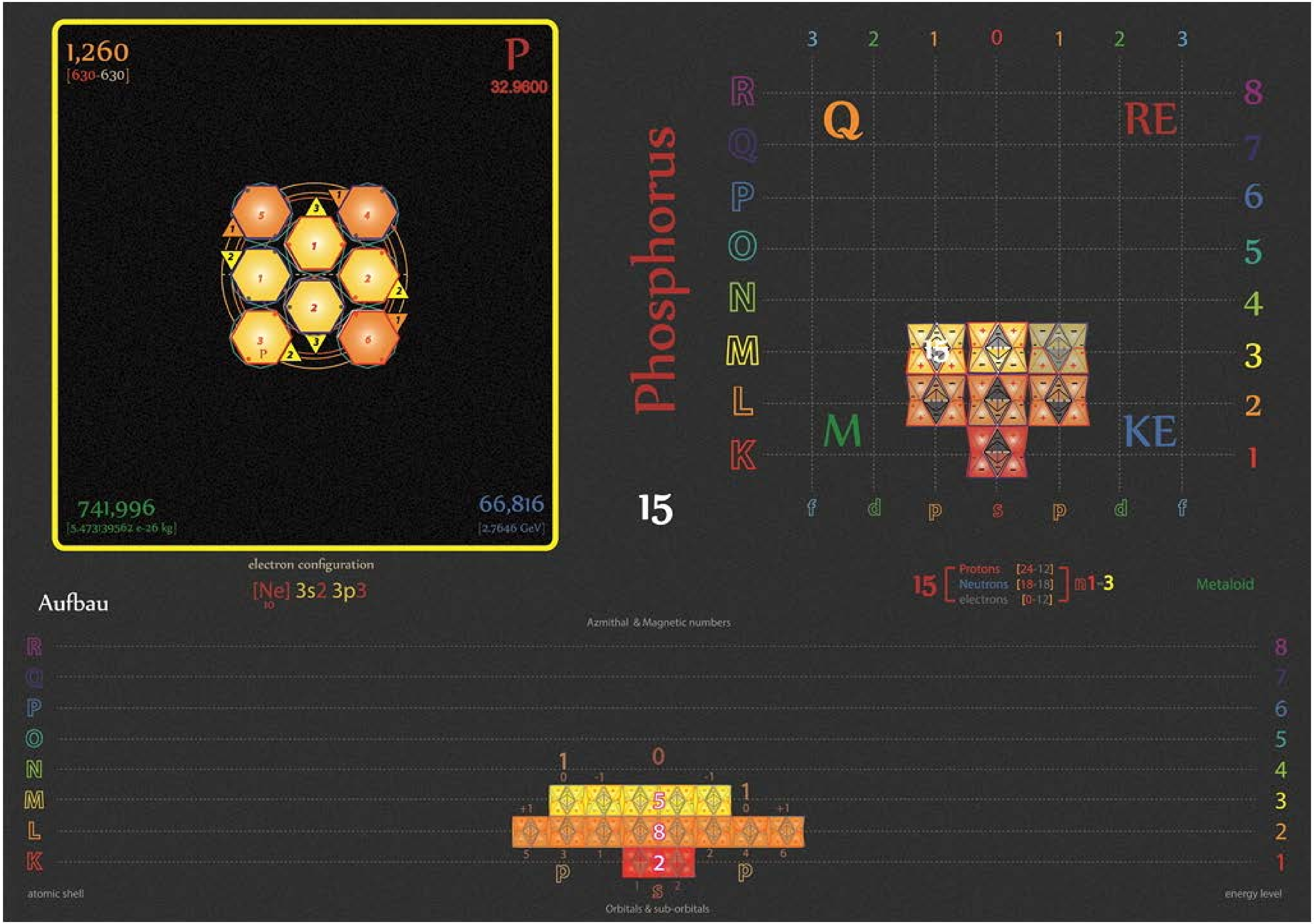
Tetryonics 51.11 - Sodium atom


1,008
[504-504]
Mg
25.9838
584,496
[4.31138197 e-26 kg]
44,352
[1.835 GeV]
Magnesium
12
electron configuration
[Ne] 3s2
Aufbau
12 Protons [24-12] Neutrons [18-18] electrons [0-12] m1-3
Alkaline Earth
Q
RE
M
KE
Azmithal & Magnetic numbers
atomic shell
energy level
Orbitals & sub-orbitals

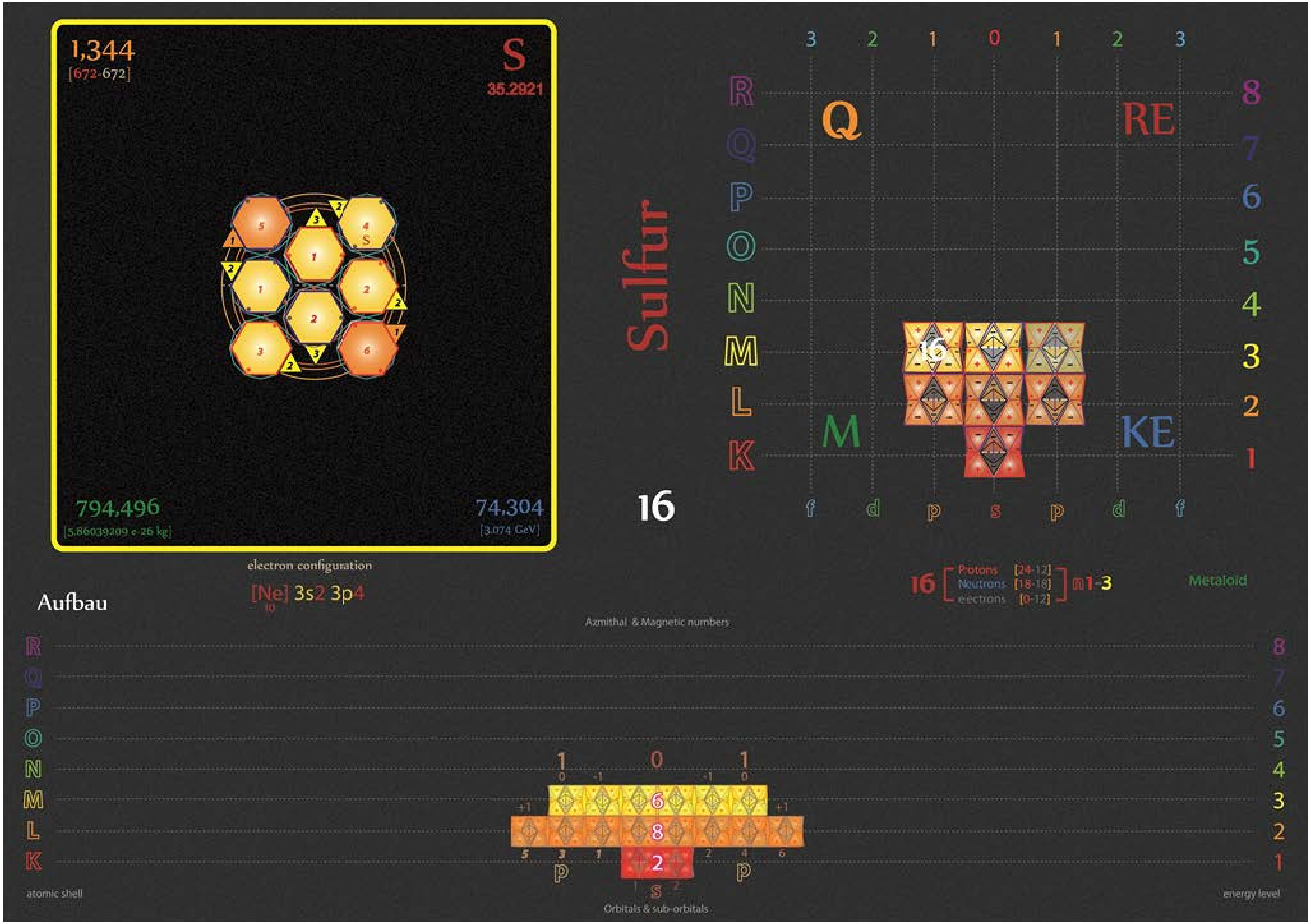


Tetryonics 51.13 - Aluminium atom

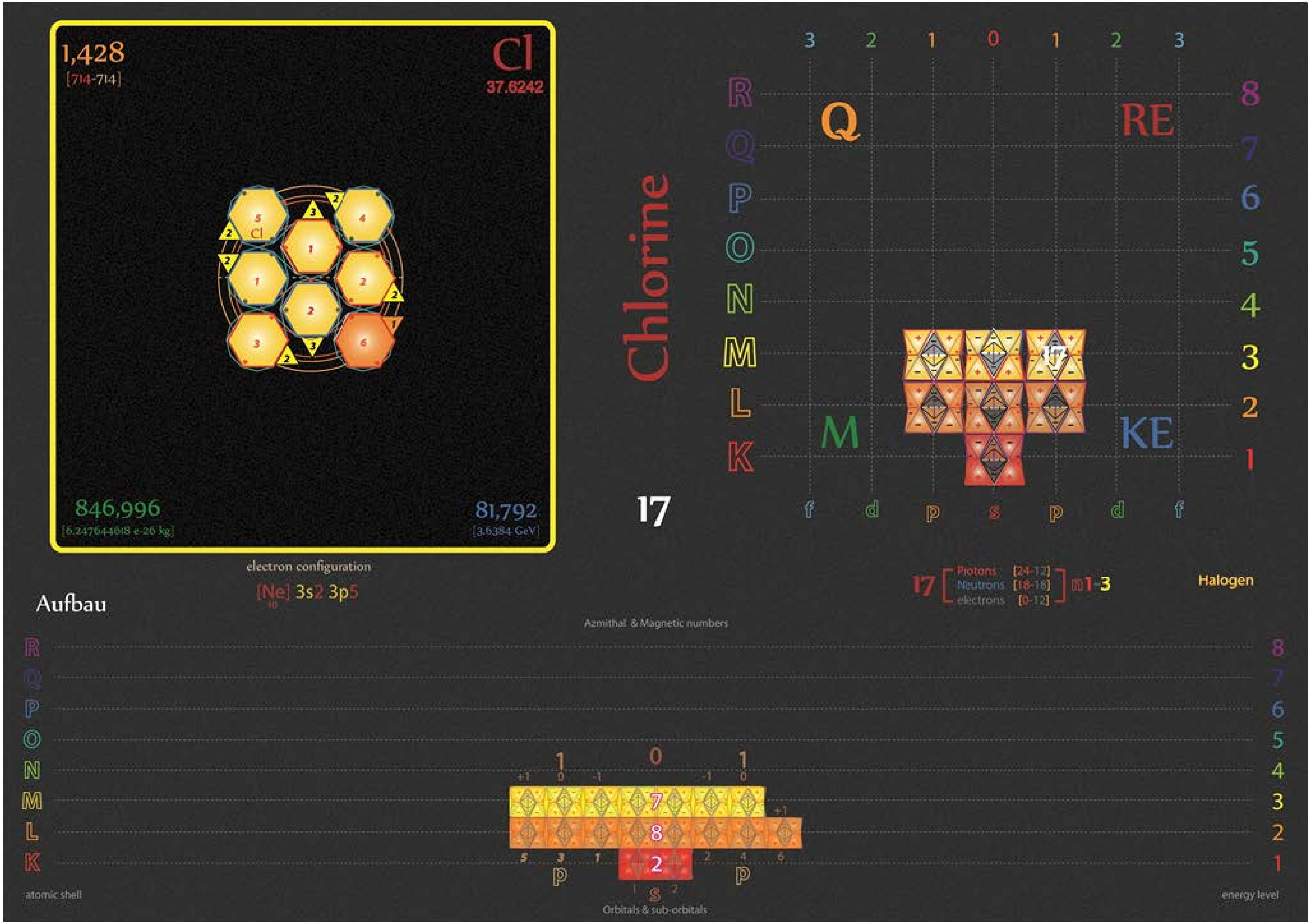

1,176
[588-588]
Si
30.6279
689,496
[5.085887033 e -26 kg]
59,328
[2.4548 GeV]
Silicon
14
electron configuration
[Ne] 3s2 3p2
Aufbau
Protons [24-12]
Neutrons [18-18]
electrons [0-12]
m1-3
Metaloid
Q
RE
M
KE
Azmithal & Magnetic numbers
Orbitals & sub-orbitals
atomic shell
energy level



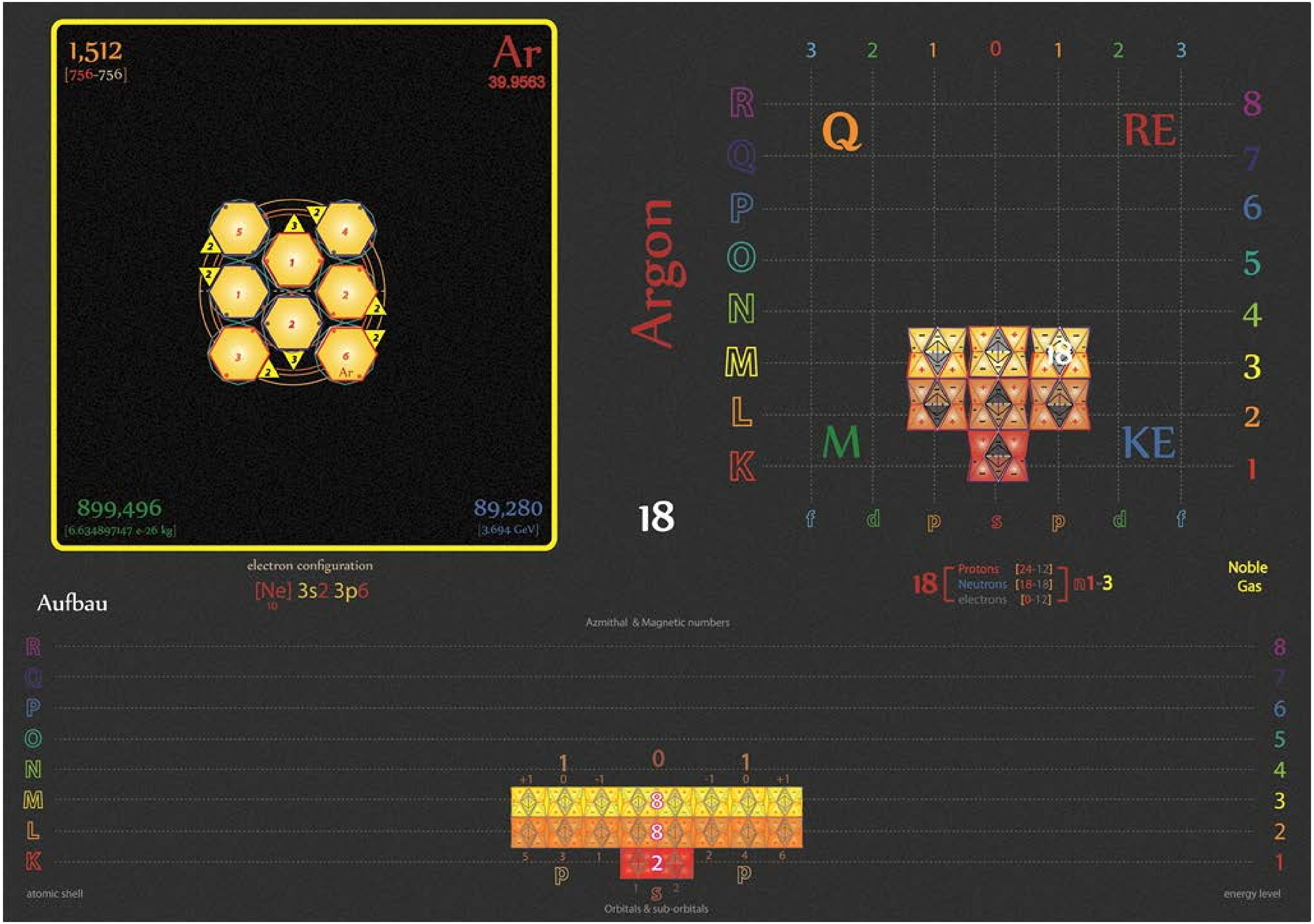
Tetryonics 51.15 - Phosphorus atom



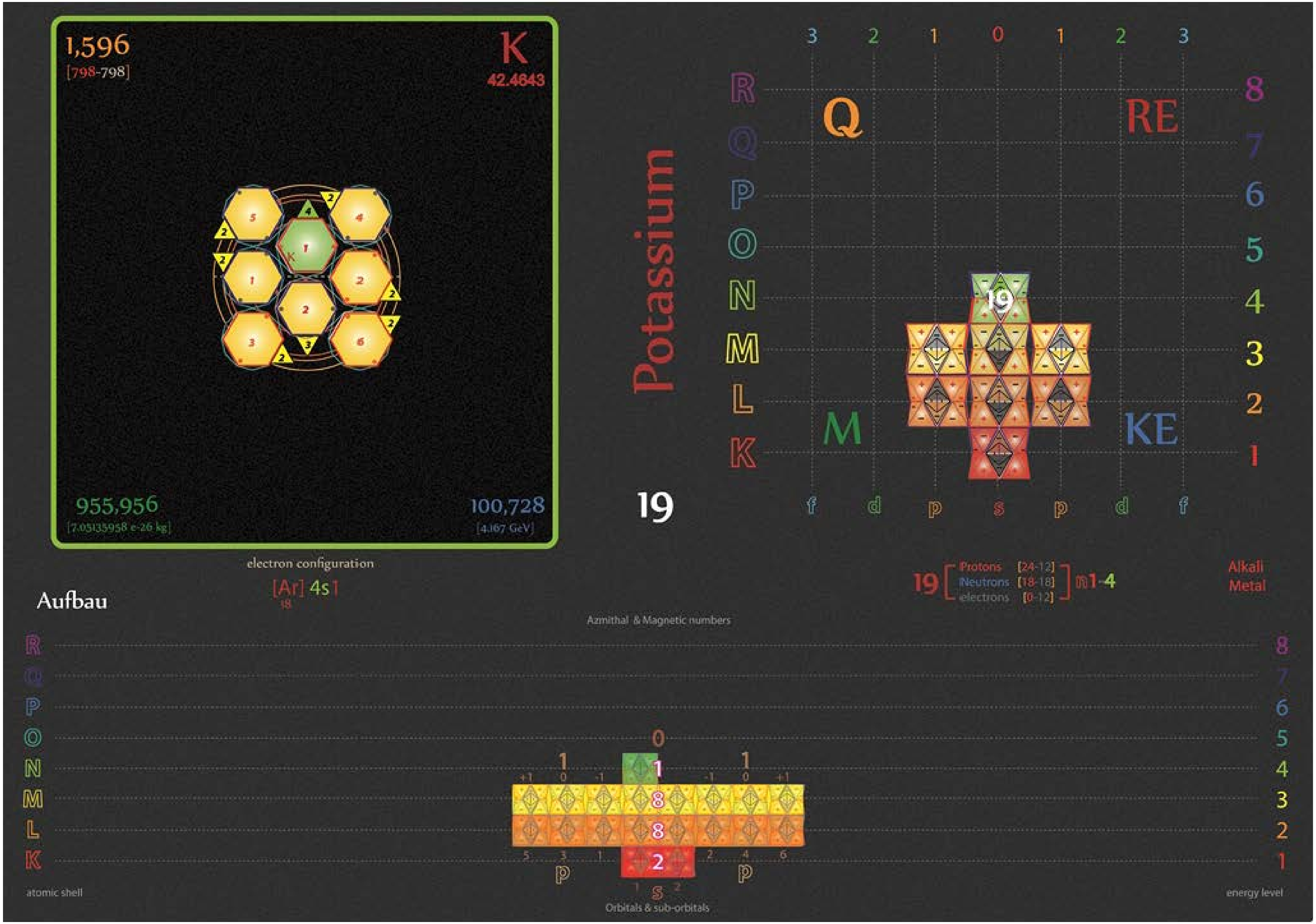
1,344
[672-672]
S
35.2921
794,496
[5.86039209 e-26 kg]
74,304
[3.074 GeV]
Sulfur
16
electron configuration
[Ne] 3s2 3p4
Aufbau
R Q P O N M L K
8 7 6 5 4 3 2 1
Q
RE
M
KE
3 2 1 0 1 2 3
f d p s p d f
16 Potons [24-12] Neutrons [18-18] electrons [0-12] n1-3
Metaloid
Azmithal & Magnetic numbers
atomic shell
energy level
Orbitals & sub-orbitals



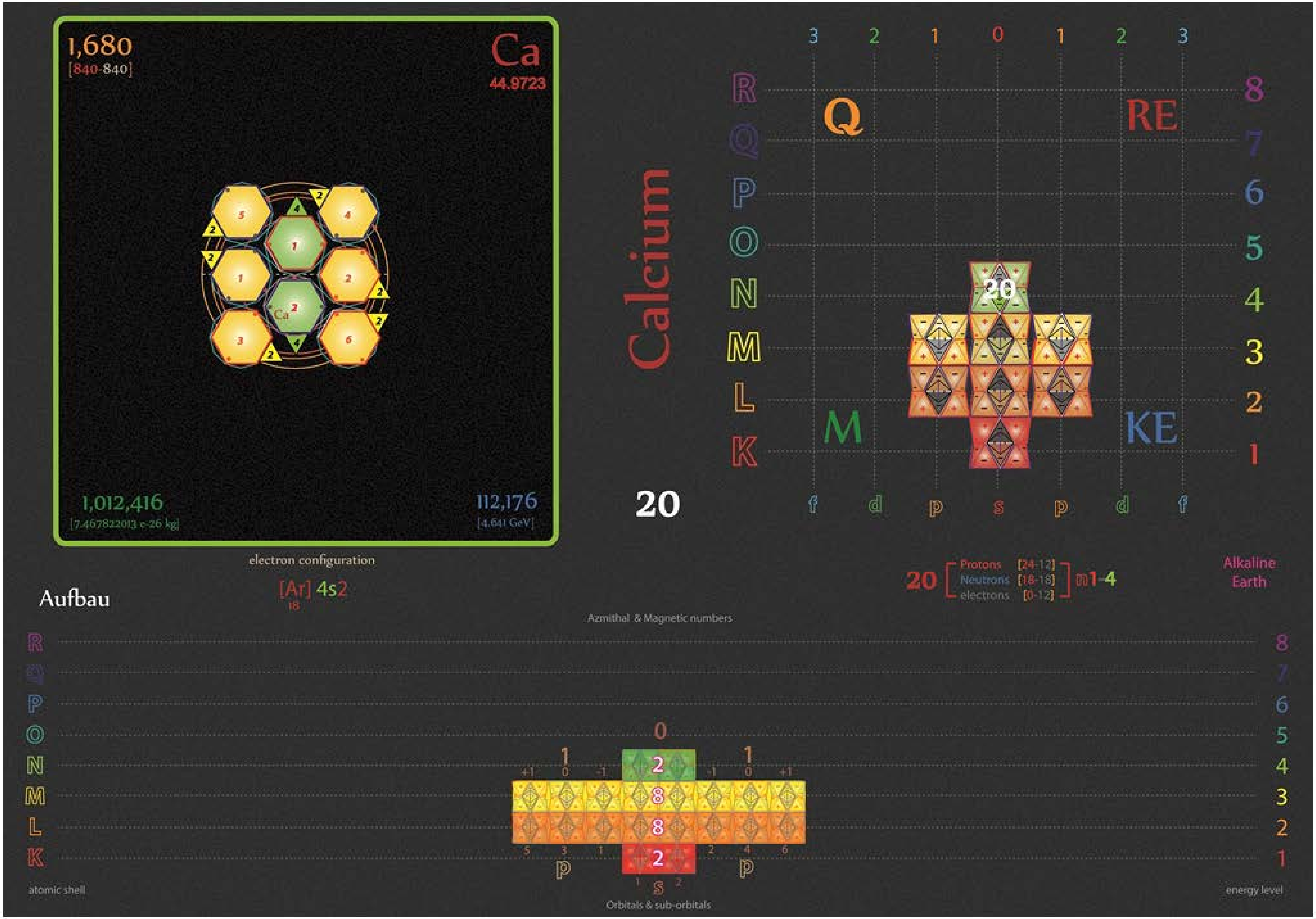
Tetryonics 51.17 - Chlorine atom

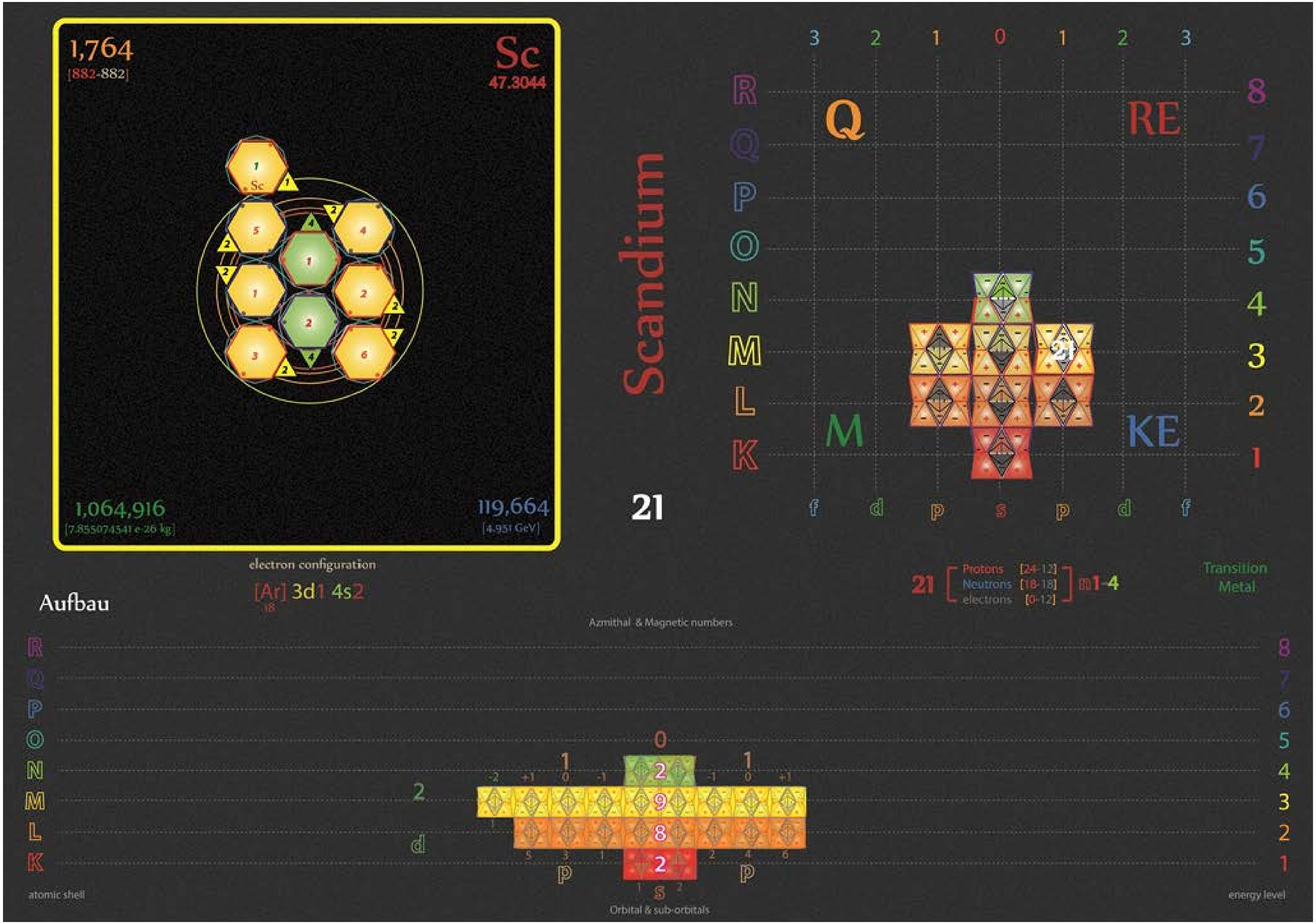


Tetryonics 51.18 - Argon atom

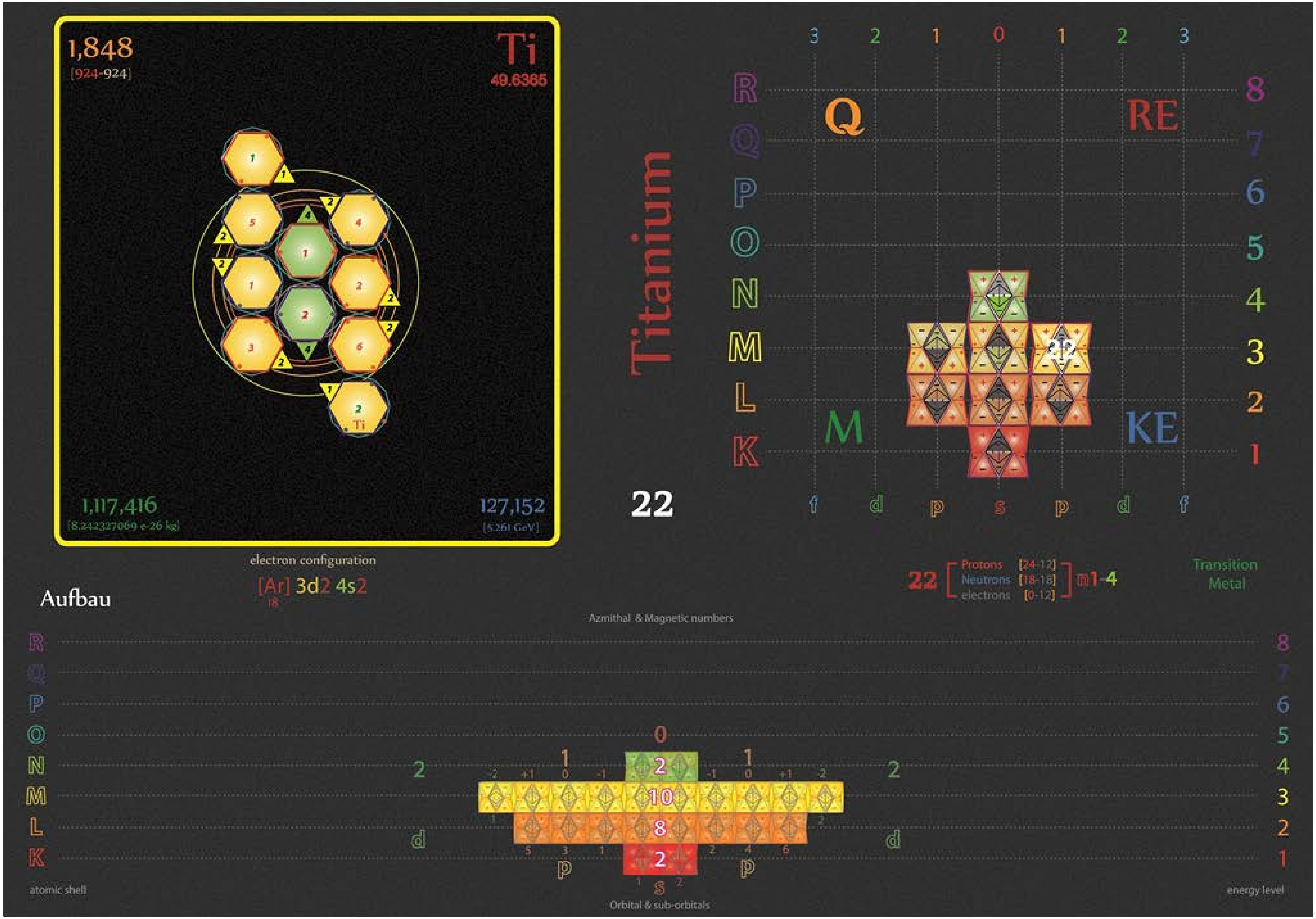


Tetryonics 51.19 - Potassium atom

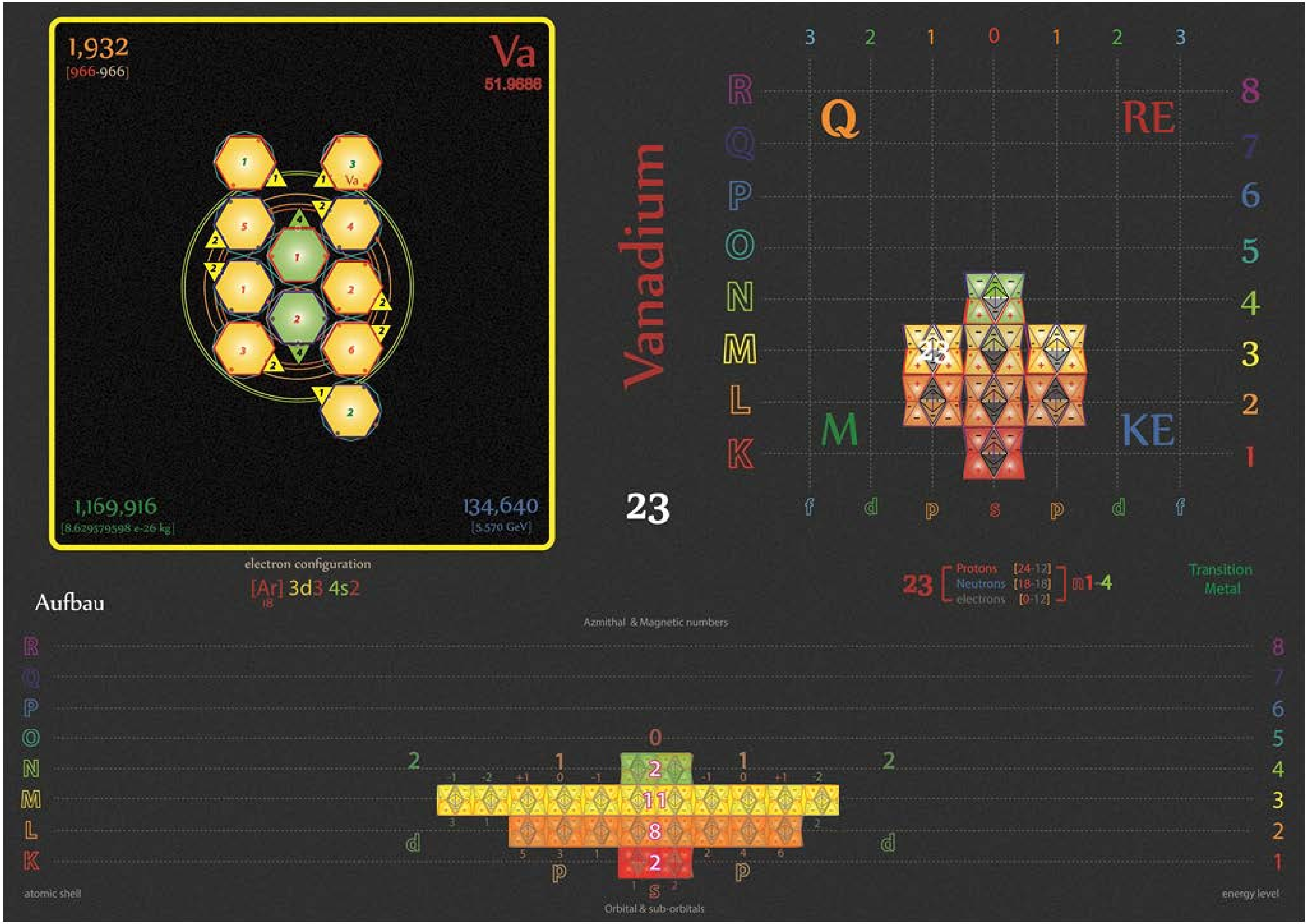

1,680
[840-840]
Ca
44.9723
1,012,416
[7.467822013 e-26 kg]
112,176
[4.641 GeV]
Calcium
20
3 2 1 0 1 2 3
R Q P O N M L K
8 7 6 5 4 3 2 1
Q
RE
M
KE
20
f d p s p d f
electron configuration
Aufbau
[Ar] 4s2
18
20 Protons [24-12] Neutrons [18-18] electrons [0-12] m1-4
Alkaline Earth
Azmithal & Magnetic numbers
R Q P O N M L K
8 7 6 5 4 3 2 1
0
1 1
+1 0 -1 -1 0 +1
2
8
8
2
5 3 1 2 4 6
p p
1 s 2
atomic shell
energy level
Orbitals & sub-orbitals



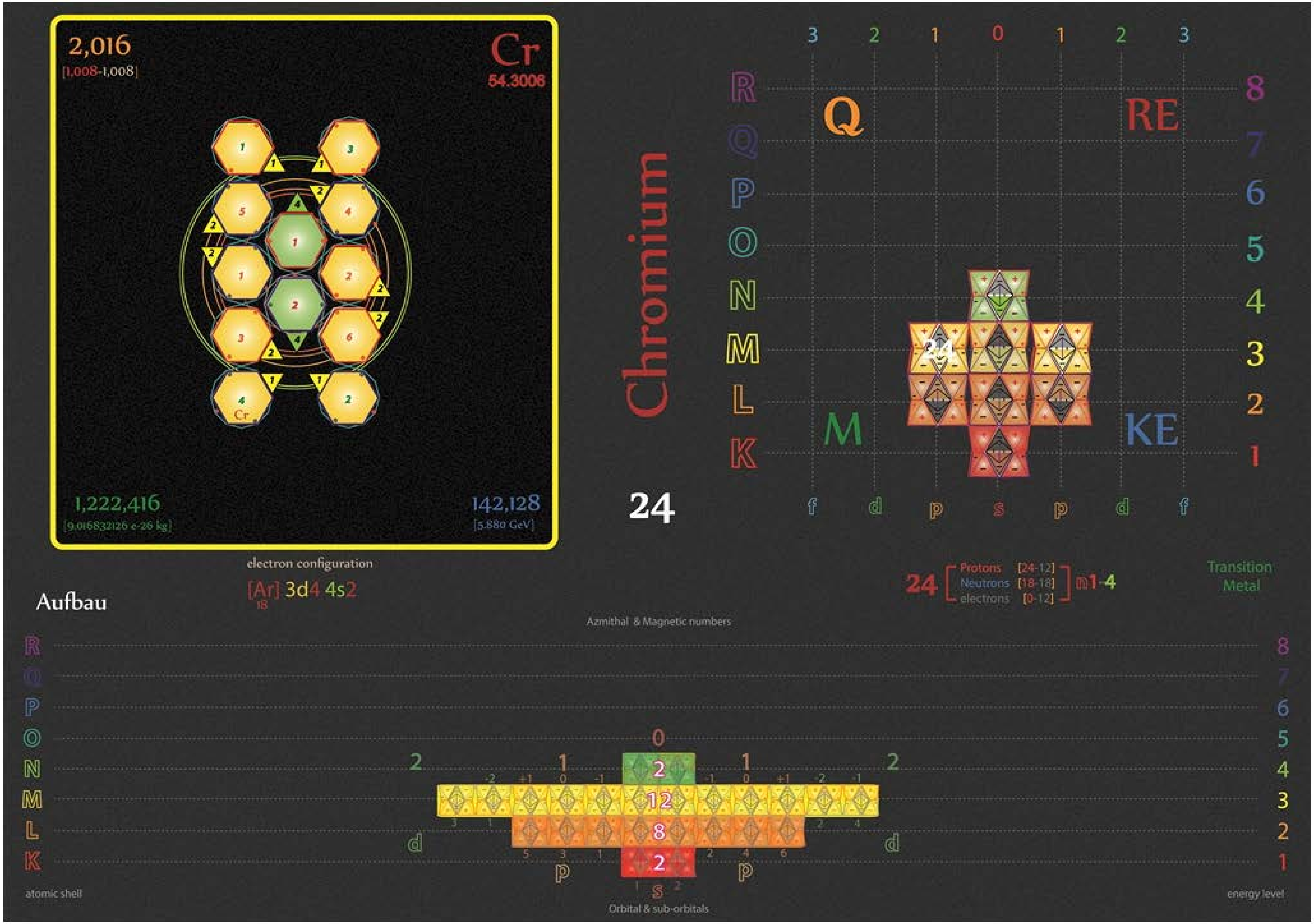
Tetryonics 51.21 - Scandium atom



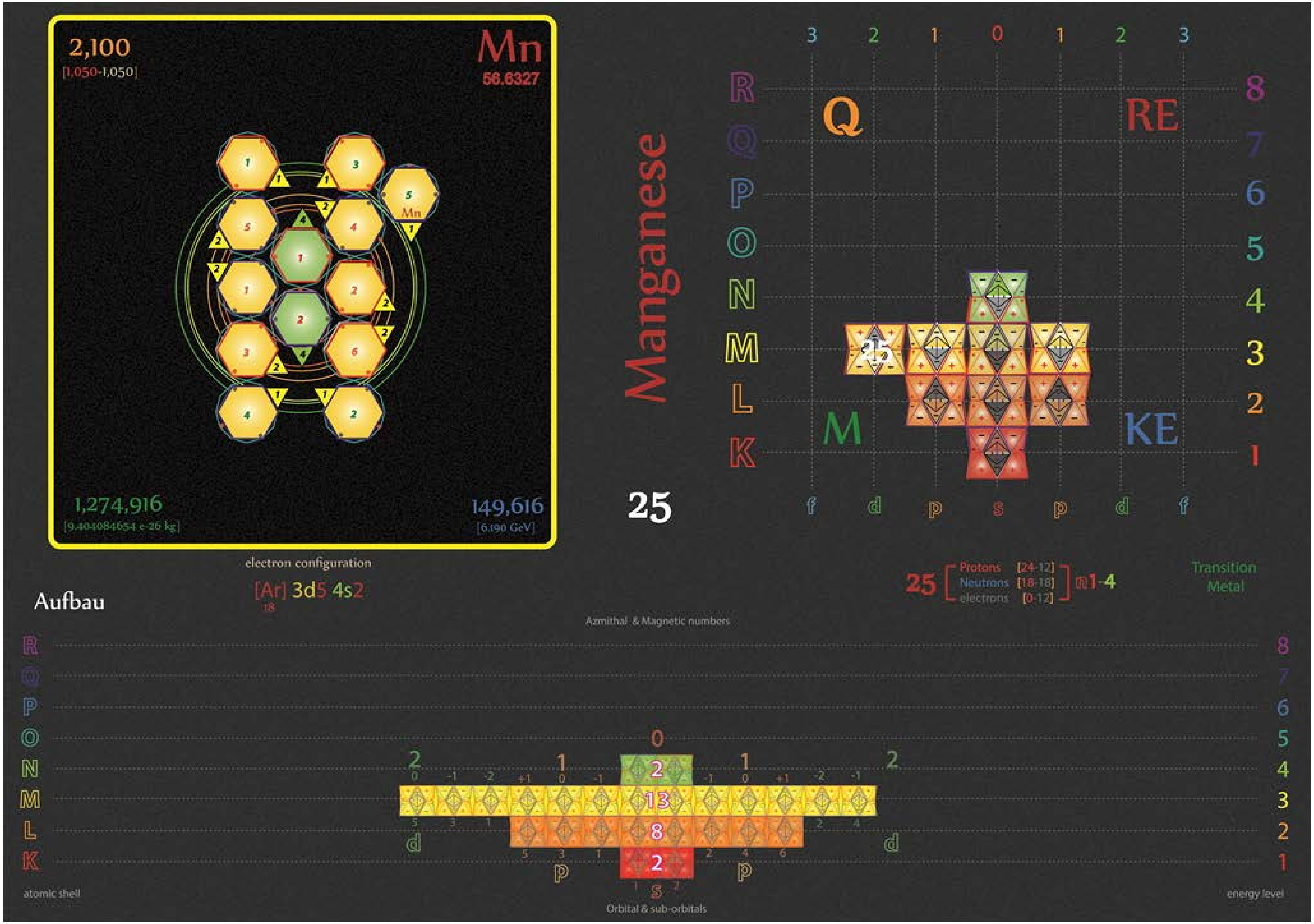
Tetryonics 51.22 - Titanium atom



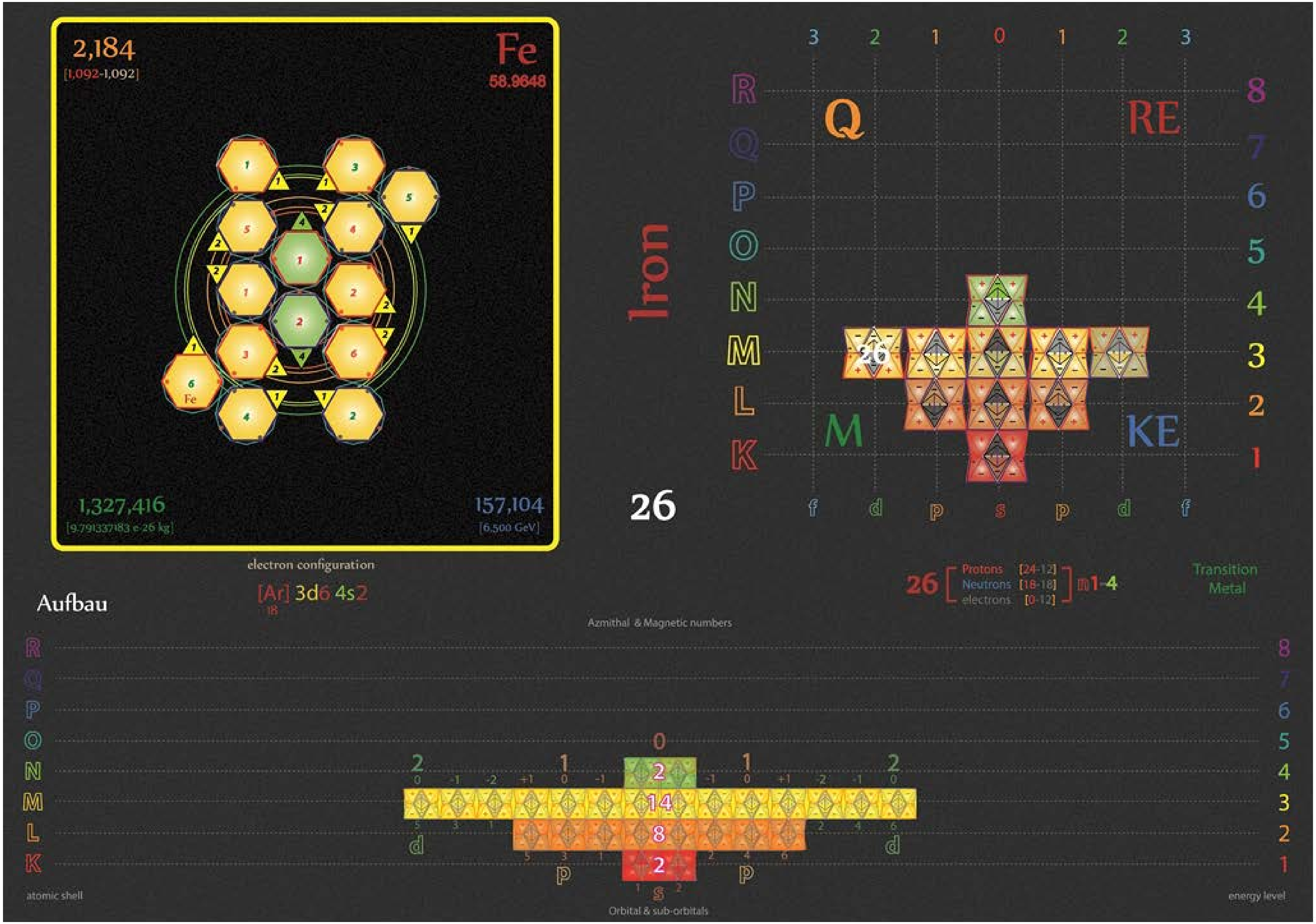
Tetryonics 51.23 - Vanadium atom



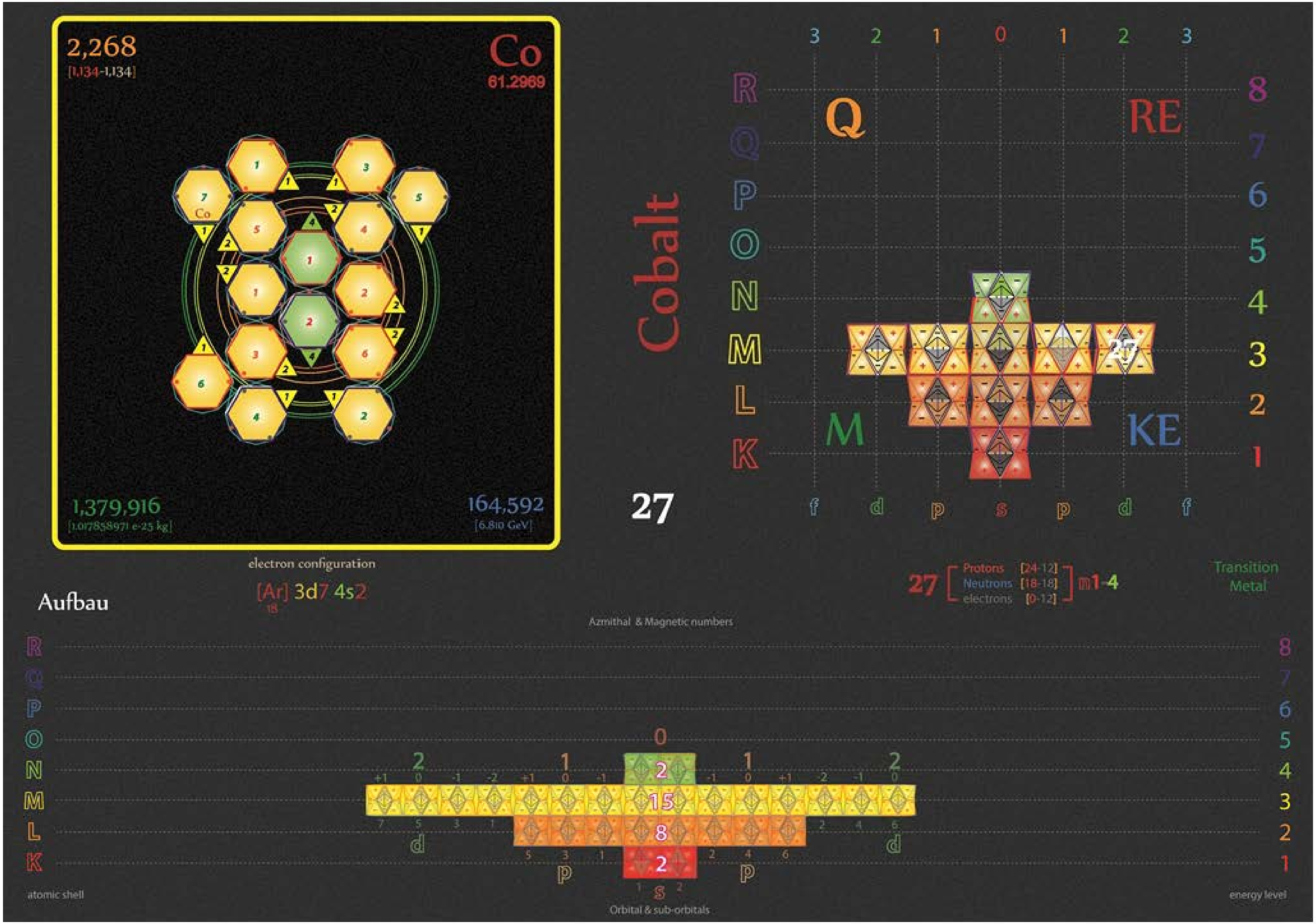
Tetryonics 51.24 - Chromium atom

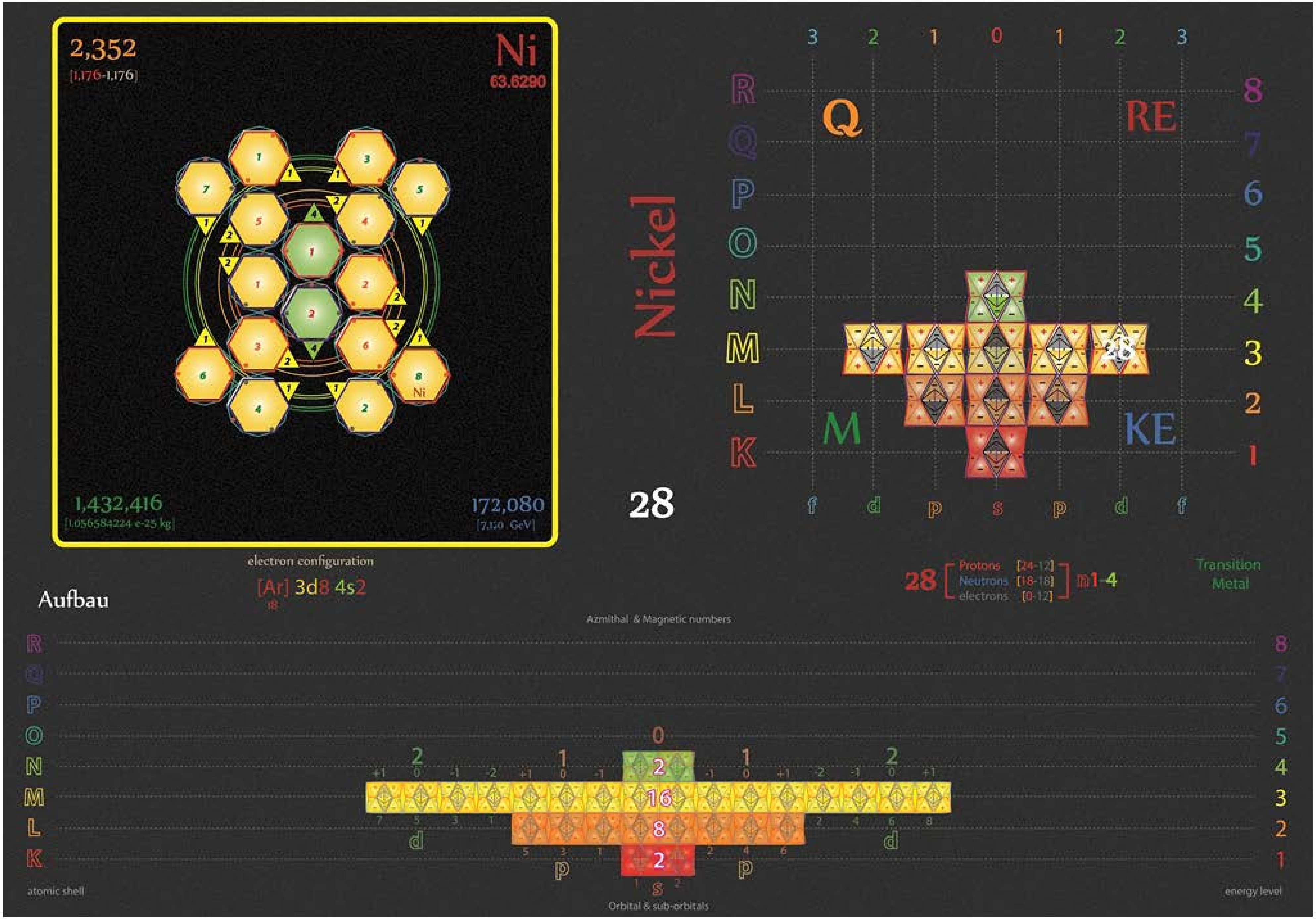


Tetryonics 51.25 - Manganese atom

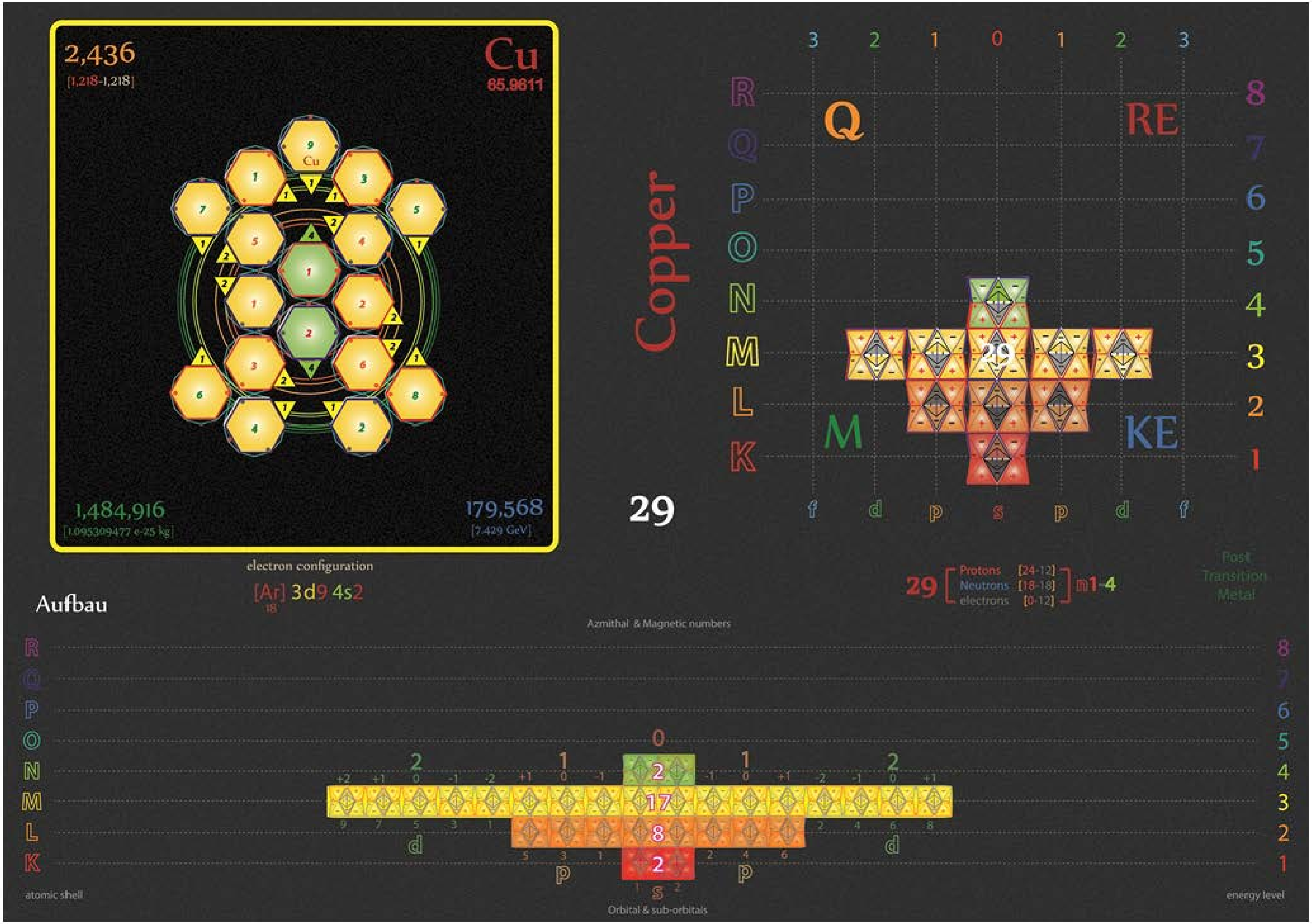


Tetryonics 51.26 - Iron atom

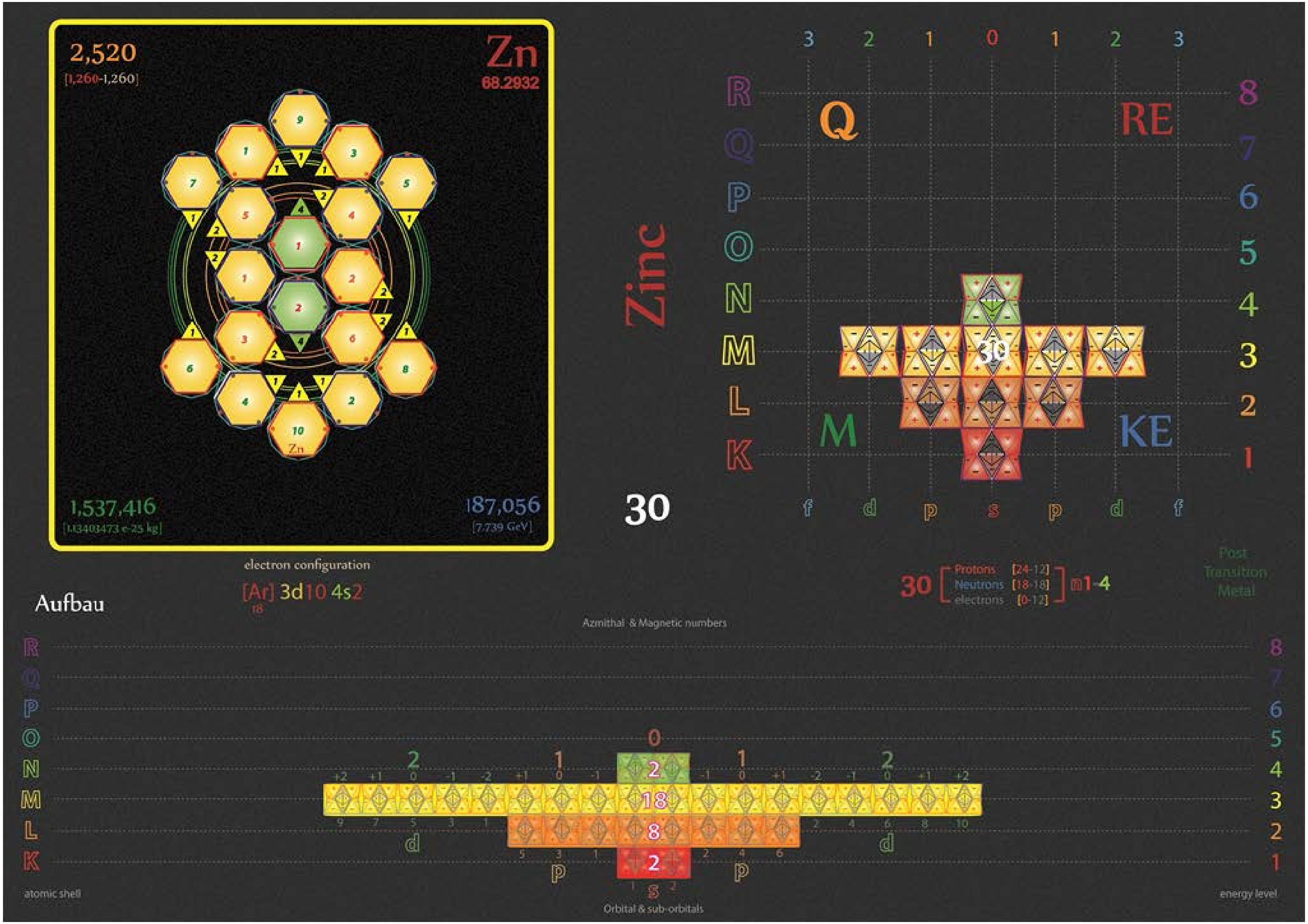

2,268
[1,134-1,134]
Co
61.2969
1,379,916
[1.017858971 e-25 kg]
164,592
[6.810 GeV]
Cobalt
27
electron configuration
[Ar] 3d7 4s2
18
Aufbau
Q
RE
M
KE
27 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-4
Transition Metal
Azmithal & Magnetic numbers
Orbital & sub-orbitals
atomic shell
energy level



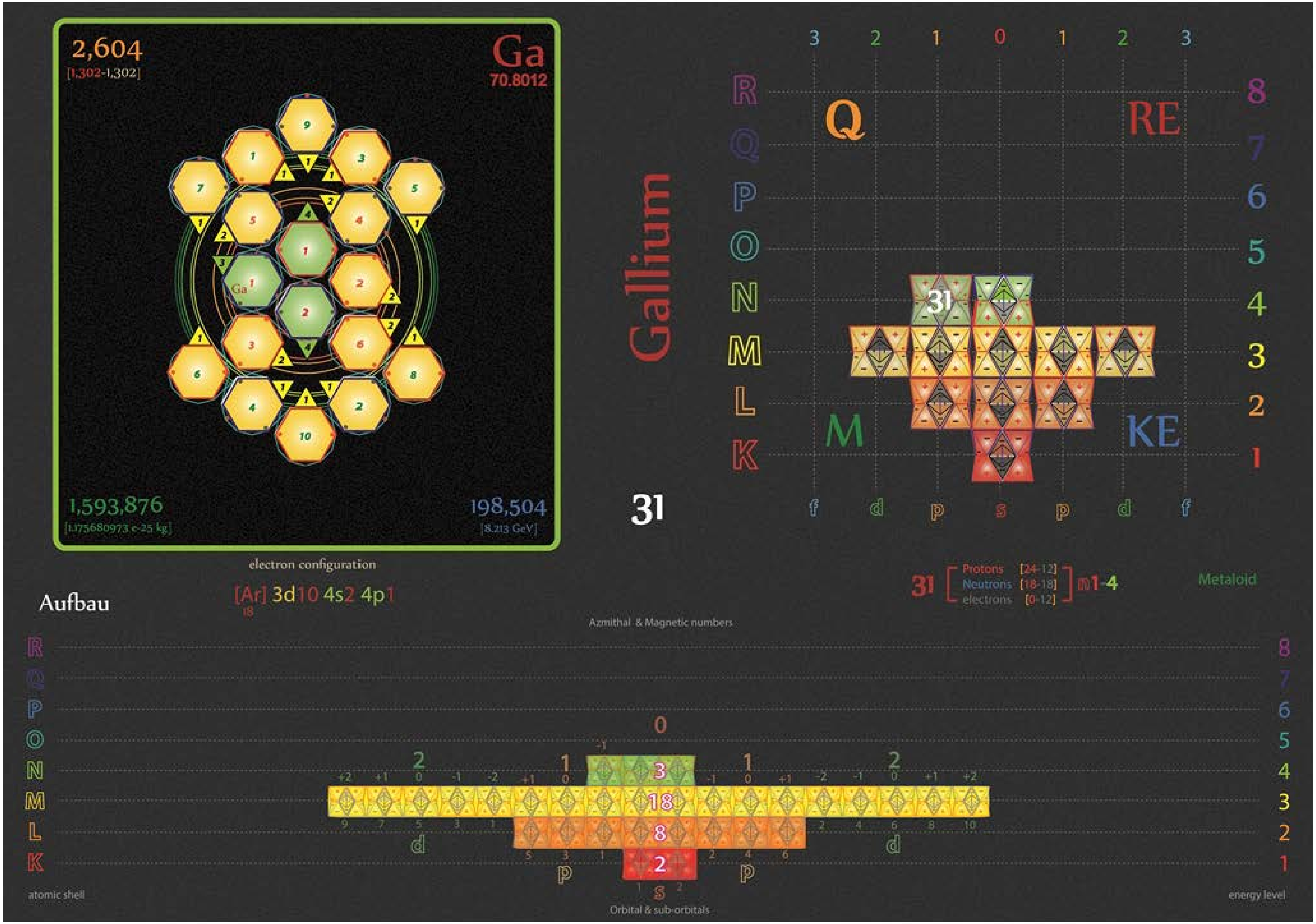
Tetryonics 51.28 - Nickel atom



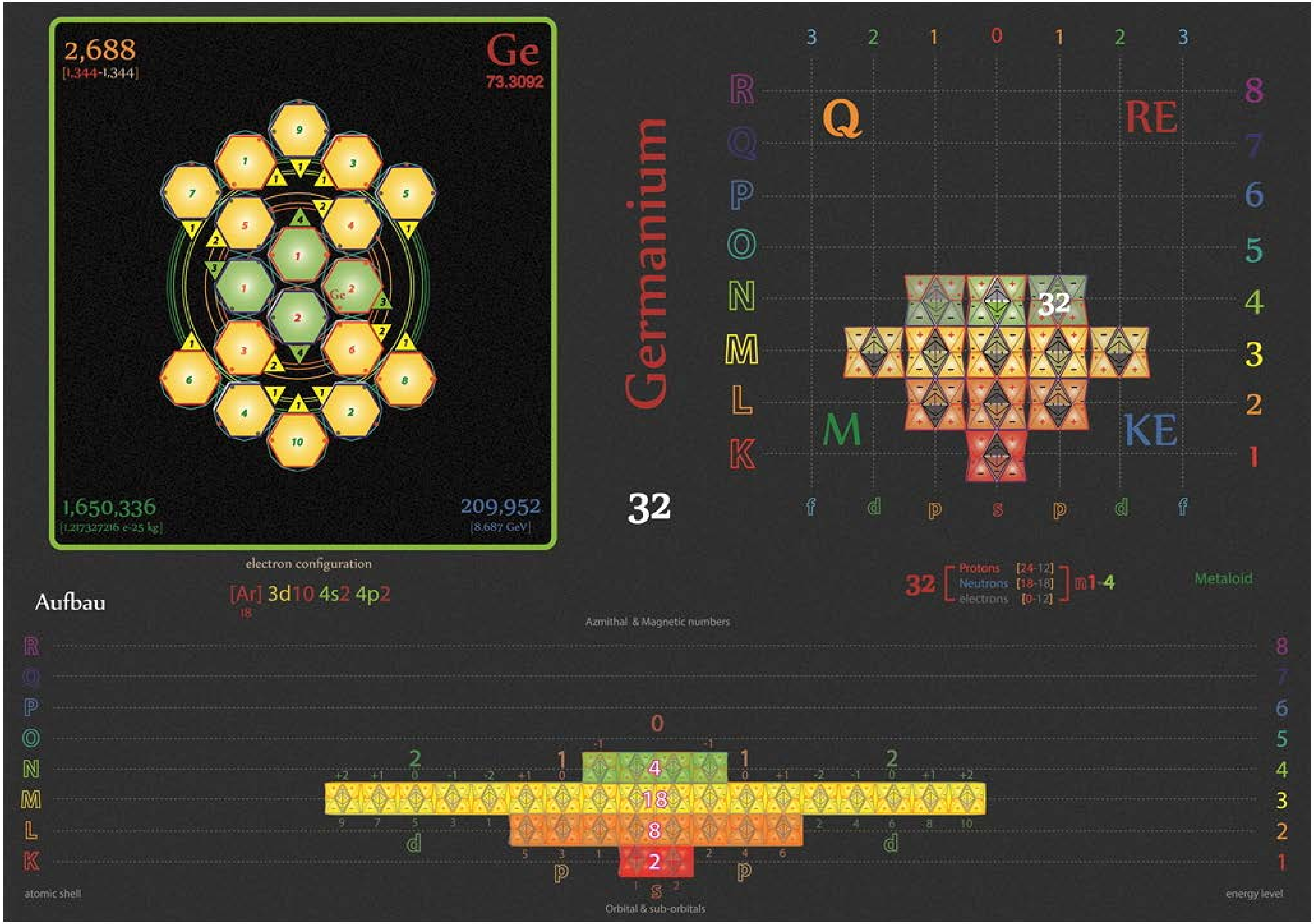
Tetryonics 51.29 - Copper atom

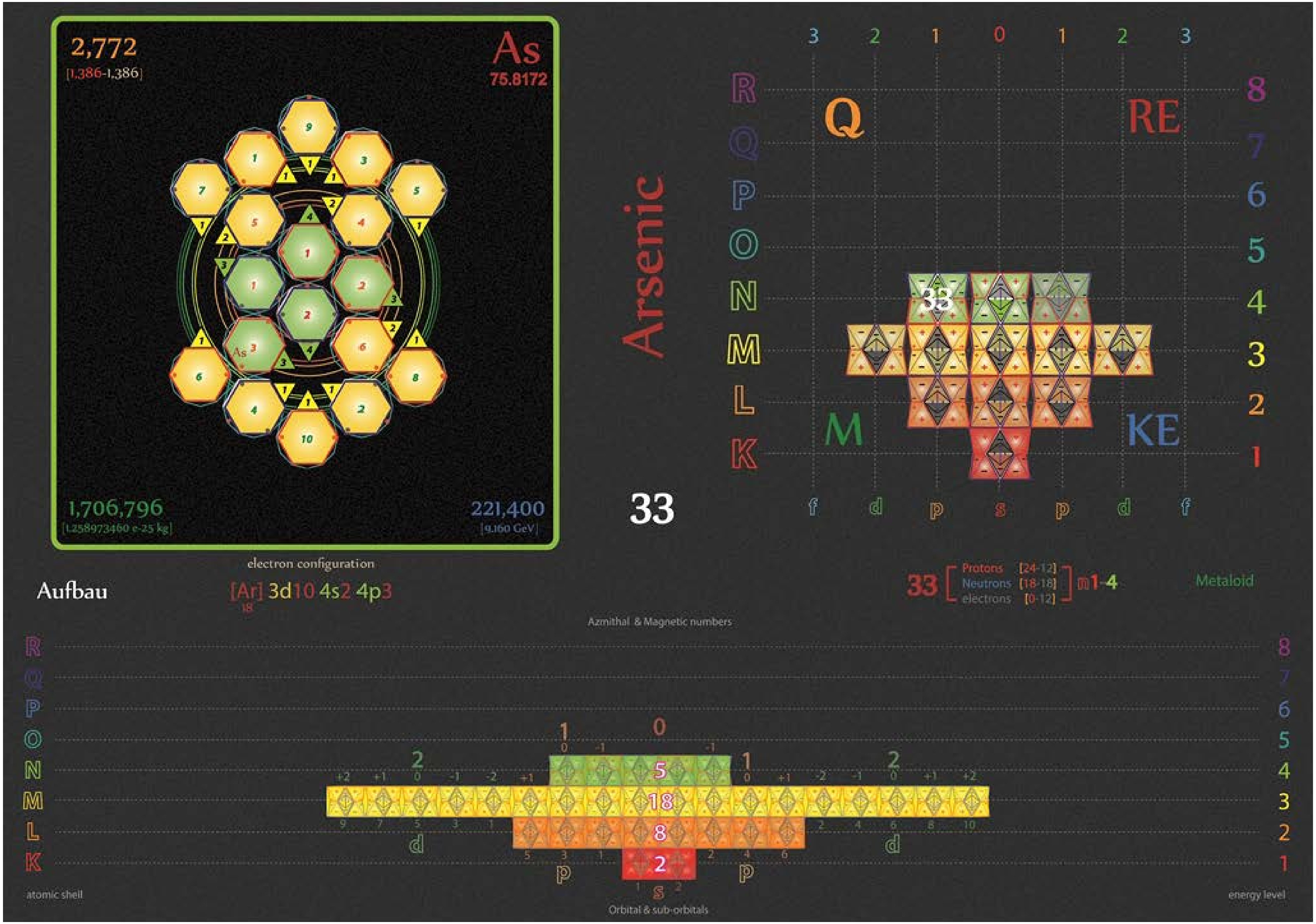


Tetryonics 51.30 - Zinc atom

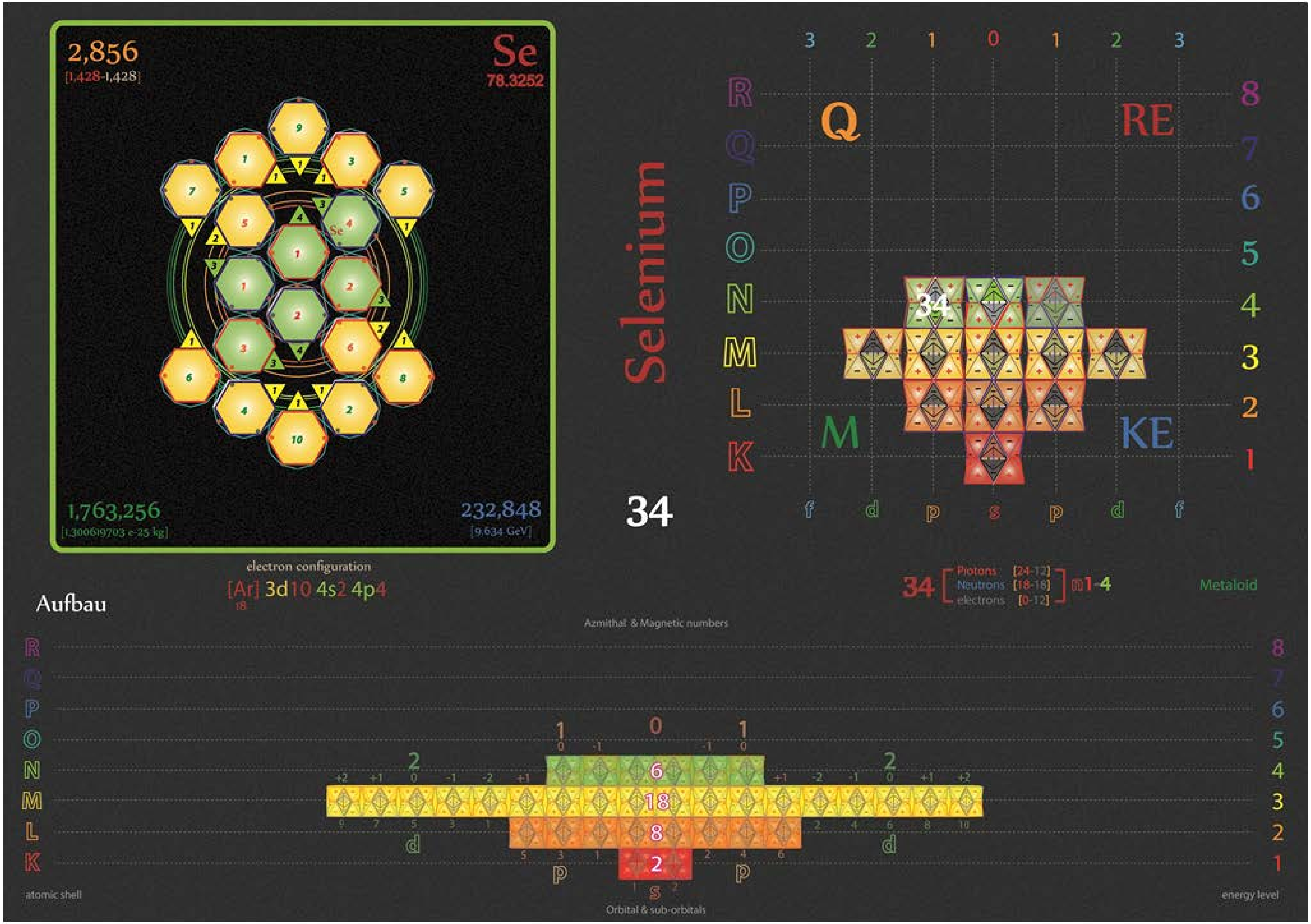


Tetryonics 51.31 - Gallium atom

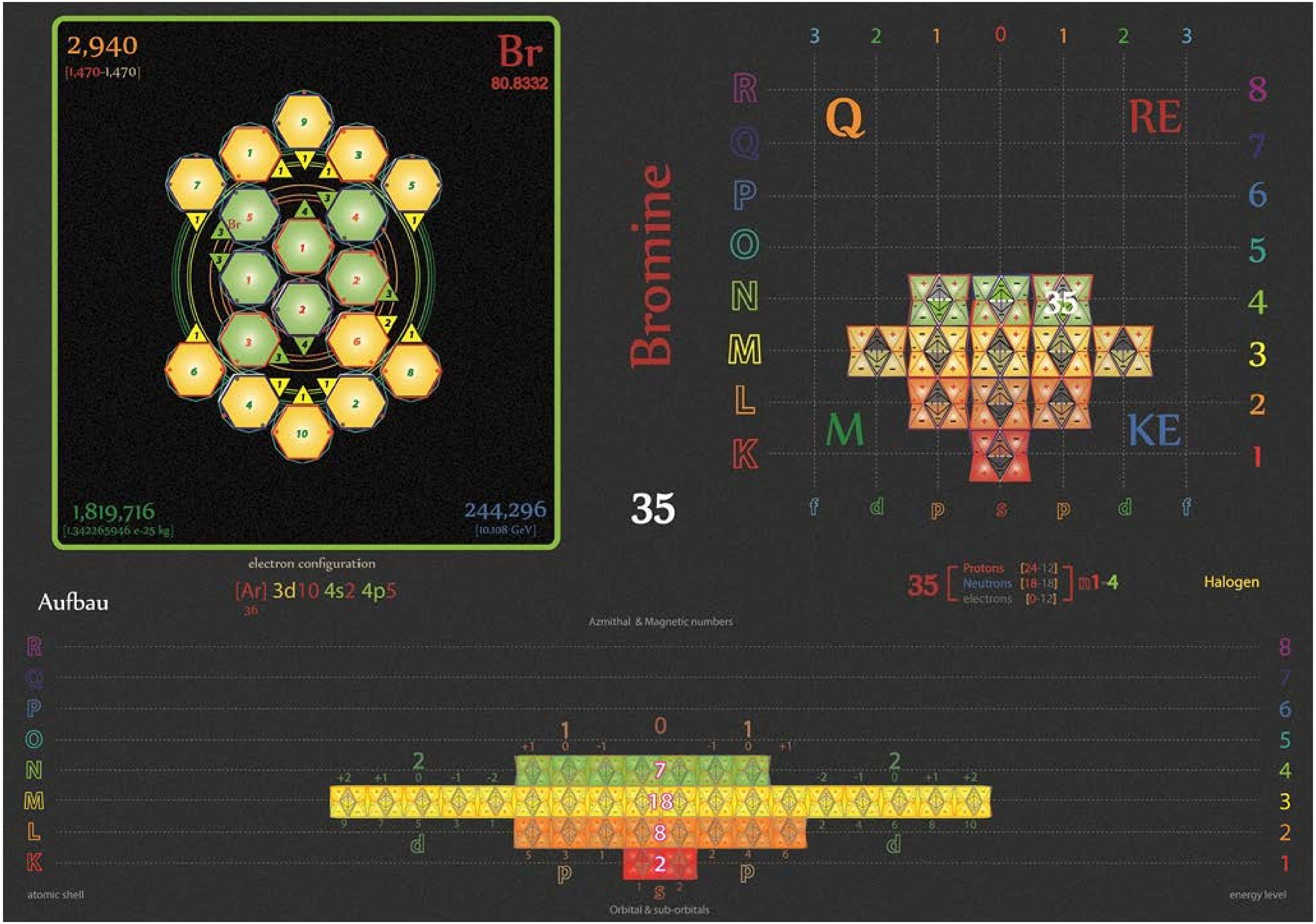

2,688
[1,344-1,344]
Ge
73.3092
1,650,336
[1.217327216 e-25 kg]
209,952
[8.687 GeV]
Germanium
32
electron configuration
Aufbau
[Ar] 3d10 4s2 4p2
18
32 [Protons [24-12] Neutrons [18-18] electrons [0-12]] n1-4
Metaloid
Q
RE
M
KE
Azmithal & Magnetic numbers
atomic shell
energy level
Orbital & sub-orbitals



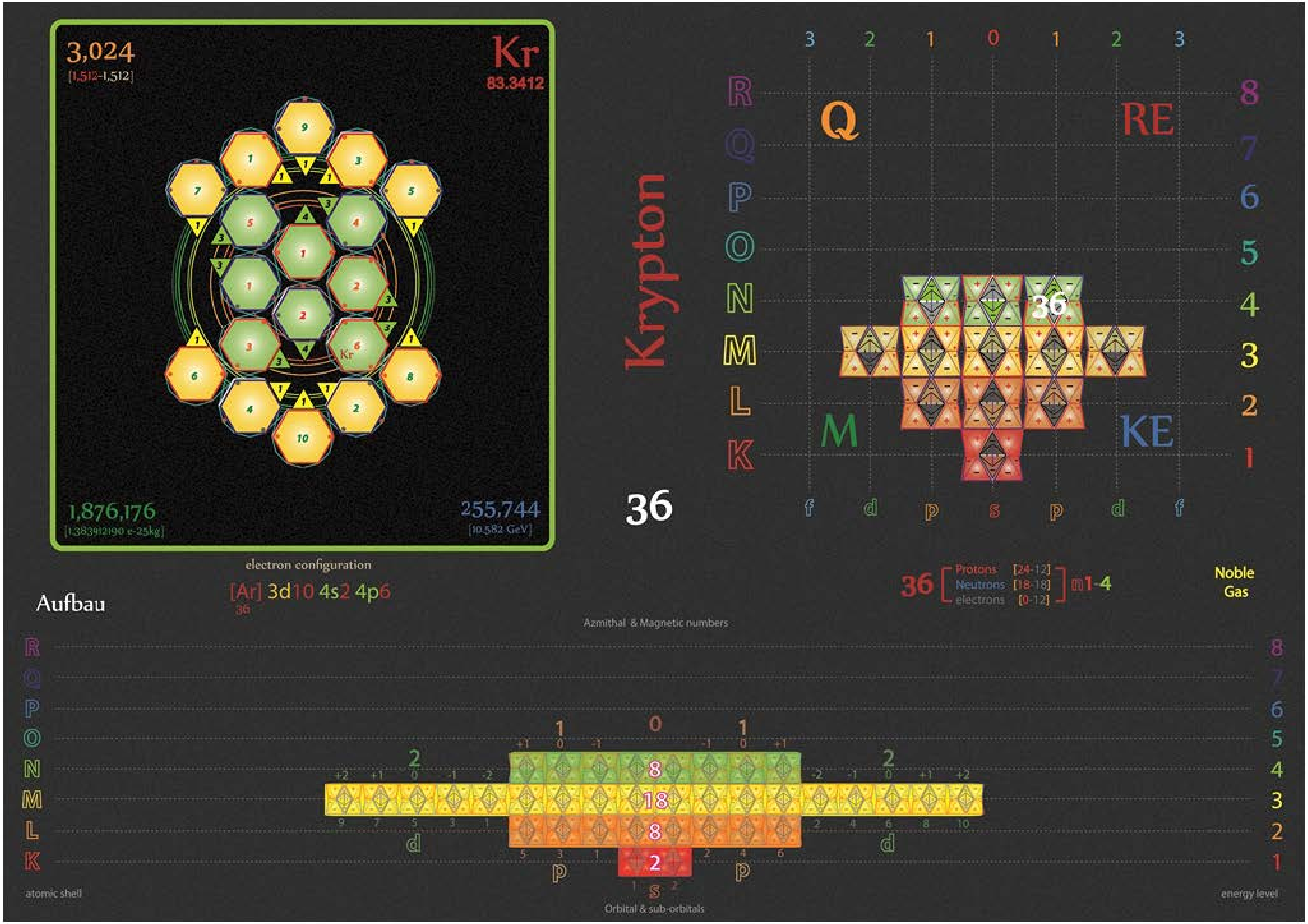
Tetryonics 51.33 - Arsenic atom



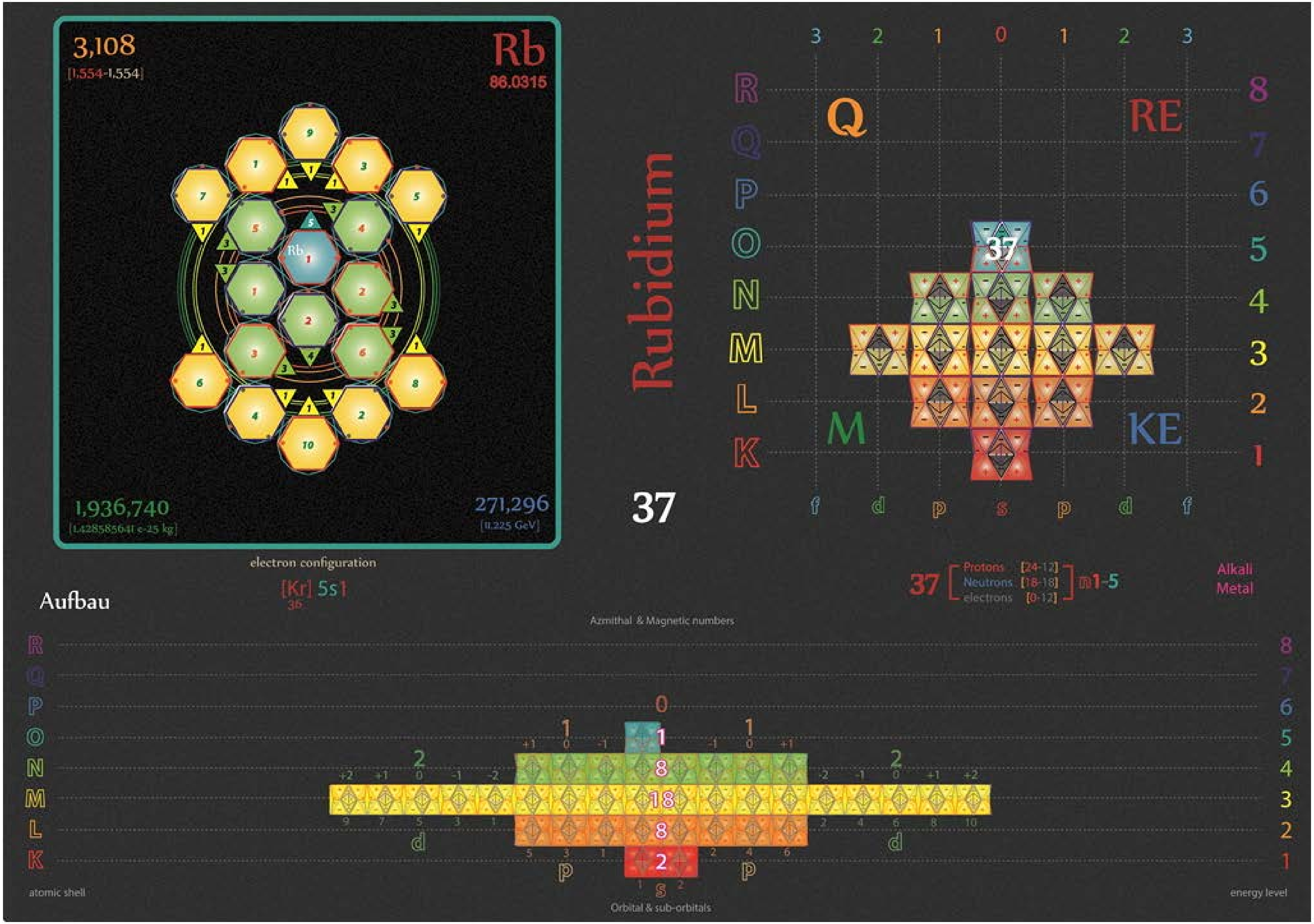
Tetryonics 51.34 - Selenium atom

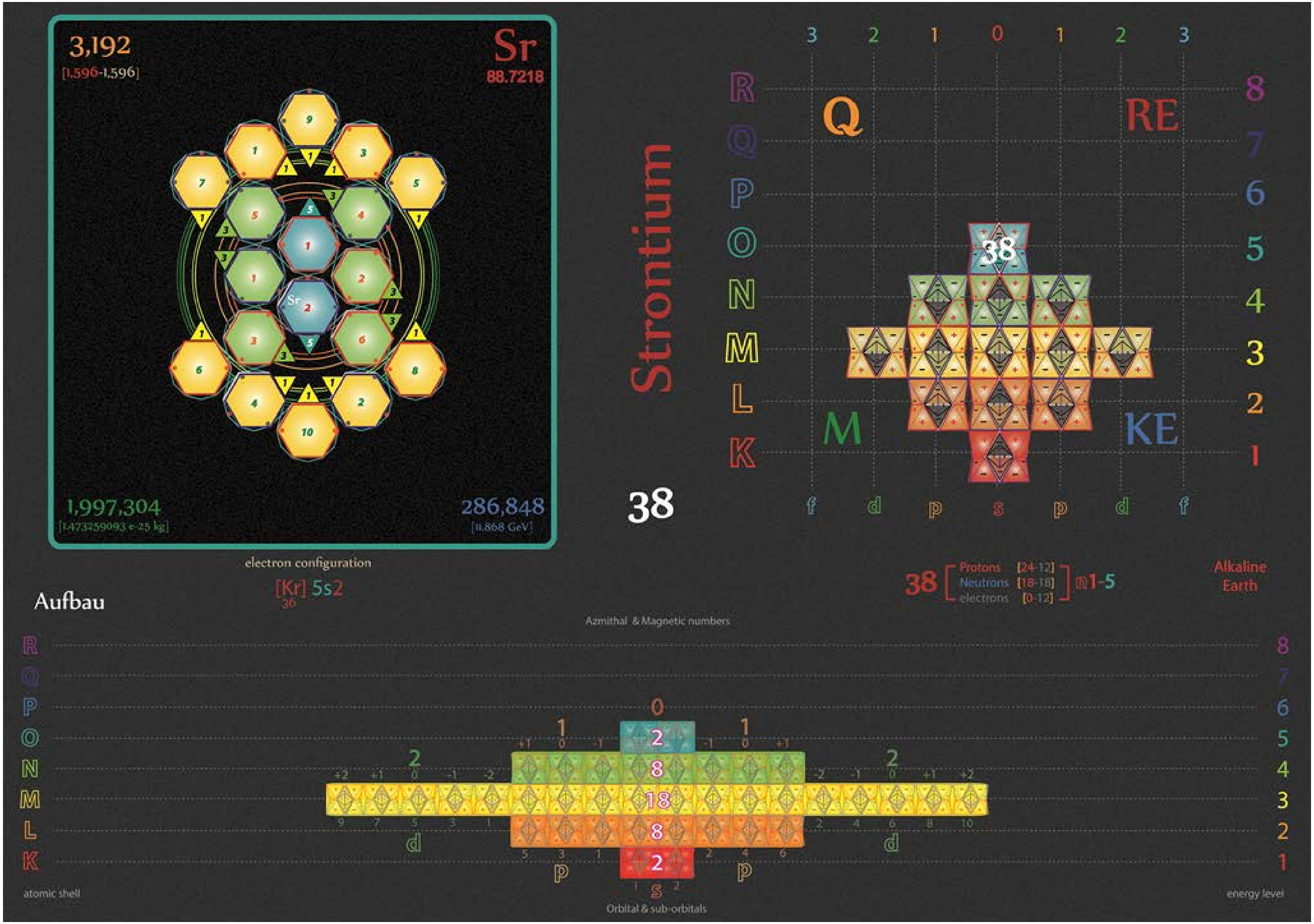


Tetryonics 51.35 - Bromine atom

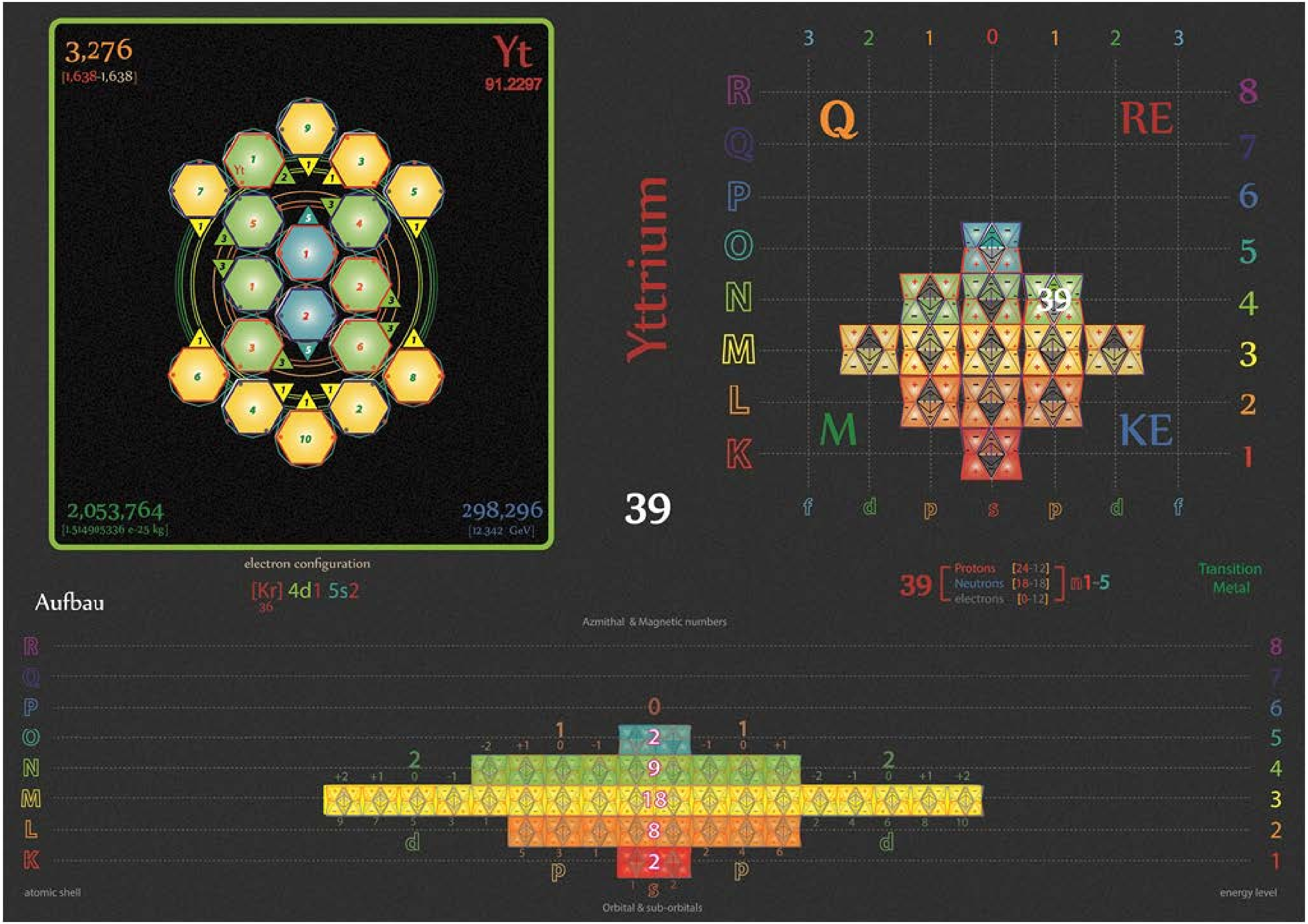


Tetryonics 51.36 - Krypton atom

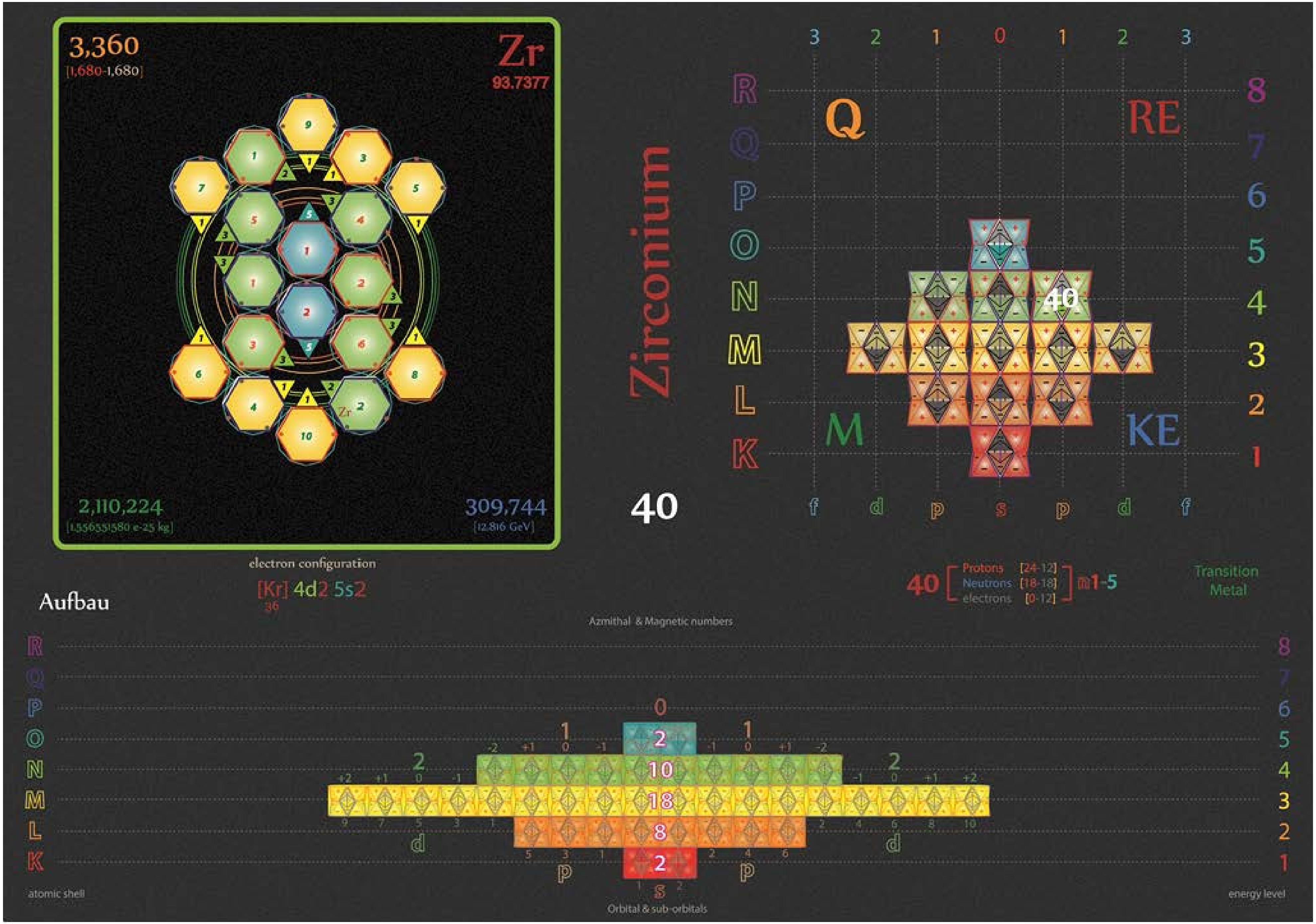

3,108
[1,554-1,554]
Rb
86.0315
1,936,740
[1.428585641 e-25 kg]
271,296
[11.225 GeV]
Rubidium
37
Q
RE
M
KE
R Q P O N M L K
8 7 6 5 4 3 2 1
3 2 1 0 1 2 3
f d p s p d f
electron configuration
[Kr] 5s1
36
Aufbau
37 Protons [24-12] Neutrons [18-18] electrons [0-12] m1-5
Alkali Metal
Azmithal & Magnetic numbers
atomic shell
energy level
Orbital & sub-orbitals

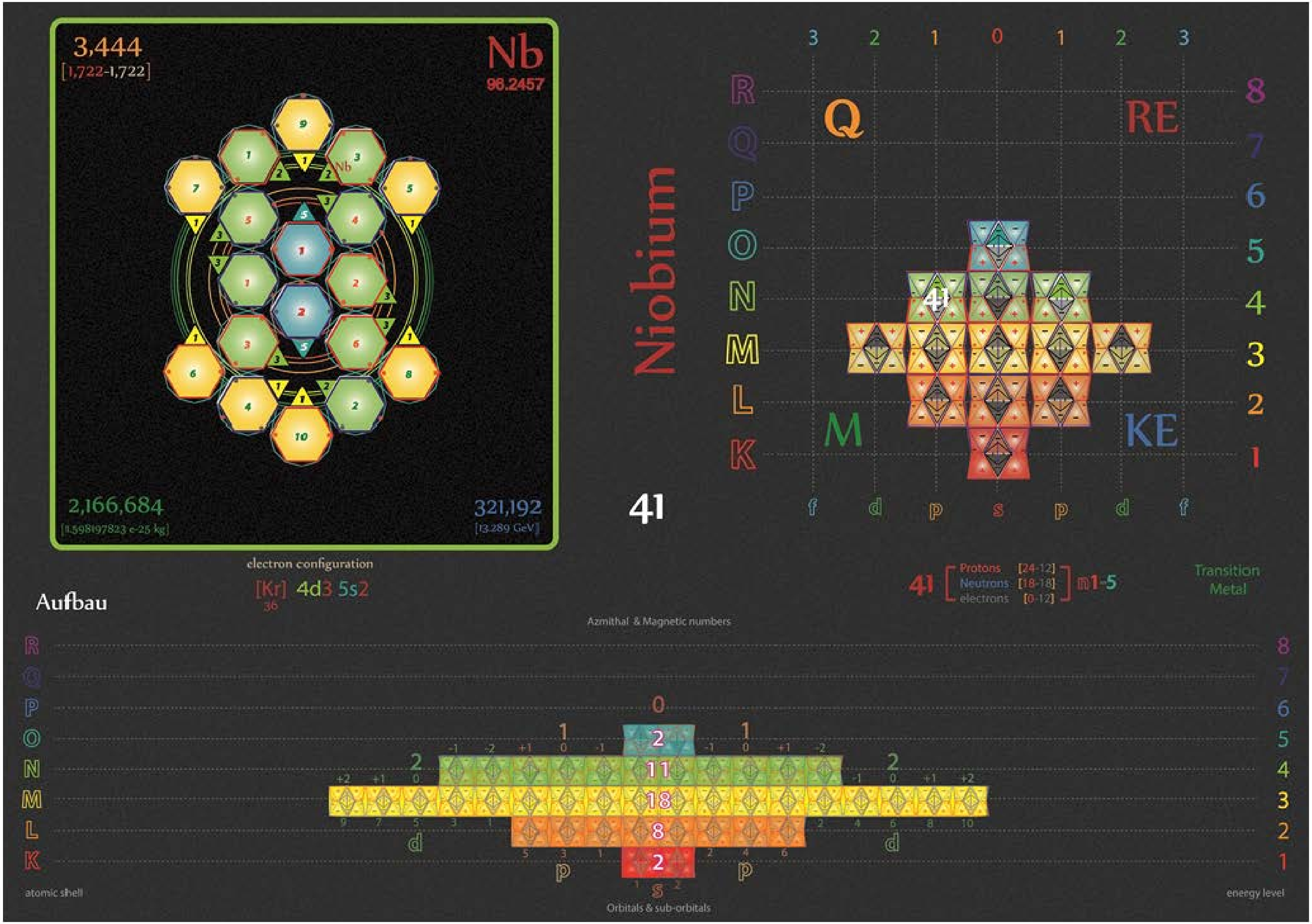


Tetryonics 51.38 - Strontium atom

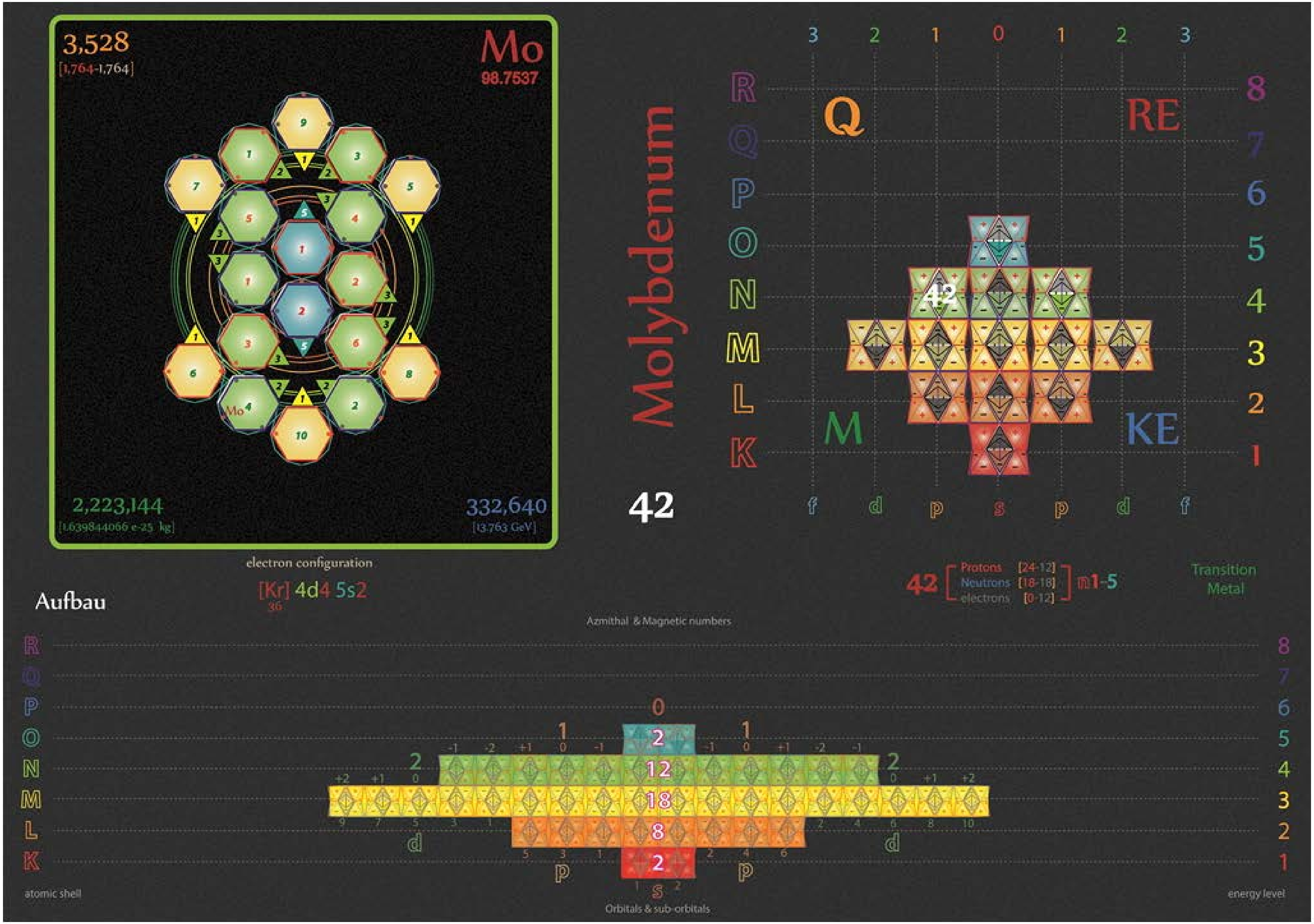


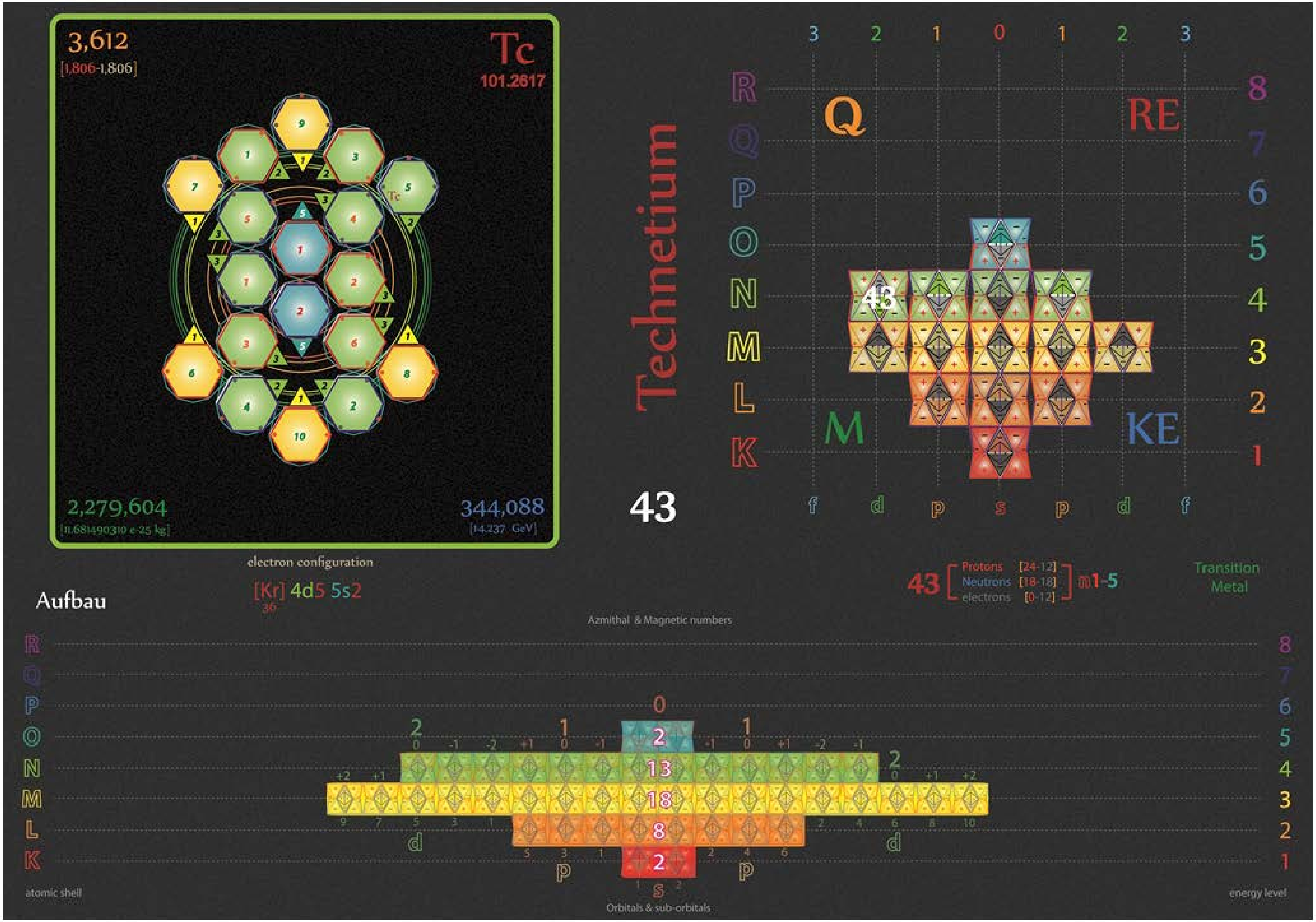
Tetryonics 51.39 - Yttrium atom

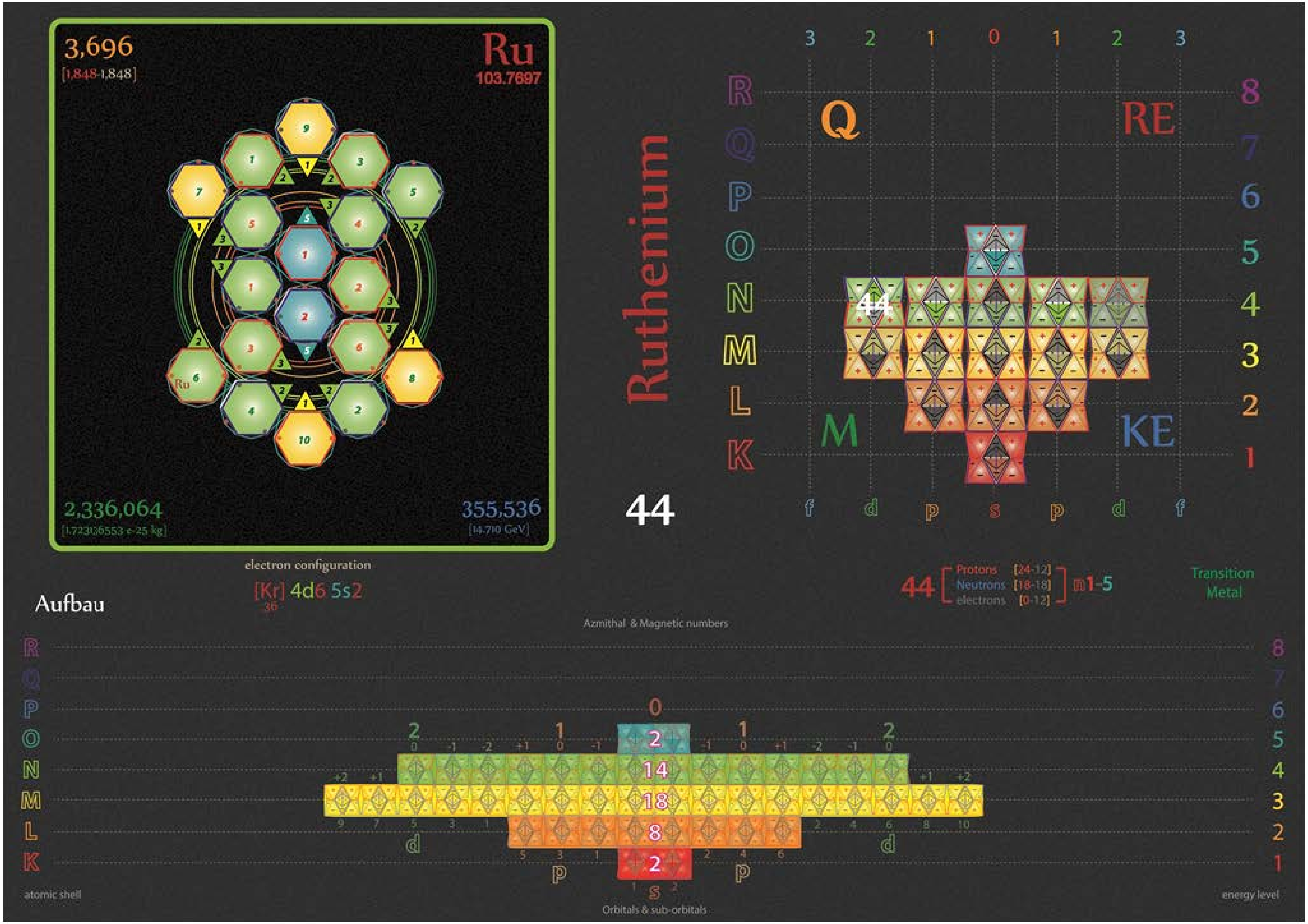

3,360
[1,680-1,680]
Zr
93.7377
2,110,224
[1.556551580 e-25 kg]
309,744
[12.816 GeV]
Zirconium
40
Q
RE
M
KE
Protons [24-12]
Neutrons [18-18]
electrons [0-12]
m1-5
Transition Metal
electron configuration
[Kr] 4d2 5s2
36
Aufbau
Azmithal & Magnetic numbers
atomic shell
energy level
Orbital & sub-orbitals

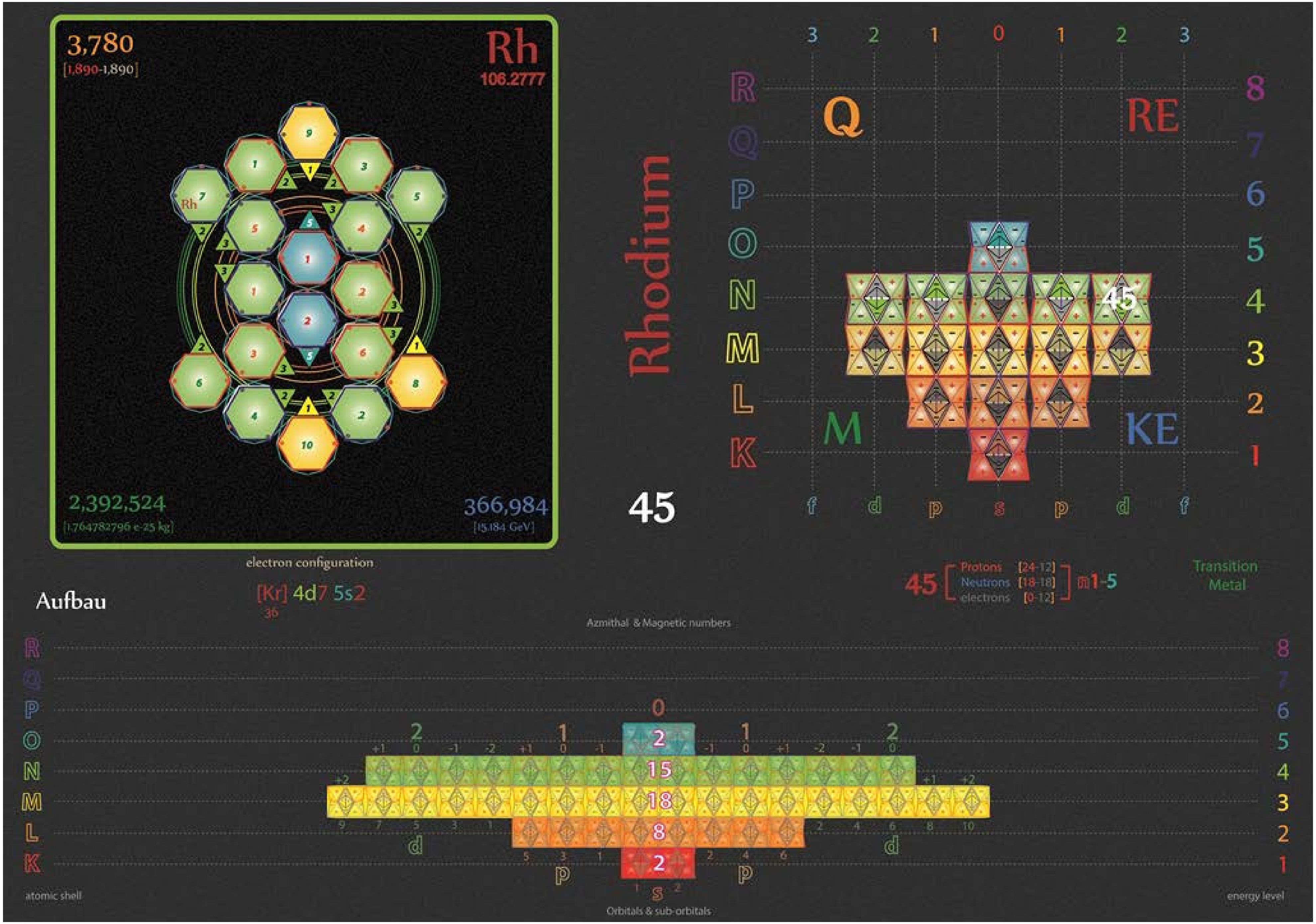


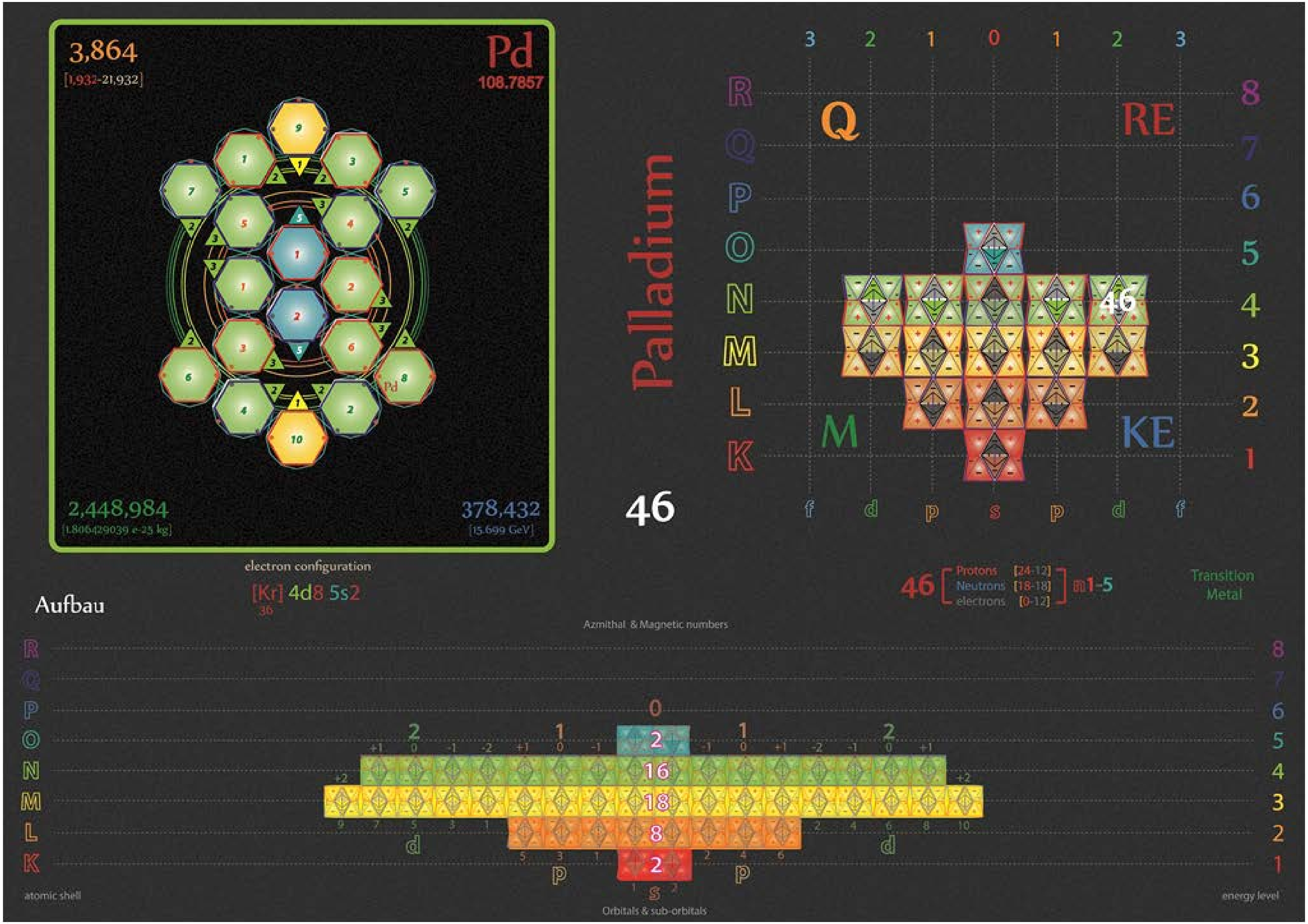
Tetryonics 51.41 - Niobium atom

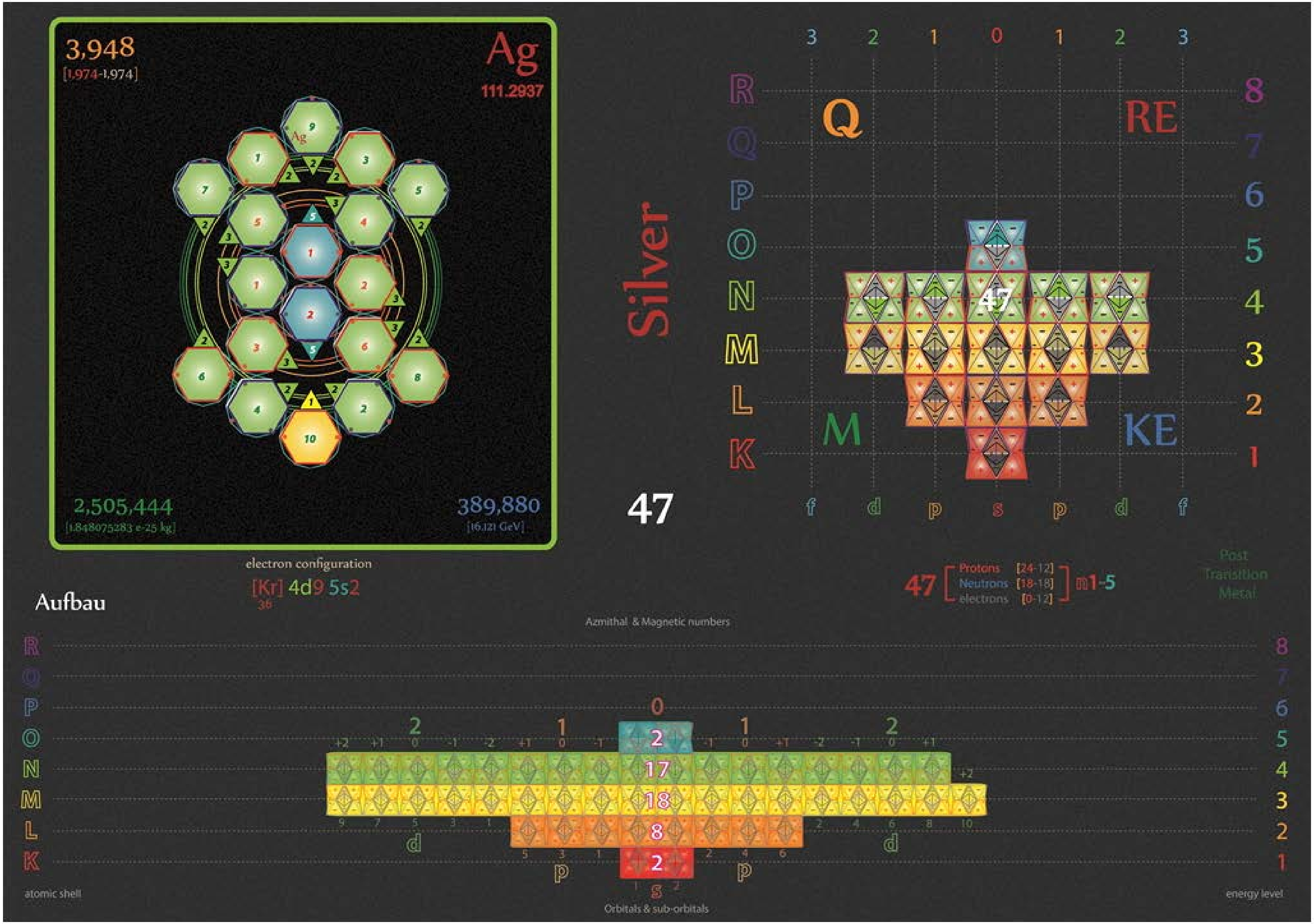

3,528
[1,764-1,764]
Mo
98.7537
2,223,144
[1.639844066 e-25 kg]
332,640
[13.763 GeV]
Molybdenum
42
electron configuration
[Kr] 4d4 5s2
36
Aufbau
Q
RE
M
KE
42 Protons [24-12] Neutrons [18-18] electrons [0-12] n1-5
Transition Metal
Azmithal & Magnetic numbers
atomic shell
energy level
Orbitals & sub-orbitals

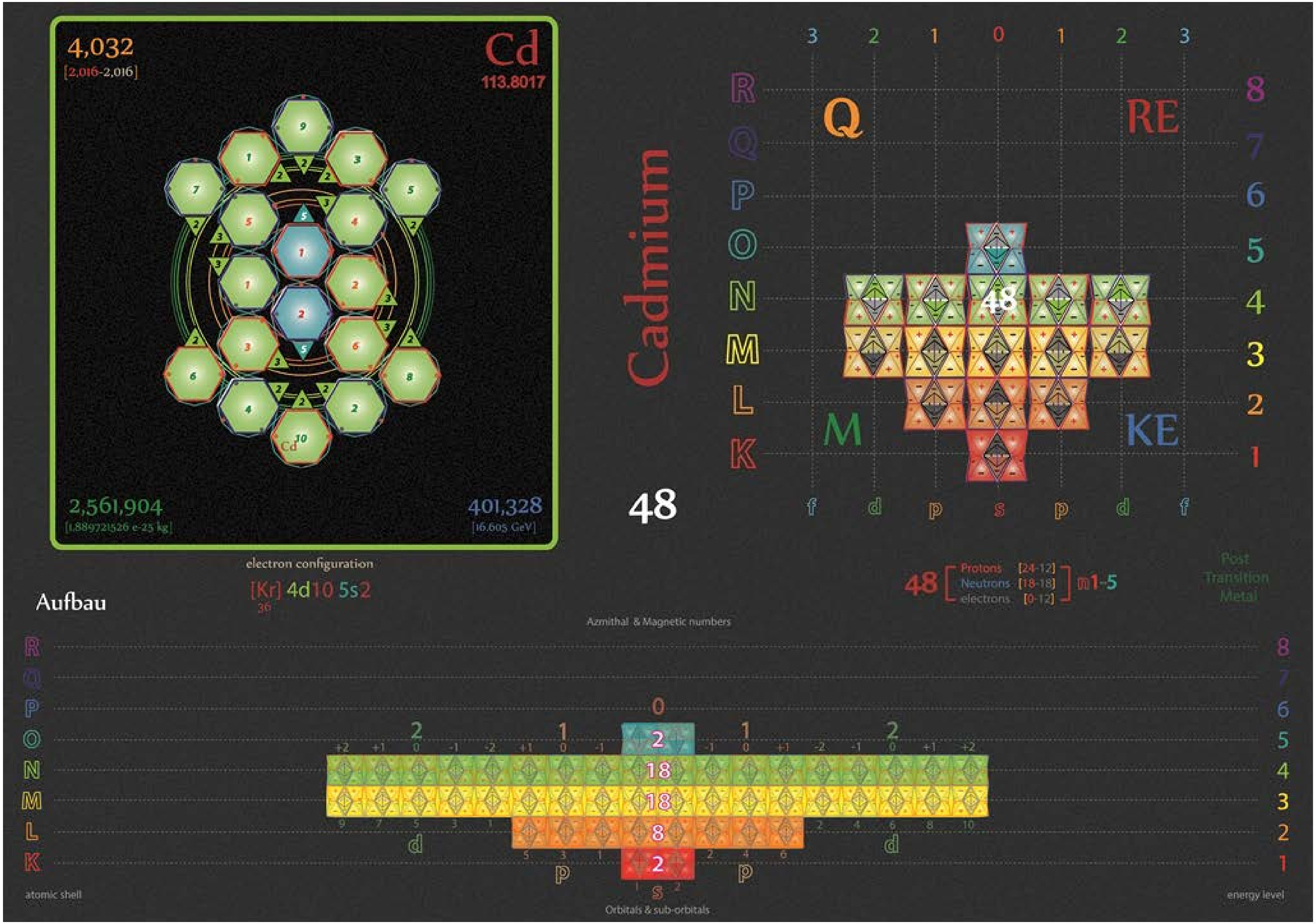

3,612
[1,806-1,806]
Tc
101.2617
2,279,604
[11.681490310 e-25 kg]
344,088
[14.237 GeV]
Technetium
43
R Q P O N M L K
8 7 6 5 4 3 2 1
Q RE M KE
f d p s p d f
electron configuration
[Kr] 4d5 5s2
36
Aufbau
Azmithal & Magnetic numbers
43 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-5
Transition Metal
atomic shell
energy level
Orbitals & sub-orbitals

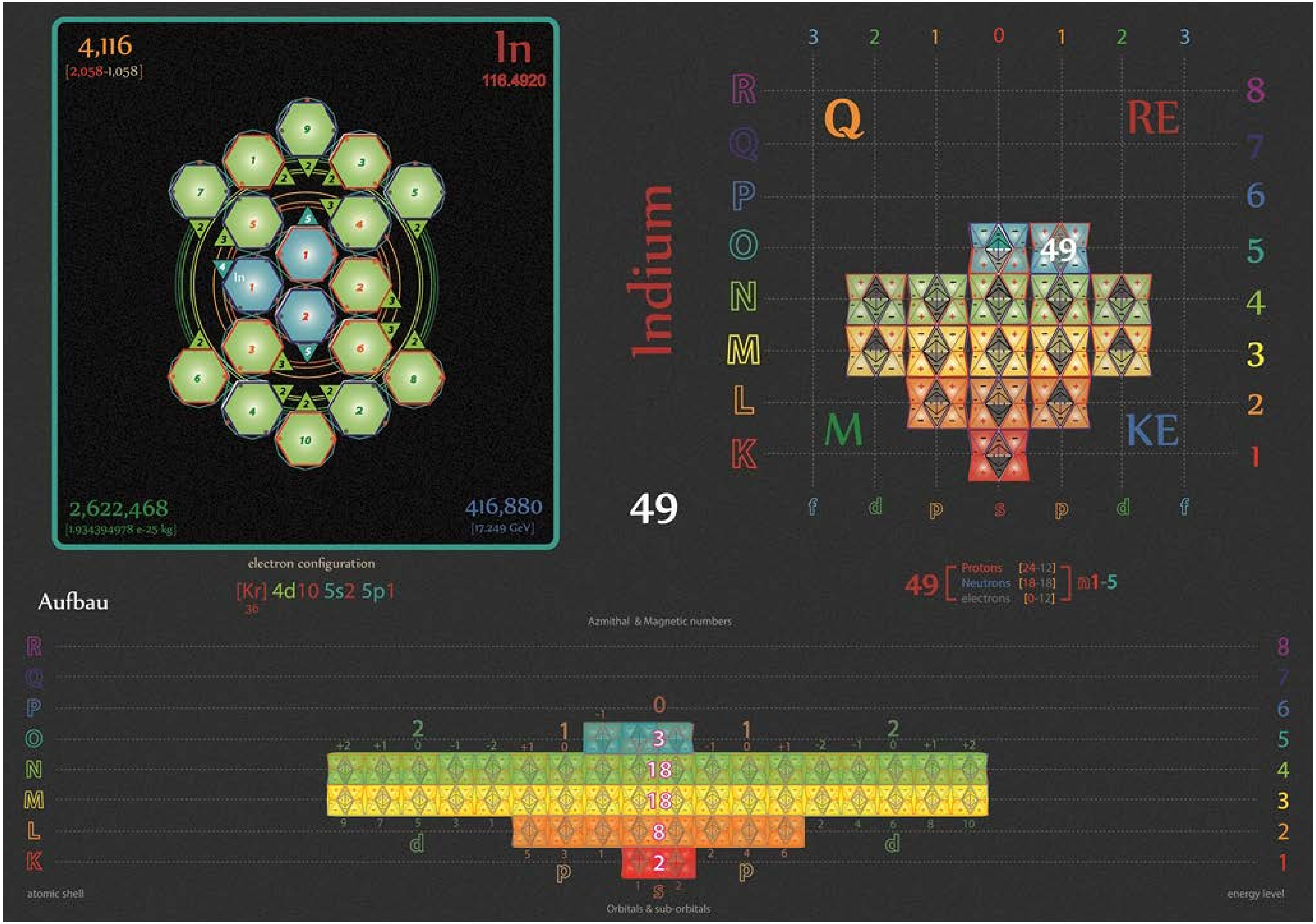

3,696
[1,848-1,848]
Ru
103.7697
2,336,064
355,536
[14.710 GeV]
Ruthenium
44
Q
RE
M
KE
electron configuration
[Kr] 4d6 5s2
36
Aufbau
44 [Protons [24-12] Neutrons [18-18] electrons [0-12]] n1-5
Transition Metal
Azmithal & Magnetic numbers
atomic shell
energy level
Orbitals & sub-orbitals

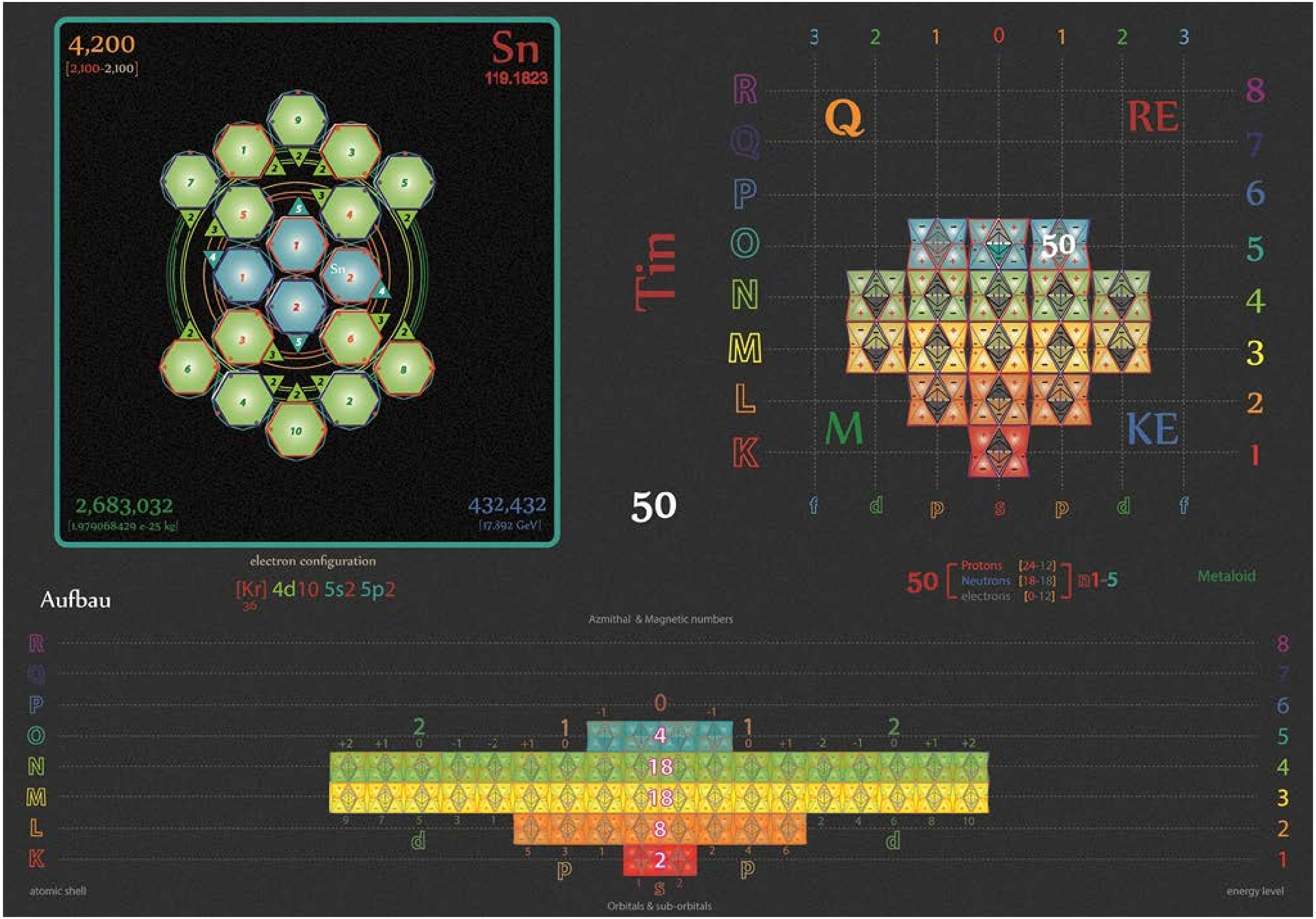

3,780
[1,890-1,890]
Rh
106.2777
2,392,524
[1.764782796 e-25 kg]
366,984
[15.184 GeV]
Rhodium
45
Q
RE
M
KE
R Q P O N M L K
8 7 6 5 4 3 2 1
3 2 1 0 1 2 3
f d p s p d f
electron configuration
[Kr] 4d7 5s2
36
Aufbau
45 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-5
Transition Metal
Azmithal & Magnetic numbers
atomic shell
energy level
Orbitals & sub-orbitals


3,864
[1,932-21,932]
Pd
108.7857
2,448,984
[1.806429039 e-25 kg]
378,432
[15.699 GeV]
Palladium
46
Q
RE
M
KE
electron configuration
[Kr] 4d8 5s2
36
Aufbau
46 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-5
Transition Metal
Azmithal & Magnetic numbers
atomic shell
energy level
Orbitals & sub-orbitals

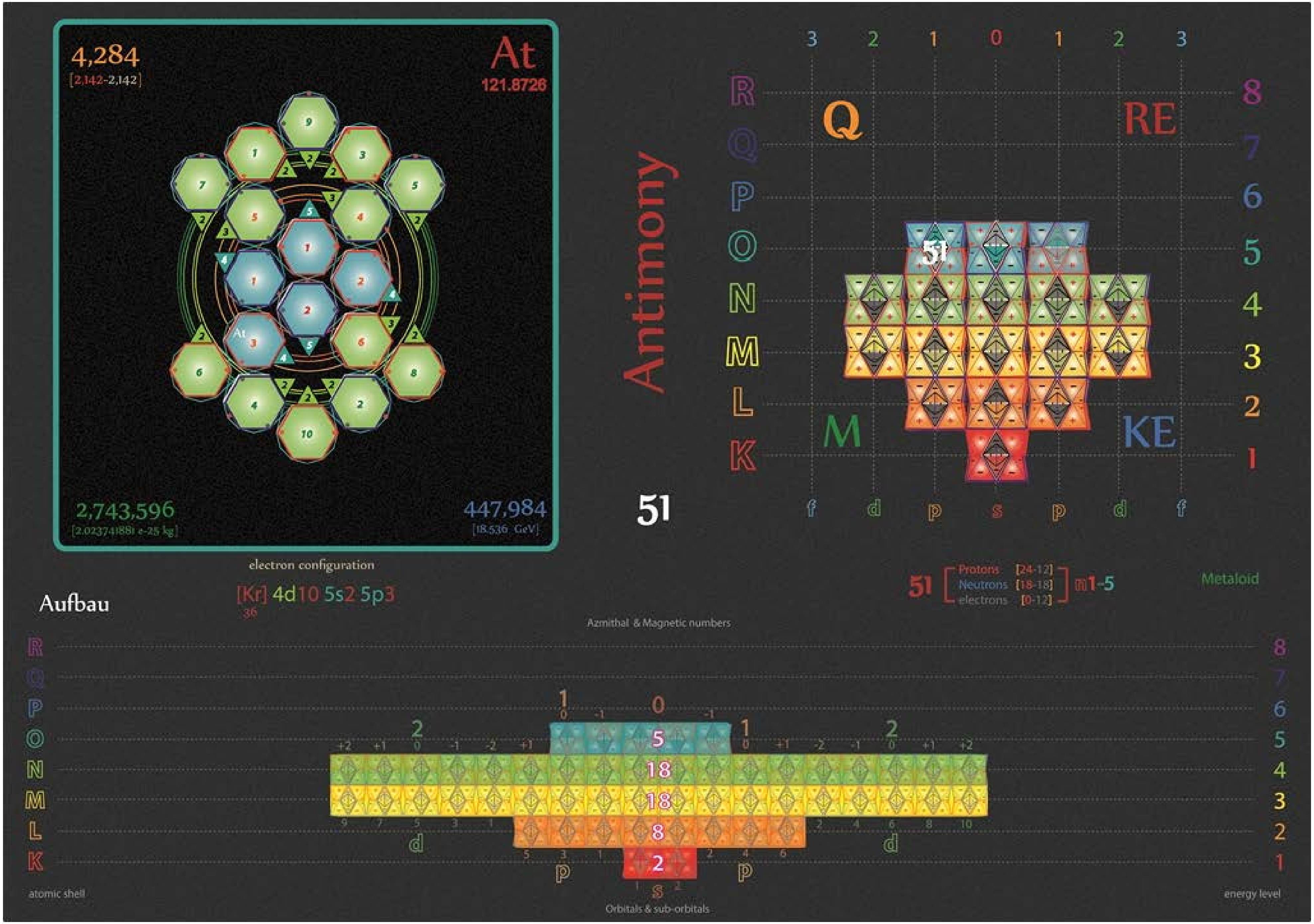

3,948
[1,974-1,974]
Ag
111.2937
2,505,444
[1.848075283 e-25 kg]
389,880
[16.121 GeV]
Silver
47
electron configuration
[Kr] 4d9 5s2
36
Aufbau
Azmithal & Magnetic numbers
47 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-5
Post Transition Metal
Q
RE
M
KE
R Q P O N M L K
8 7 6 5 4 3 2 1
f d p s p d f
atomic shell
energy level
Orbitals & sub-orbitals


4,032
[2,016-2,016]
Cd
113.8017
2,561,904
[1.889721526 e-25 kg]
401,328
[16.605 GeV]
Cadmium
48
electron configuration
[Kr] 4d10 5s2
36
Aufbau
R Q P O N M L K
8 7 6 5 4 3 2 1
3 2 1 0 1 2 3
f d p s p d f
Q
RE
M
KE
48 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-5
Post Transition Metal
Azmithal & Magnetic numbers
atomic shell
energy level
Orbitals & sub-orbitals

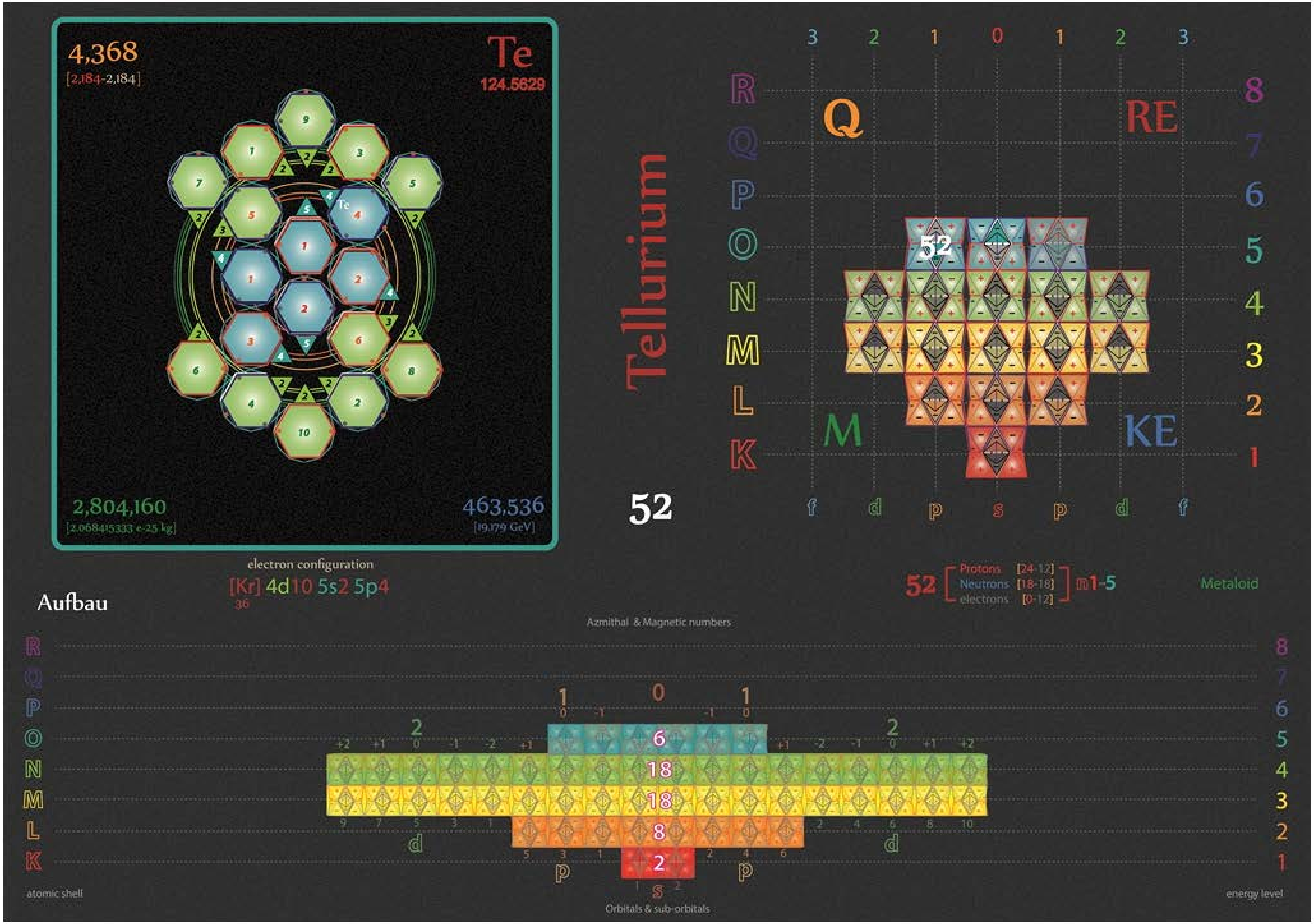

4,116
[2,058-1,058]
In
116.4920
2,622,468
[1.934394978 e-25 kg]
416,880
[17.249 GeV]
Indium
49
3 2 1 0 1 2 3
R Q P O N M L K
8 7 6 5 4 3 2 1
Q
RE
M
KE
49
f d p s p d f
electron configuration
[Kr] 4d10 5s2 5p1
36
Aufbau
49 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-5
Azmithal & Magnetic numbers
3
18
18
8
2
atomic shell
energy level
Orbitals & sub-orbitals



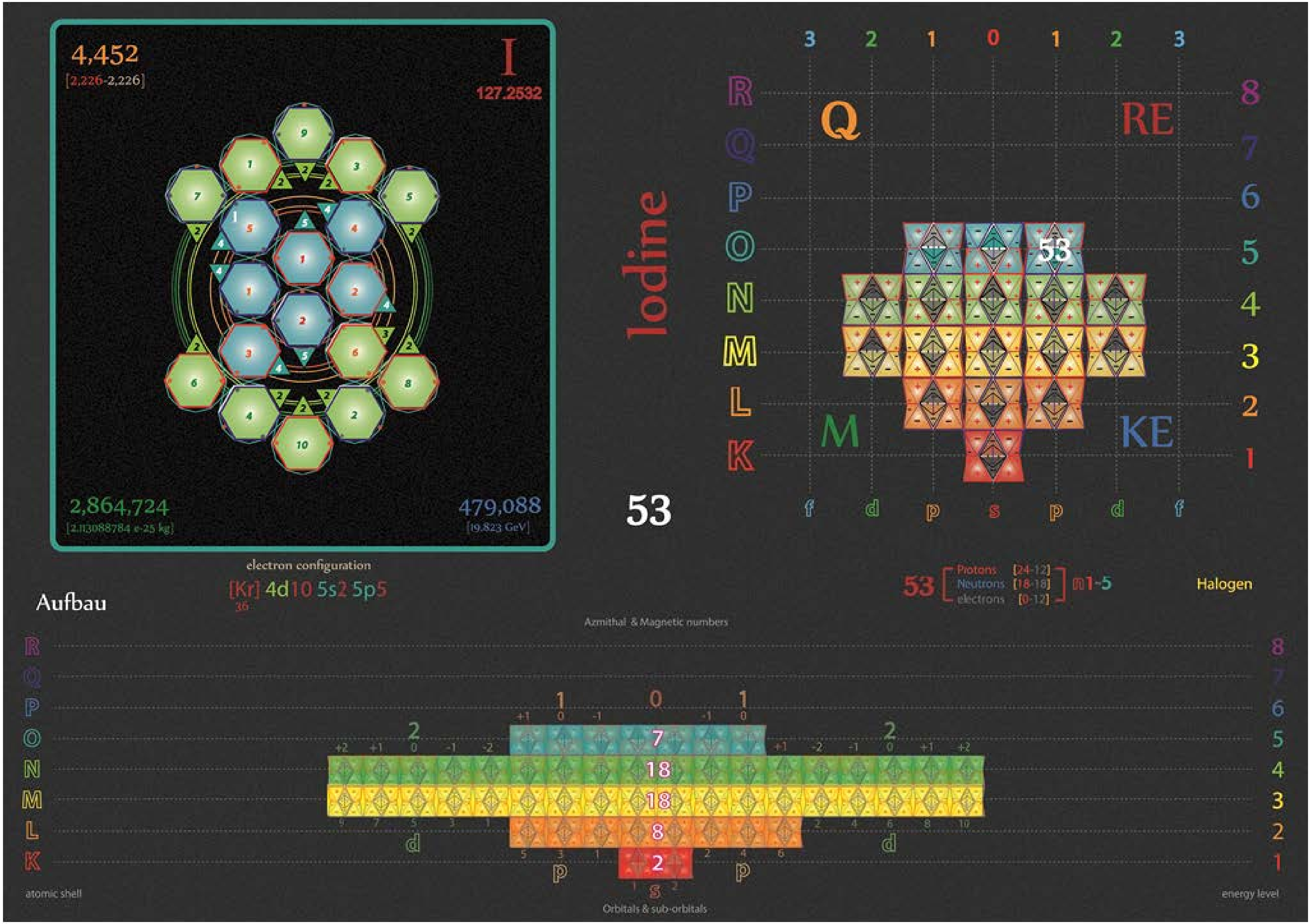
4,200
[2,100-2,100]
Sn
119.1823
2,683,032
[1.979068429 e-25 kg]
432,432
[17.392 GeV]
Tin
50
electron configuration
Aufbau
[Kr] 4d10 5s2 5p2
36
R Q P O N M L K
8 7 6 5 4 3 2 1
Q RE M KE
f d p s p d f
50 Protons [24-12] Neutrons [18-18] electrons [0-12] m1-5
Metaloid
Azmithal & Magnetic numbers
atomic shell
energy level
Orbitals & sub-orbitals

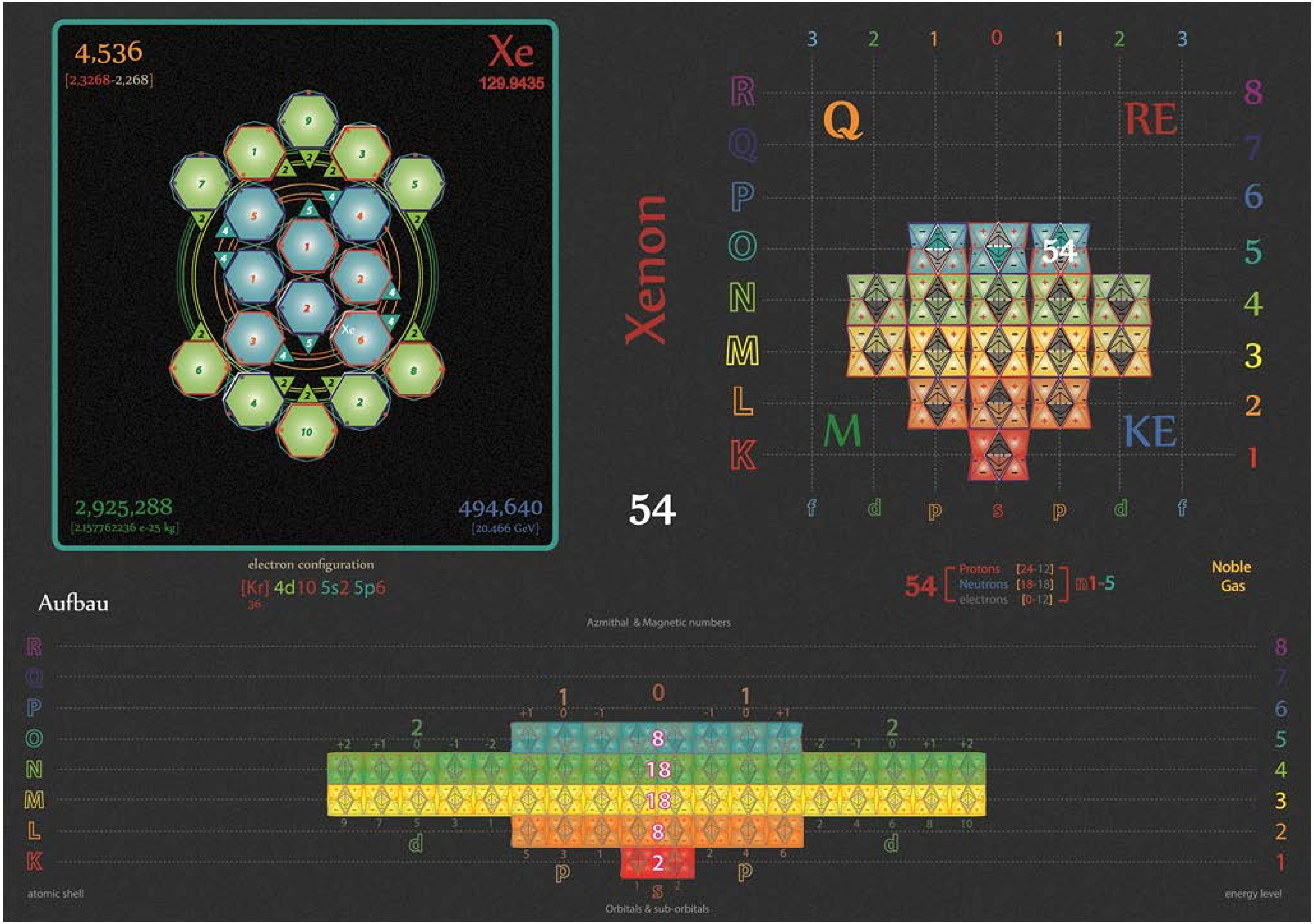


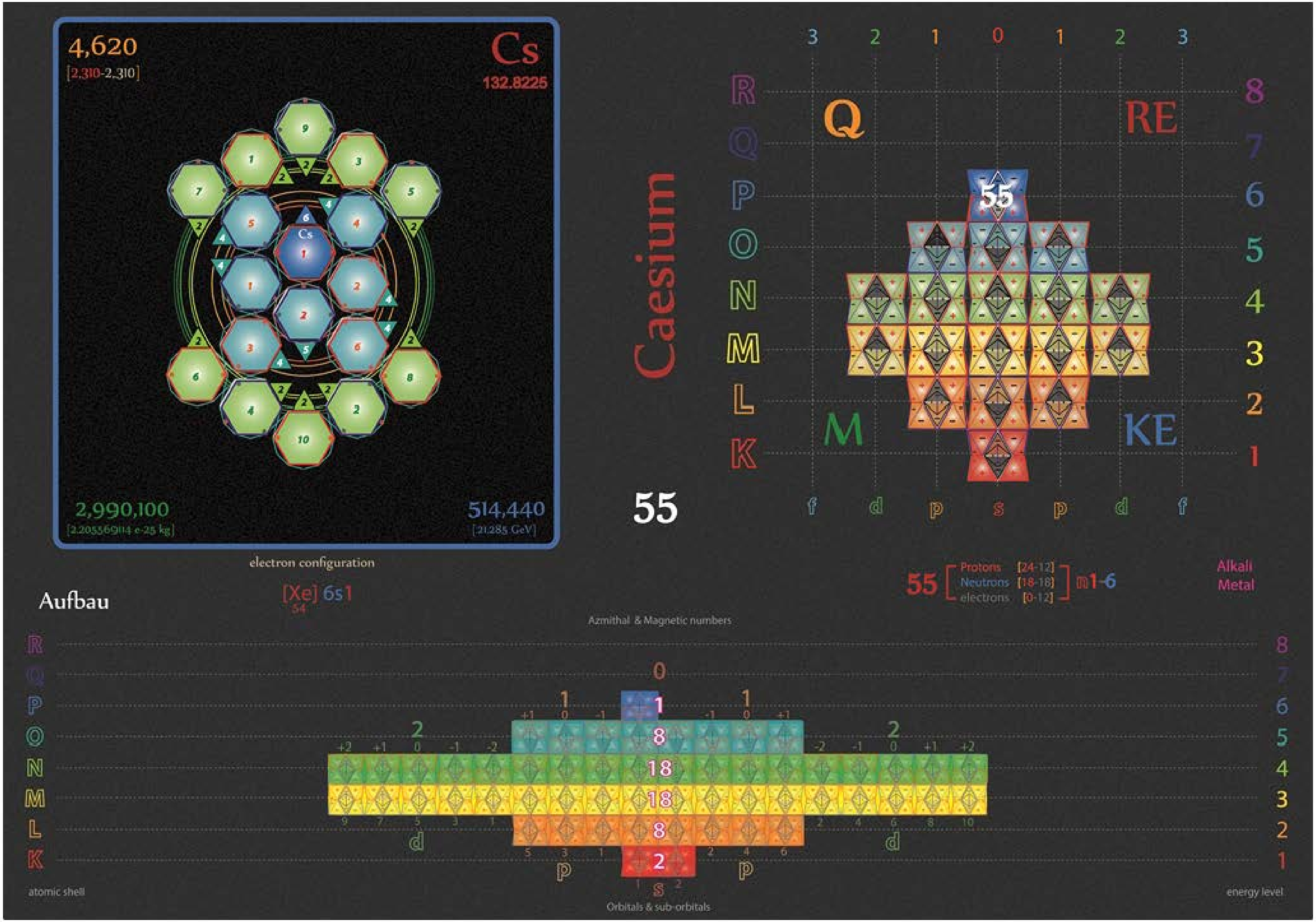
4,284
[2,142-2,142]
At
121.8726
2,743,596
[2.023741881 e-25 kg]
447,984
[18.536 GeV]
Antimony
51
electron configuration
[Kr] 4d10 5s2 5p3
36
Aufbau
51 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-5
Metaloid
Azmithal & Magnetic numbers
Q
RE
M
KE
atomic shell
energy level
Orbitals & sub-orbitals

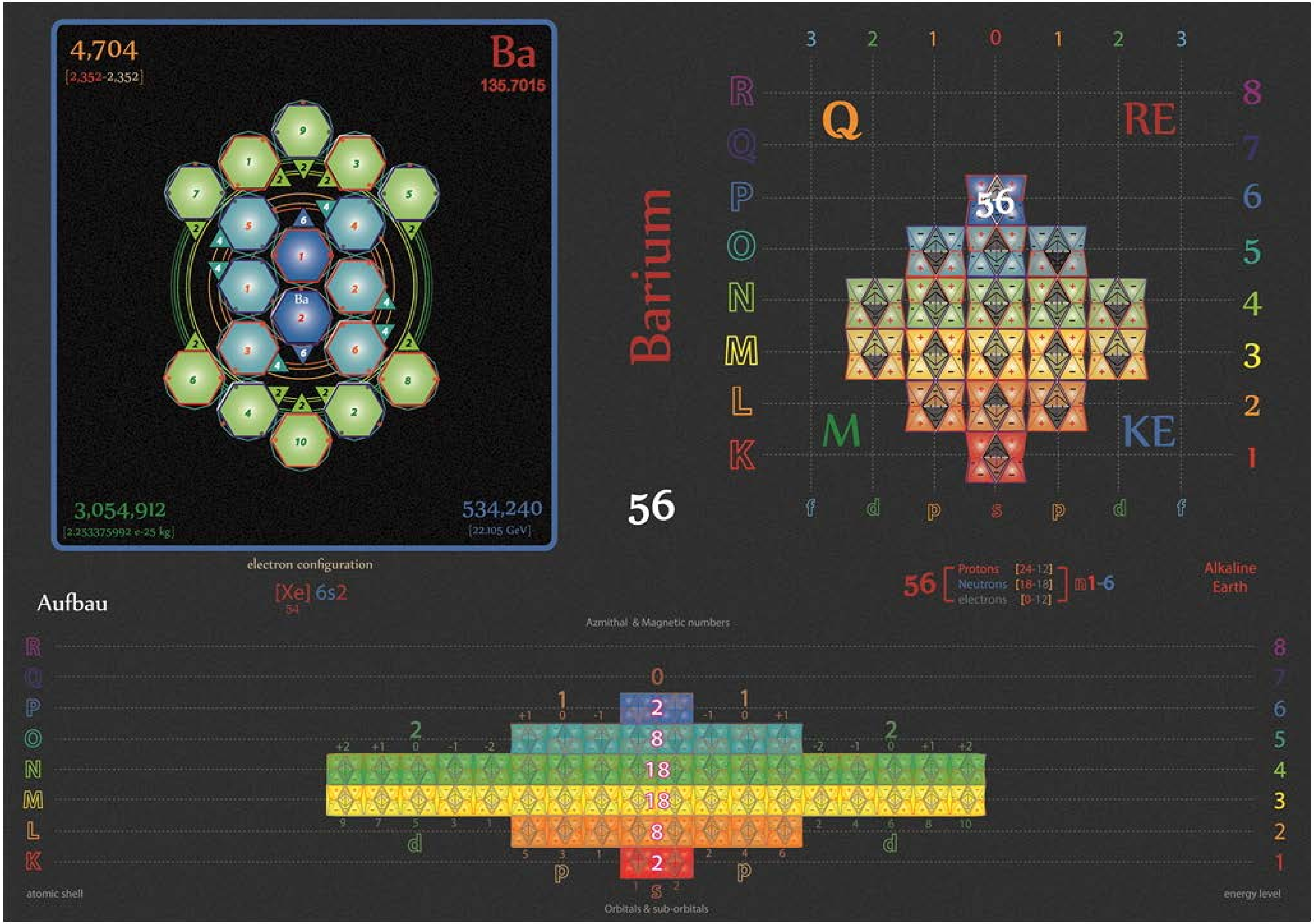


Tetryonics 51.52 - Tellurium atom

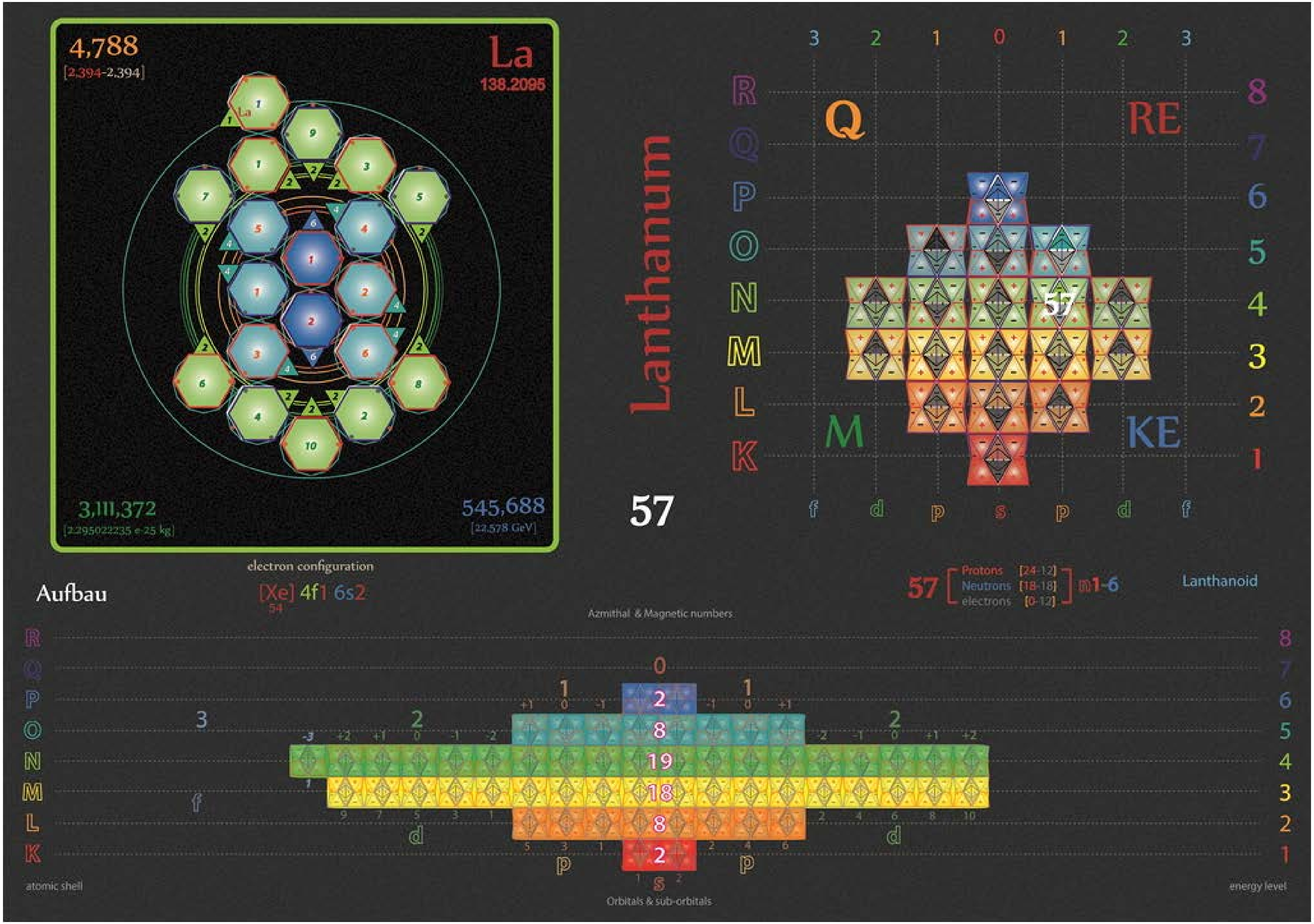

4,452
[2,226-2,226]
I
127.2532
2,864,724
[2.113088784 e-25 kg]
479,088
[19.823 GeV]
Iodine
53
Q
RE
M
KE
R
Q
P
O
N
M
L
K
8
7
6
5
4
3
2
1
f d p s p d f
electron configuration
[Kr] 4d10 5s2 5p5
36
Aufbau
53 [Protons [24-12] Neutrons [18-18] electrons [0-12]] n1-5
Halogen
Azmithal & Magnetic numbers
7
18
18
8
2
atomic shell
energy level
Orbitals & sub-orbitals


4,536
[2,3268-2,268]
Xe
129.9435
2,925,288
[2.157762236 e-25 kg]
494,640
[20.466 GeV]
Xenon
54
electron configuration
[Kr] 4d10 5s2 5p6
36
Aufbau
R Q P O N M L K
8 7 6 5 4 3 2 1
3 2 1 0 1 2 3
Q RE M KE
f d p s p d f
54 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-5
Noble Gas
Azmithal & Magnetic numbers
8
18
18
8
2
atomic shell
energy level
Orbitals & sub-orbitals

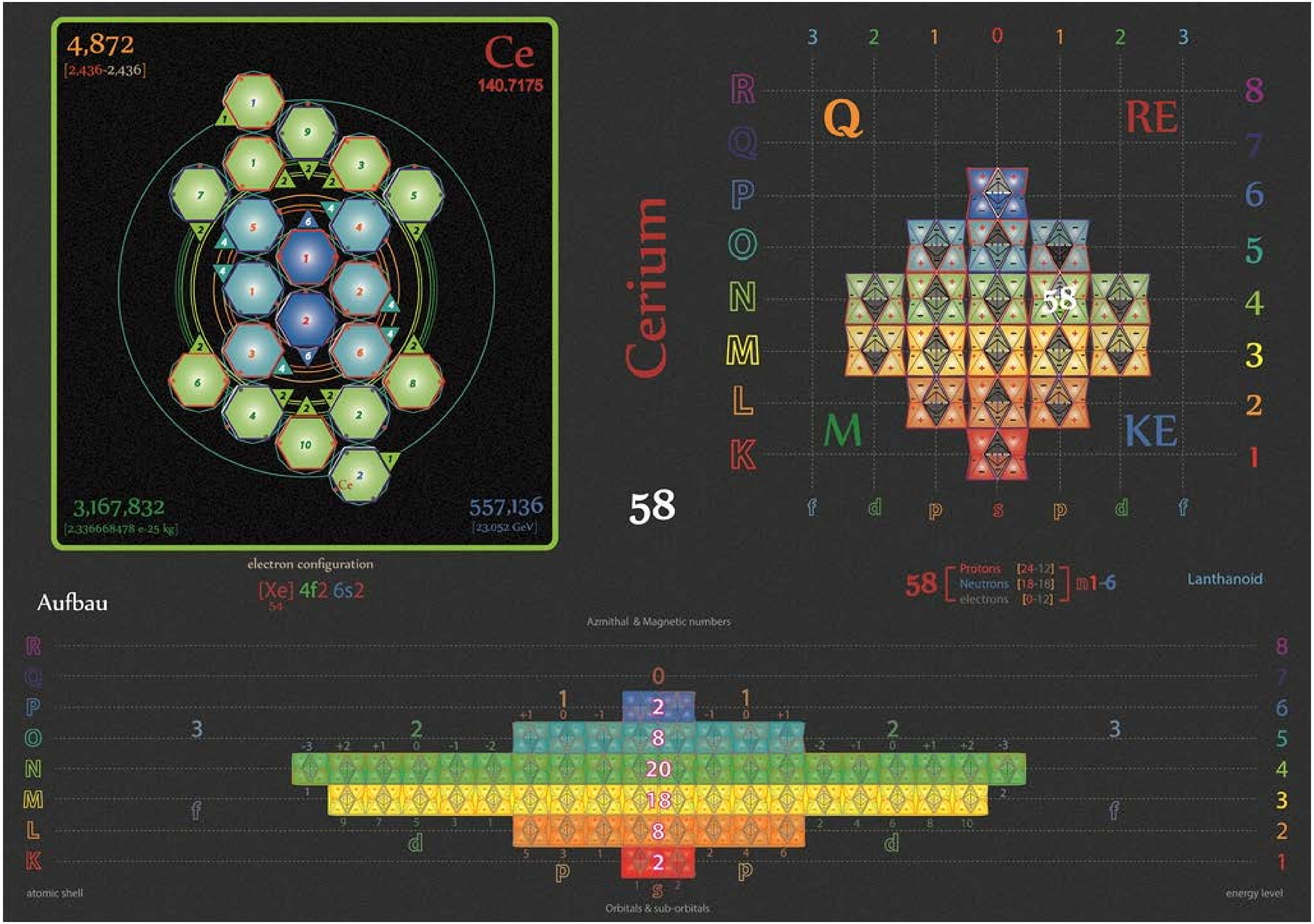

4,620
[2,310-2,310]
Cs
132.8225
2,990,100
[2.205569114 e-25 kg]
514,440
[21.285 GeV]
Caesium
55
electron configuration
[Xe] 6s1
54
Aufbau
Q
RE
M
KE
55 [Protons [24-12] Neutrons [18-18] electrons [0-12]] n1-6
Alkali Metal
Azmithal & Magnetic numbers
atomic shell
energy level
Orbitals & sub-orbitals



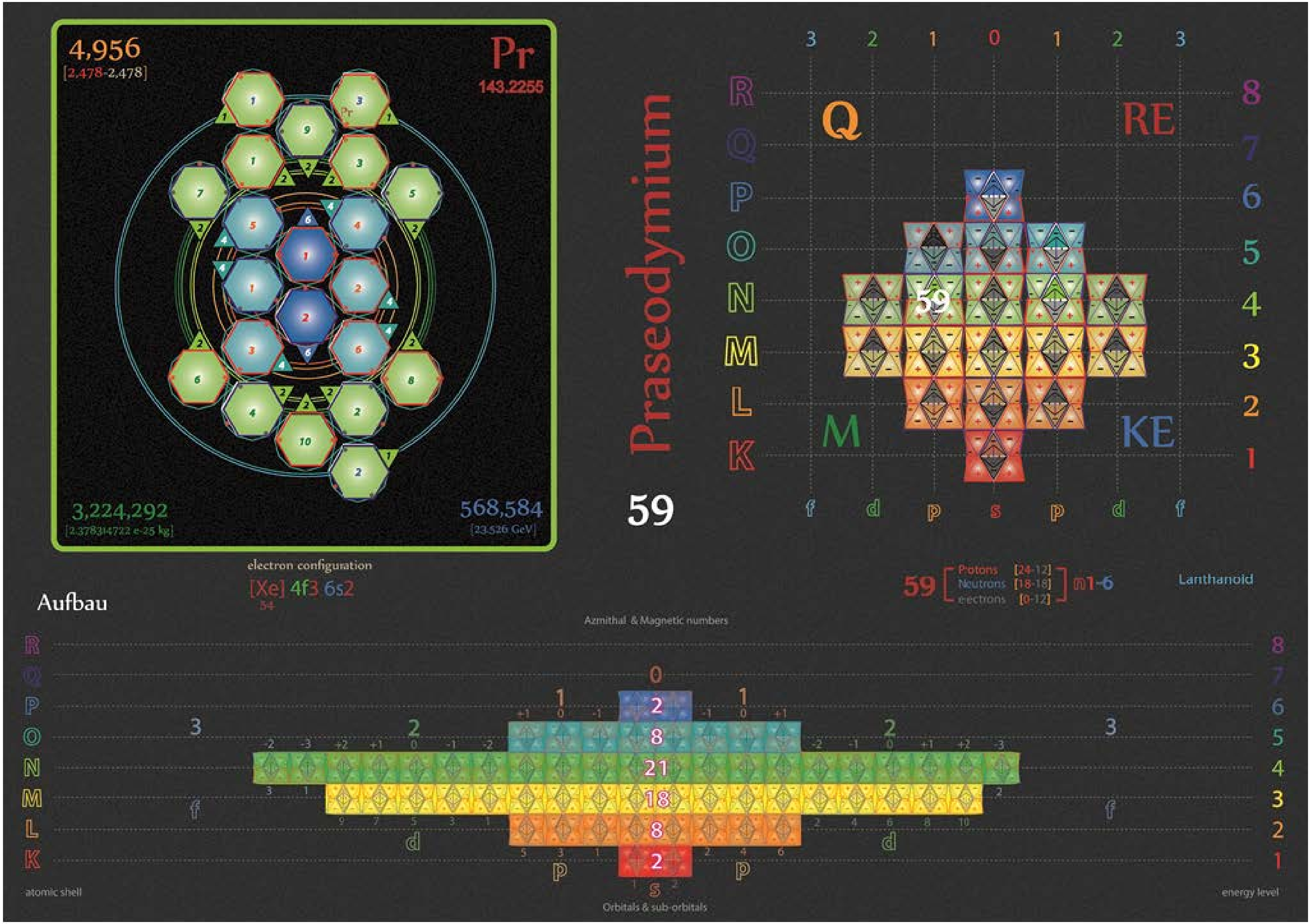
Tetryonics 51.56 - Barium atom

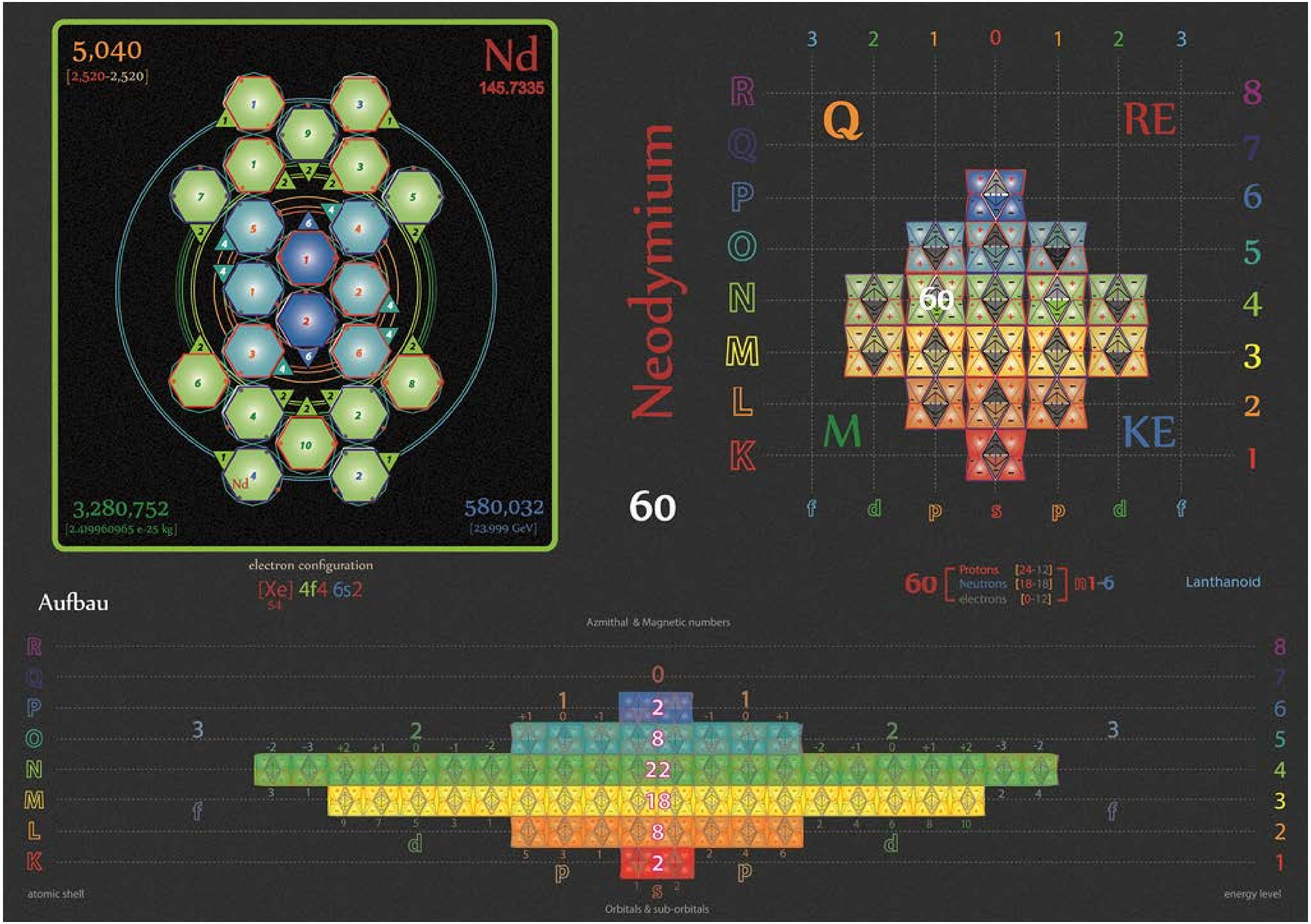


Tetryonics 51.57 - Lanthanum atom

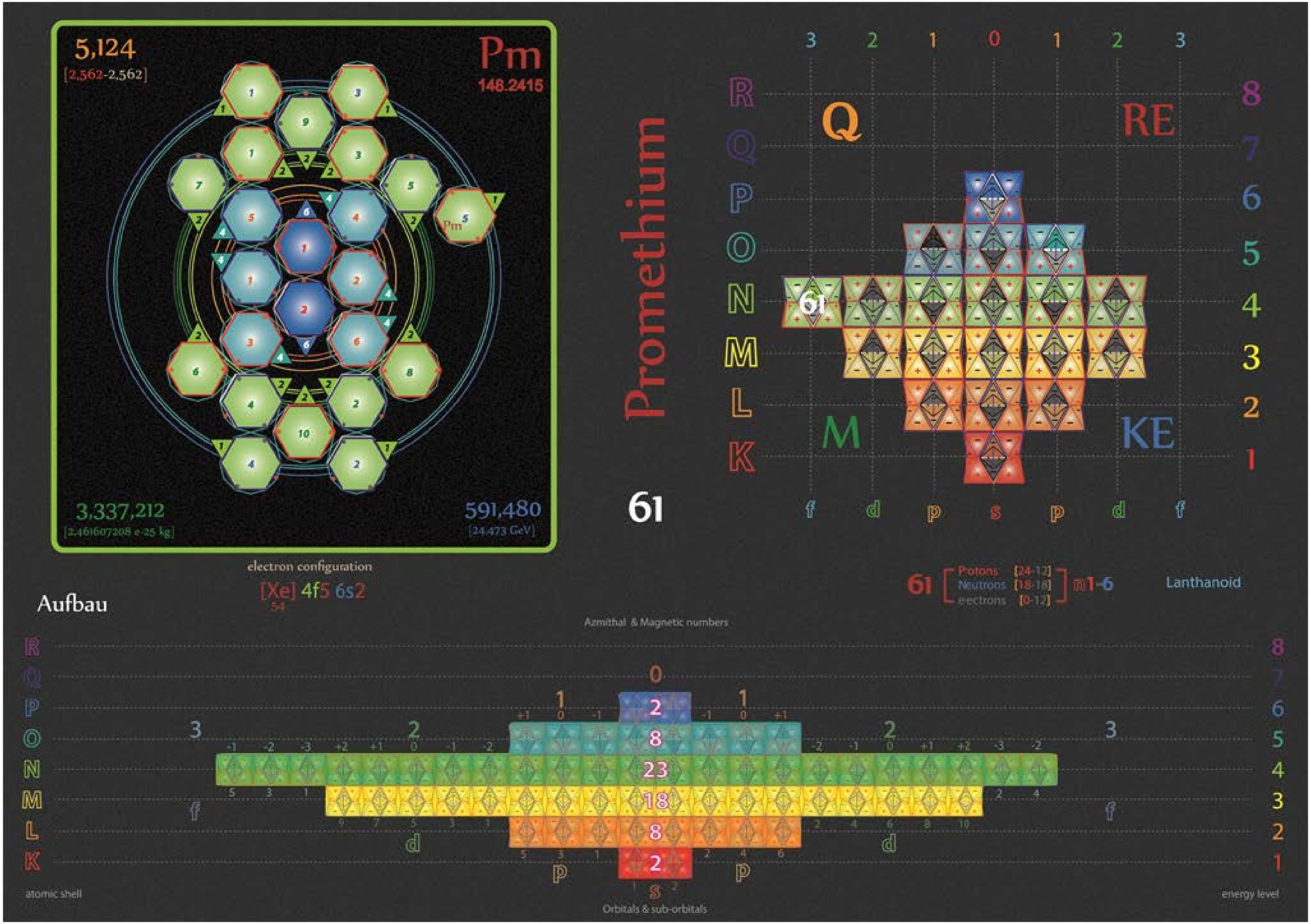


Tetryonics 51.58 - Cerium atom

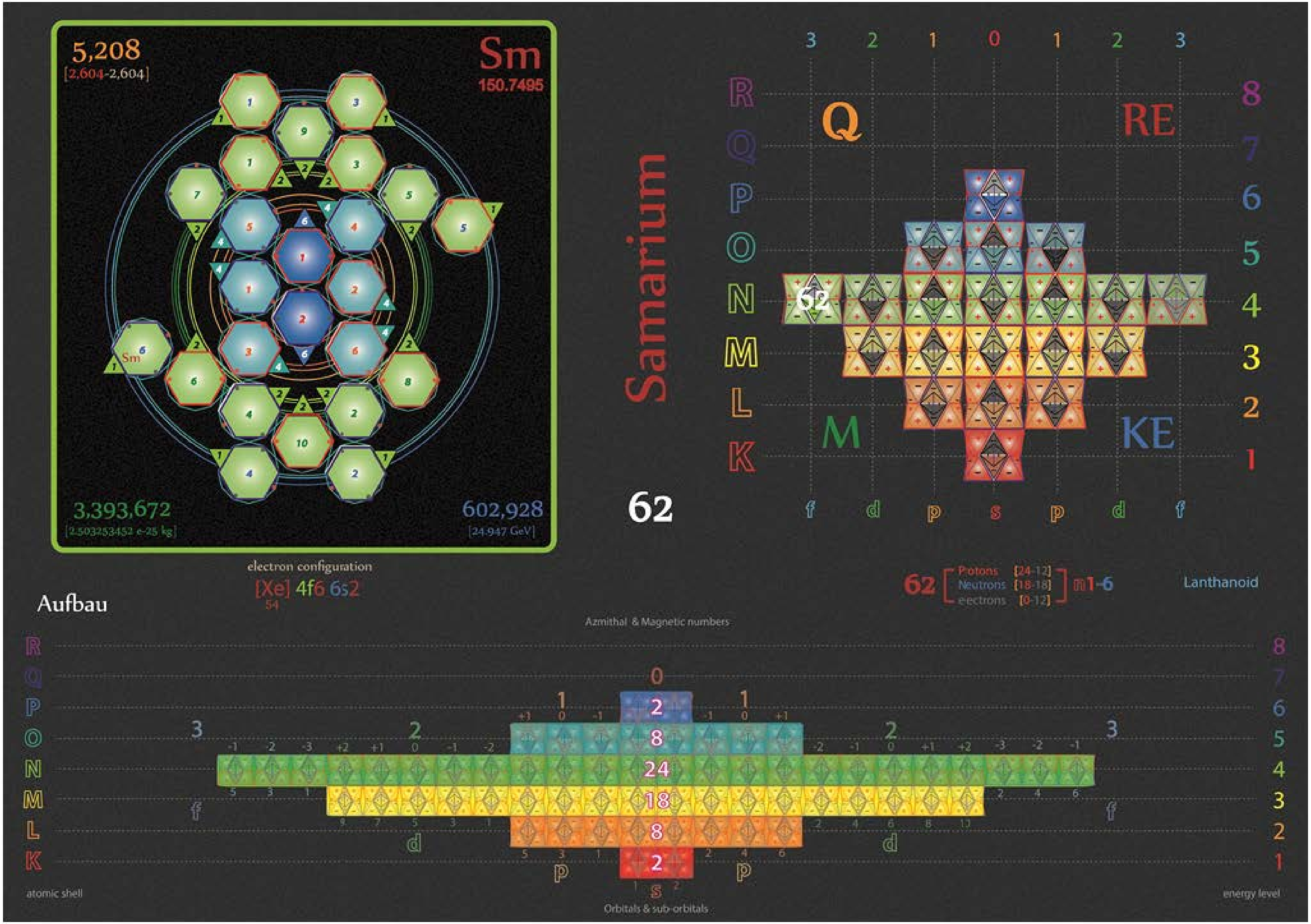

4,956
[2,478-2,478]
Pr
143.2255
3,224,292
[2.378314722 e-25 kg]
568,584
[23.526 GeV]
Praseodymium
59
Q
RE
M
KE
electron configuration
[Xe] 4f3 6s2
54
Aufbau
59 [Potons [24-12] Neutrons [18-18] electrons [0-12]] n1-6
Lanthanoid
Azmithal & Magnetic numbers
atomic shell
energy level
Orbitals & sub-orbitals



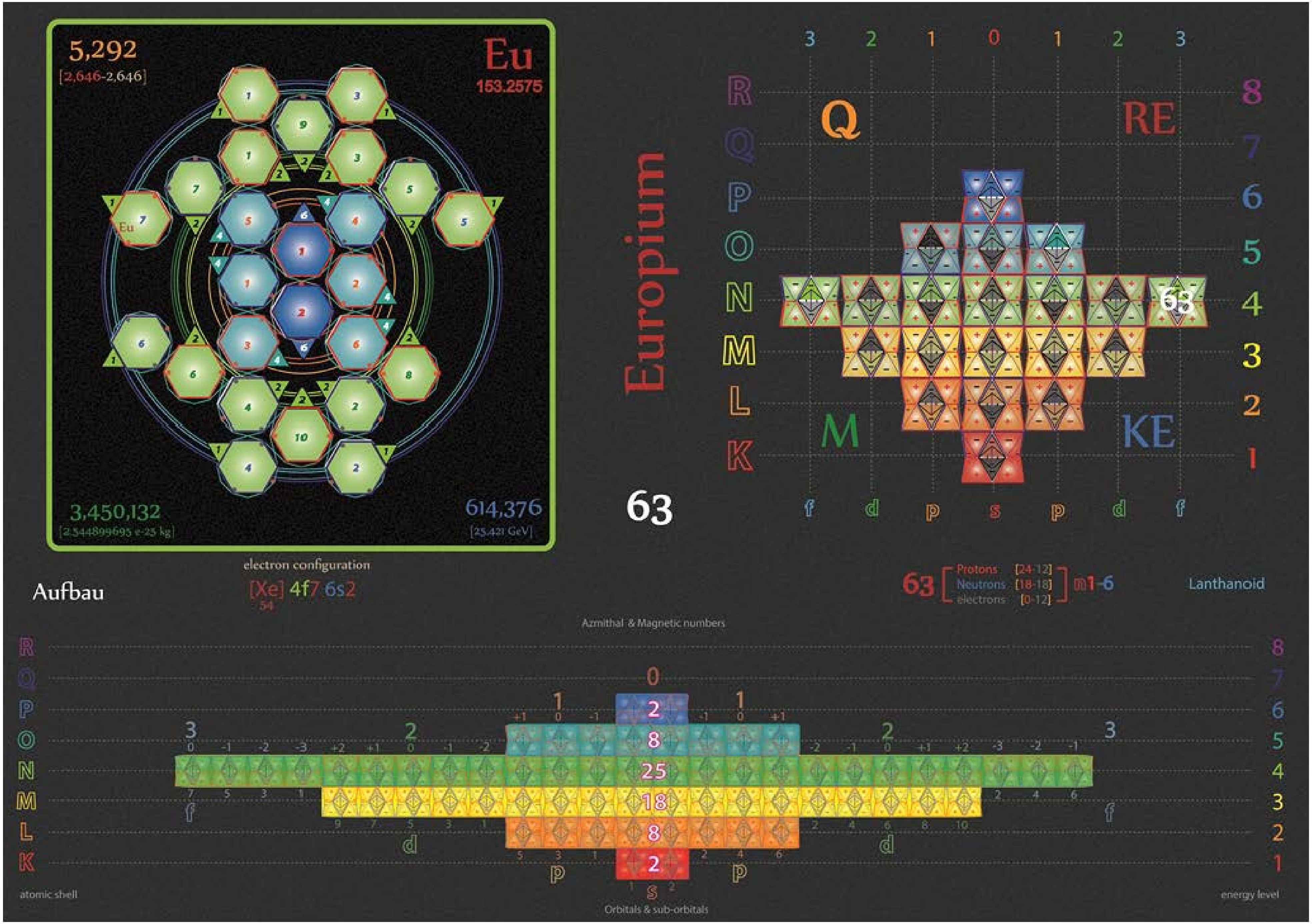
Tetryonics 51.60 - Neodymium atom

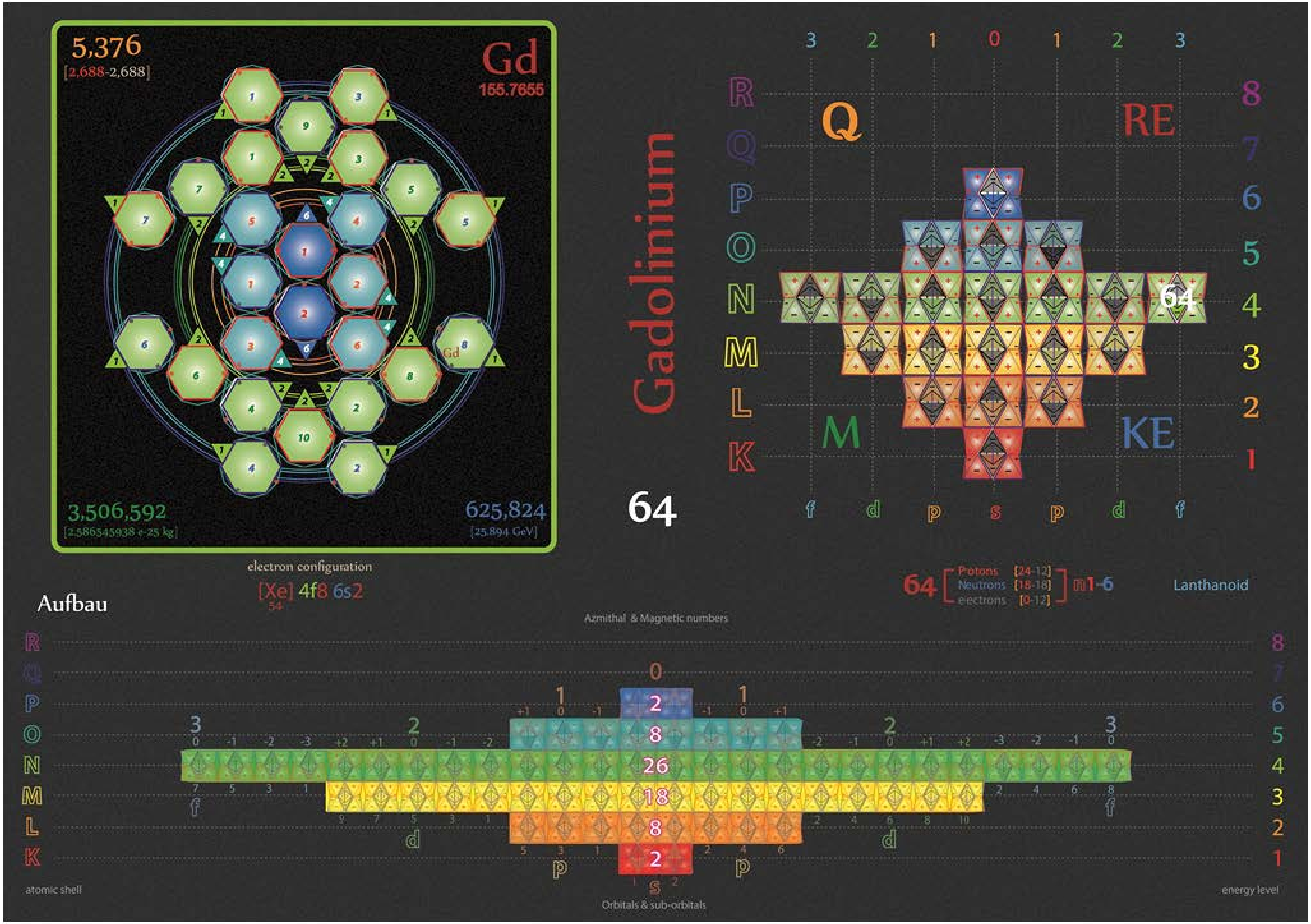


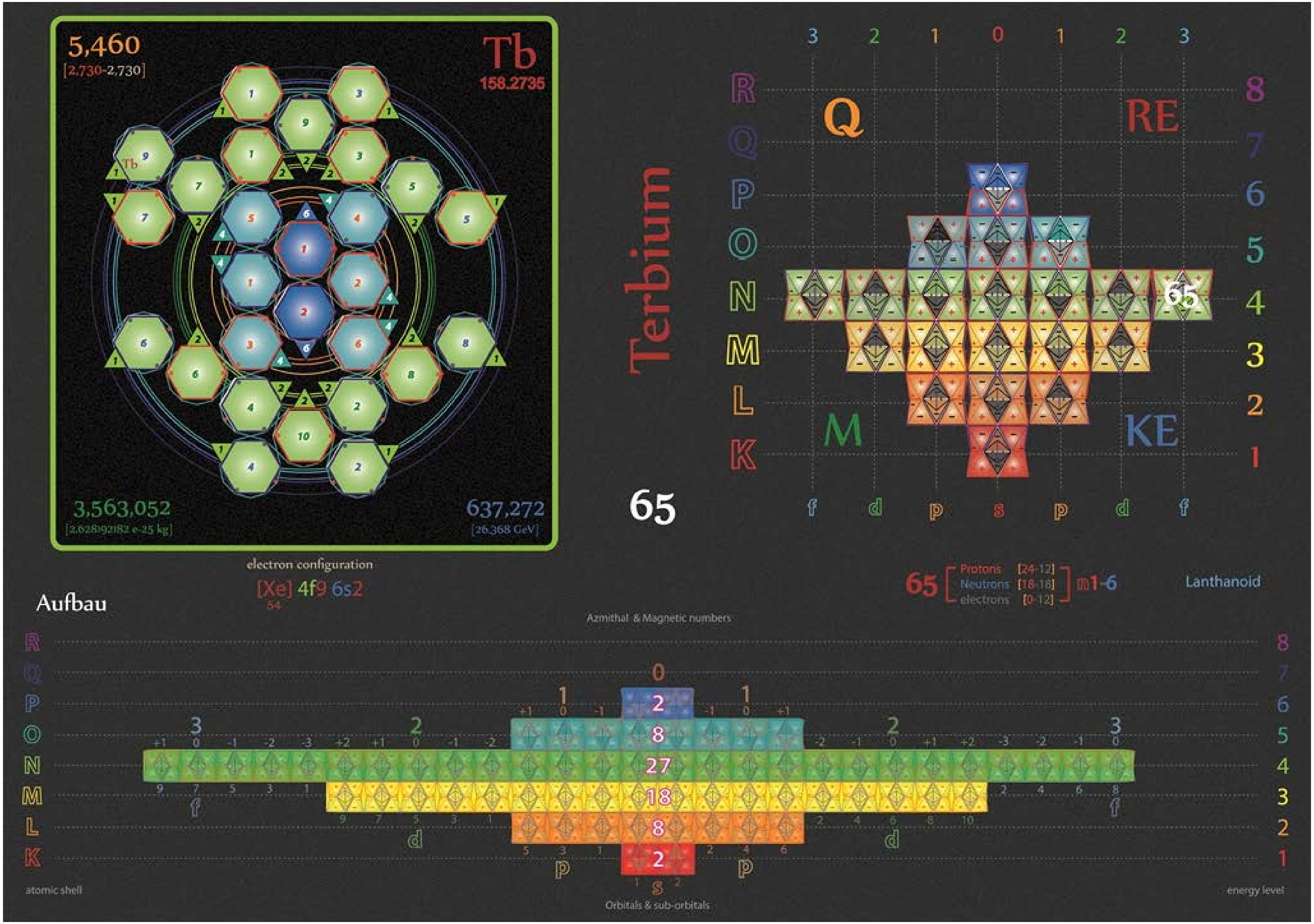
5,124
[2,562-2,562]
Pm
148.2415
3,337,212
[2.461607208 e-25 kg]
591,480
[24.473 GeV]
Promethium
61
Q
RE
M
KE
R Q P O N M L K
8 7 6 5 4 3 2 1
3 2 1 0 1 2 3
f d p s p d f
electron configuration
[Xe] 4f5 6s2
54
61 Potons [24-12] Neutrons [18-18] electrons [0-12] n1-6
Lanthanoid
Aufbau
Azimthal & Magnetic numbers
2 8 23 18 8 2
atomic shell
energy level
Orbitals & sub-orbitals

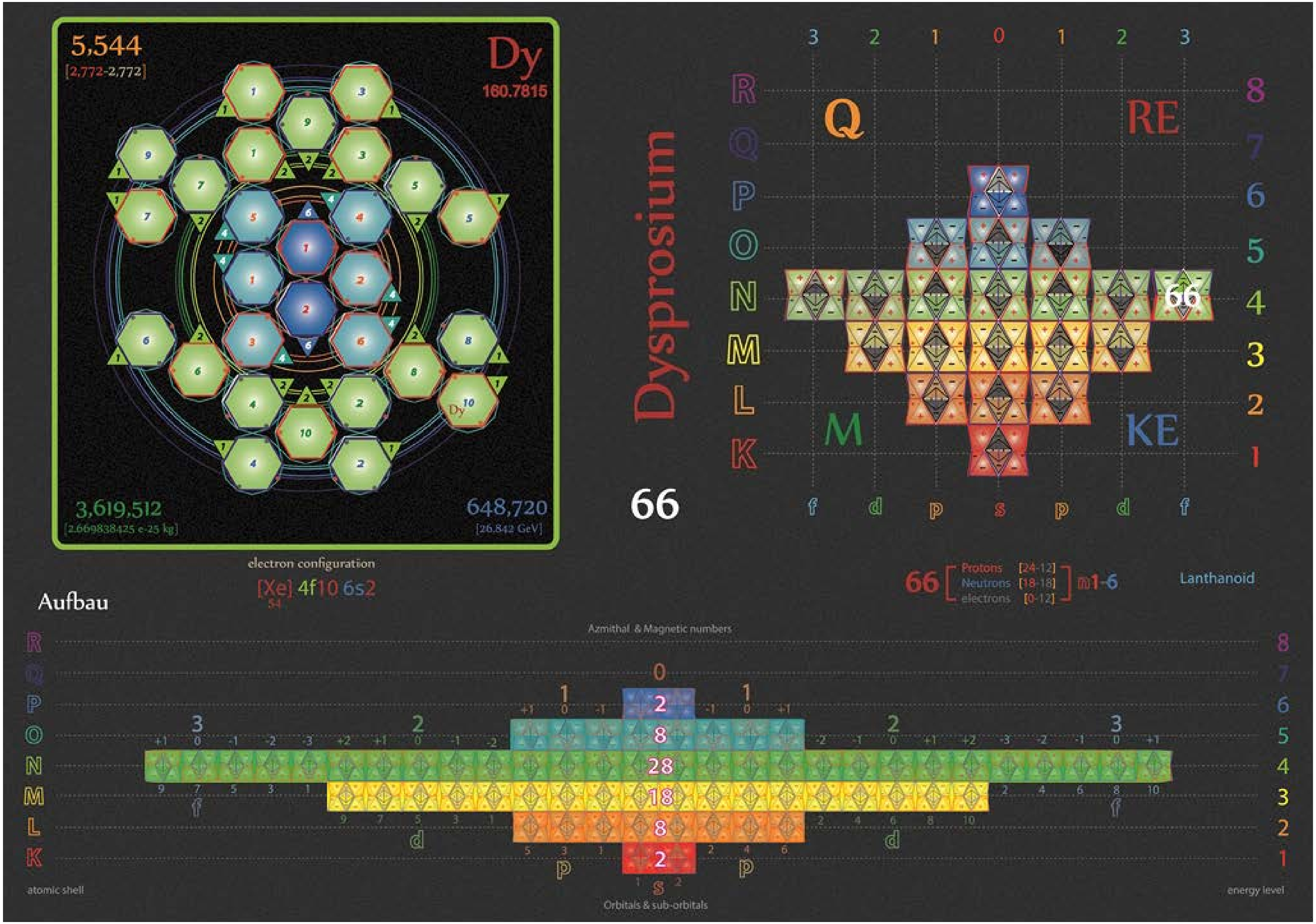


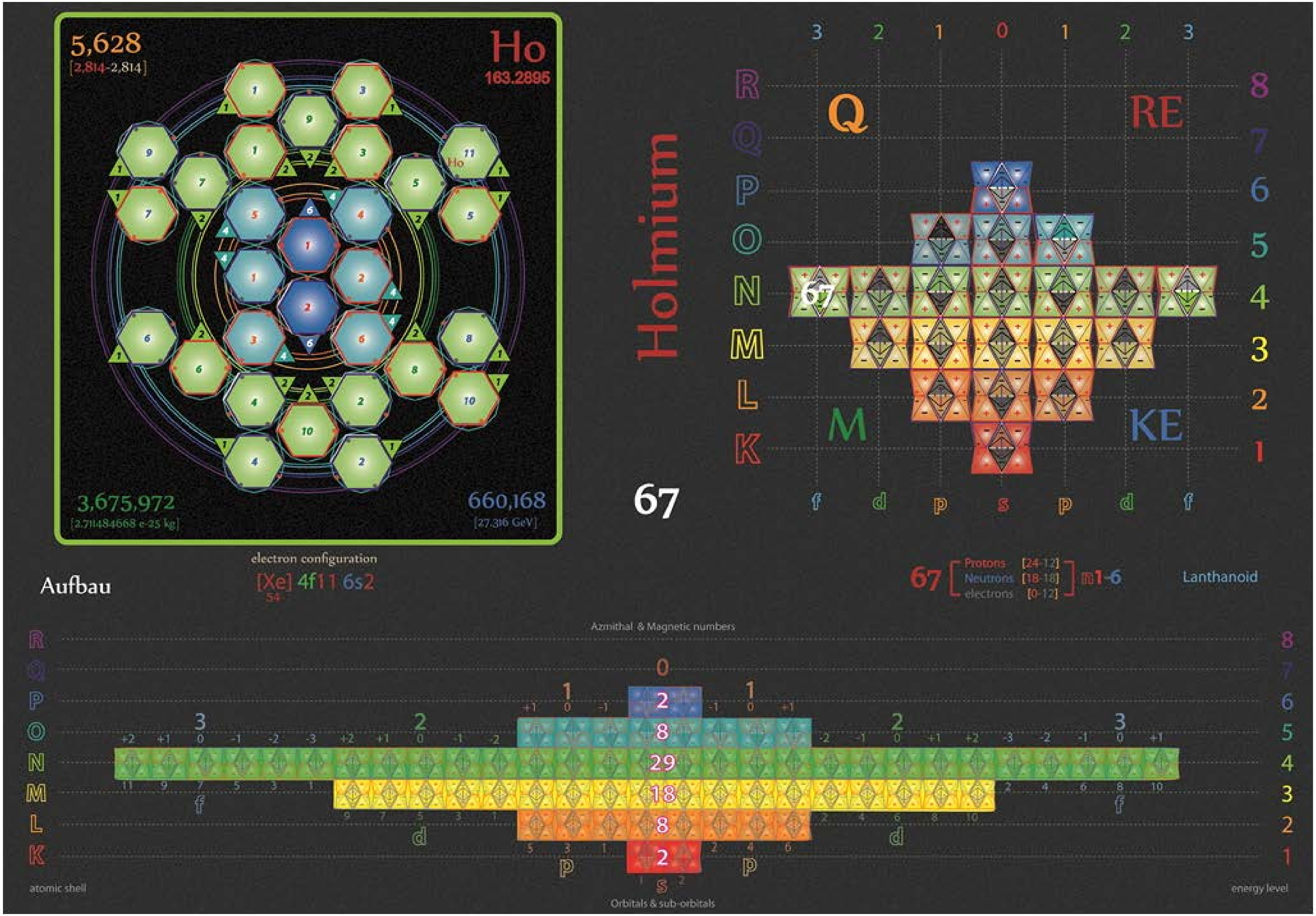
Tetryonics 51.62 - Samarium atom


5,292
[2,646-2,646]
Eu
153.2575
3,450,132
[2.544899695 e-25 kg]
614,376
[25.421 GeV]
Europium
63
Q
RE
M
KE
electron configuration
Aufbau
[Xe] 4f7 6s2
54
63 Protons [24-12] Neutrons [18-18] electrons [0-12] m1-6
Lanthanoid
Azmithal & Magnetic numbers
Orbitals & sub-orbitals
atomic shell
energy level

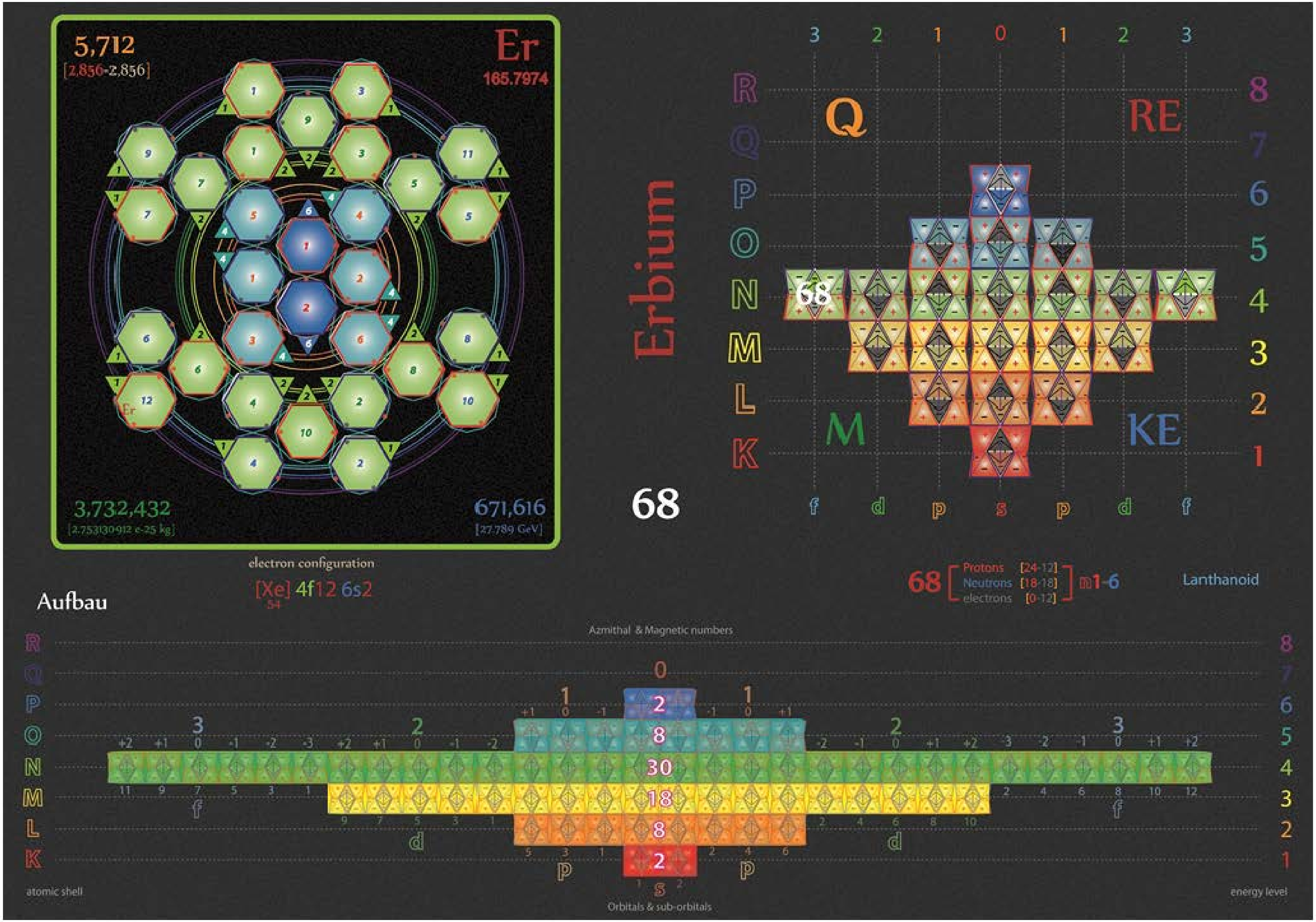

5,376
[2,688-2,688]
Gd
155.7655
3,506,592
[2.586545938 e-25 kg]
625,824
[25.894 GeV]
Gadolinium
64
Q
RE
M
KE
R Q P O N M L K
8 7 6 5 4 3 2 1
3 2 1 0 1 2 3
f d p s p d f
electron configuration
[Xe] 4f8 6s2
54
64 Potons [24-12] Neutrons [18-18] electrons [0-12]
m1-6
Lanthanoid
Aufbau
Azmithal & Magnetic numbers
2
8
26
18
8
2
atomic shell
energy level
Orbitals & sub-orbitals


5,460
[2,730-2,730]
Tb
158.2735
3,563,052
[2,628192182 e-25 kg]
637,272
[26,368 GeV]
Terbium
65
Q
RE
M
KE
R Q P O N M L K
8 7 6 5 4 3 2 1
3 2 1 0 1 2 3
f d p s p d f
electron configuration
[Xe] 4f9 6s2
54
65 Protons [24-12] Neutrons [18-18] electrons [0-12] m1-6
Lanthanoid
Aufbau
Azmithal & Magnetic numbers
2
8
27
18
8
2
atomic shell
energy level
Orbitals & sub-orbitals

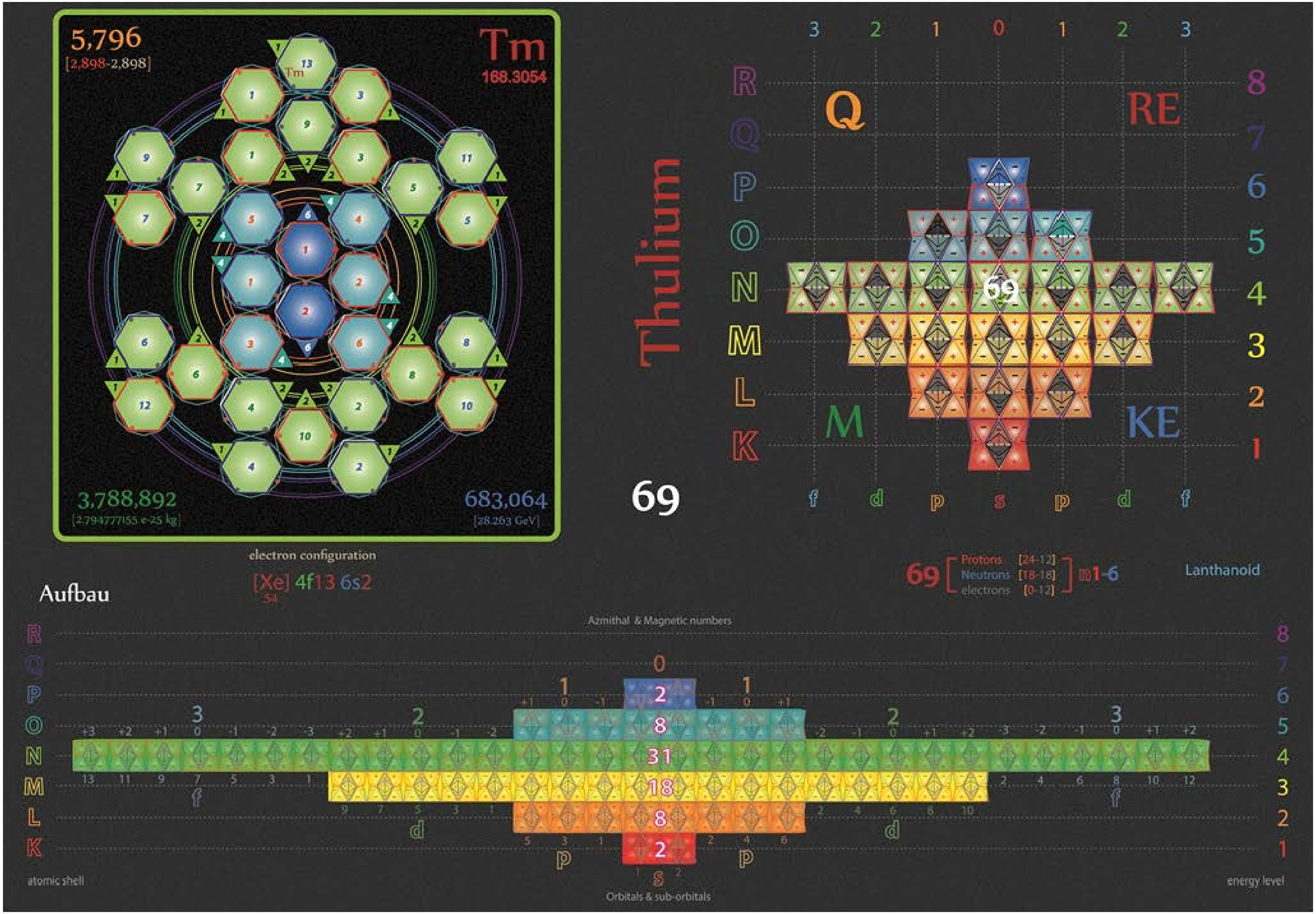

5,544
[2,772-2,772]
Dy
160.7815
3,619,512
[2.669838425 e-25 kg]
648,720
[26.842 GeV]
Dysprosium
66
electron configuration
[Xe] 4f10 6s2
54
Aufbau
Q
RE
M
KE
66 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-6
Lanthanoid
Azmithal & Magnetic numbers
Orbitals & sub-orbitals
atomic shell
energy level

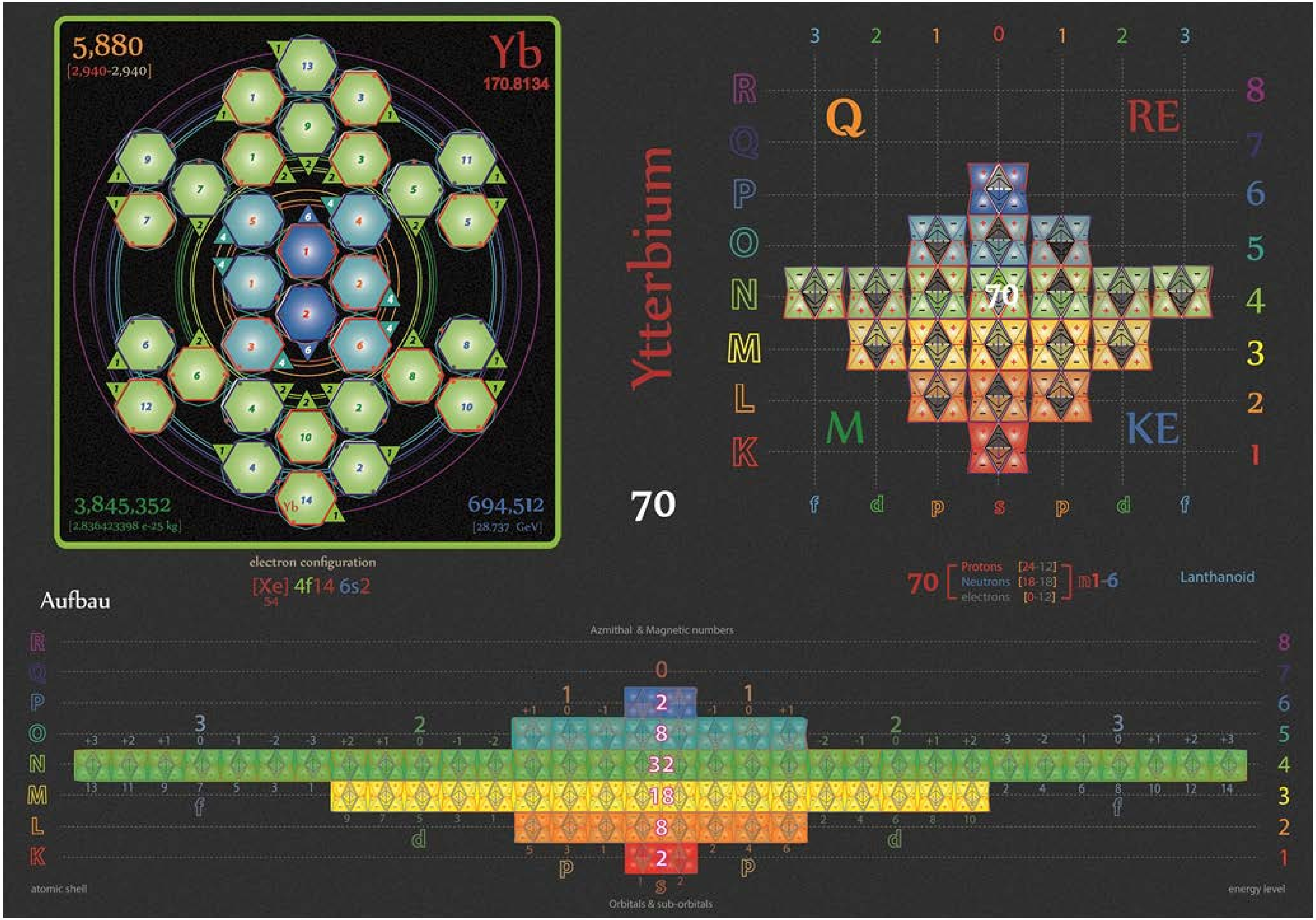


Tetryonics 51.67 - Holmium atom

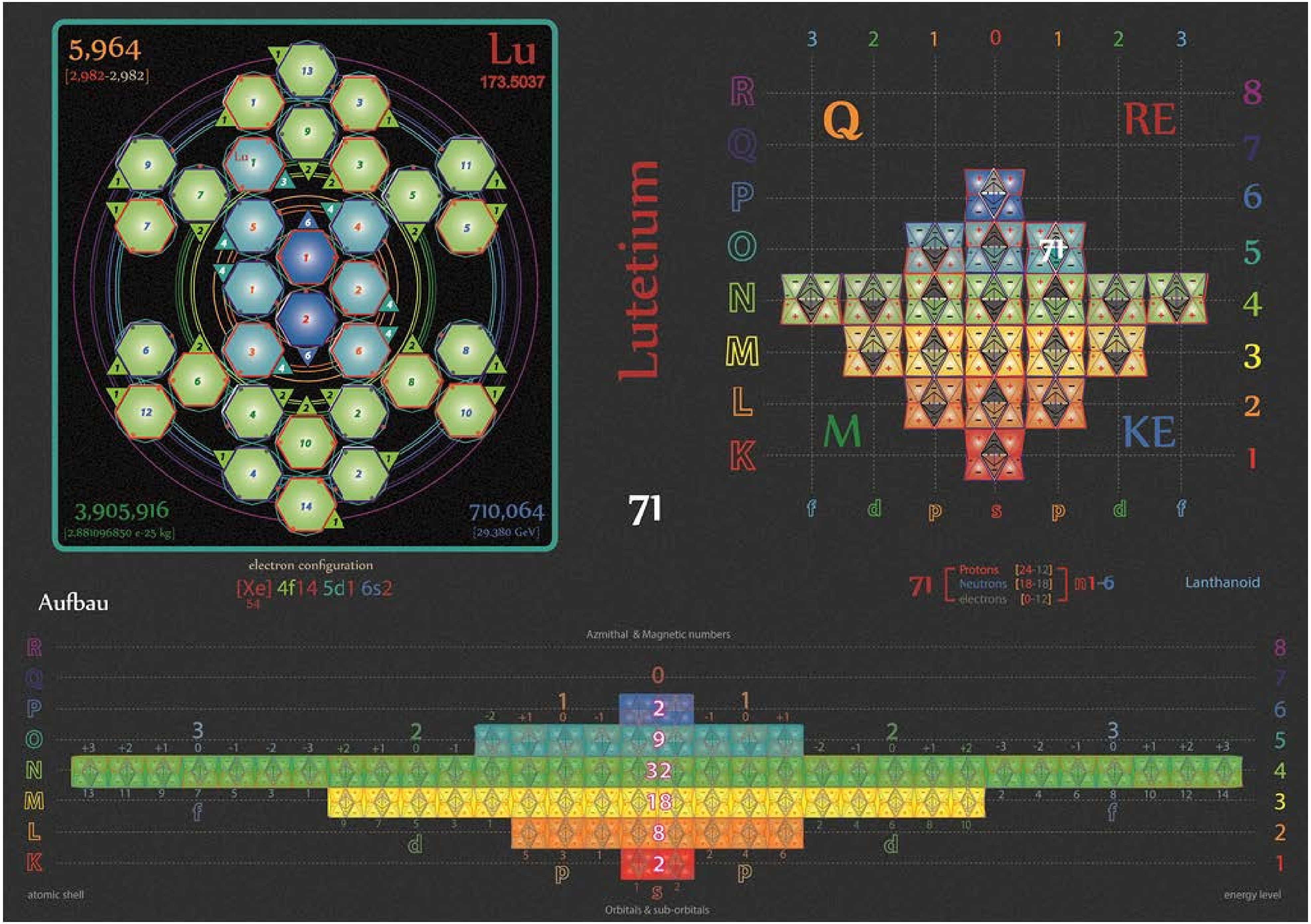


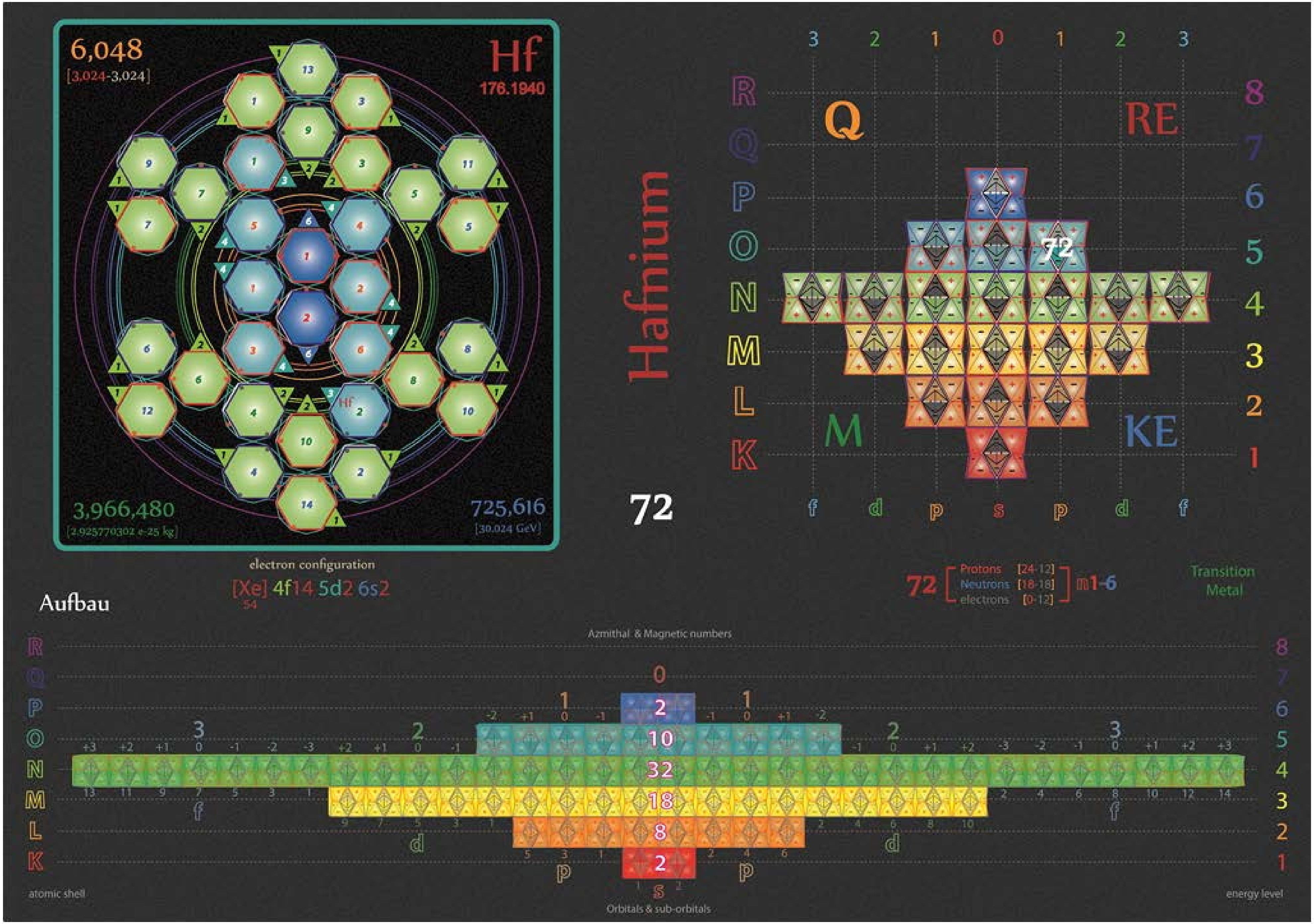
Tetryonics 51.68 - Erbium atom


5,796
[2,898-2,898]
Tm
168.3054
3,788,892
[2.794777155 e-25 kg]
683,064
[28.263 GeV]
Thulium
69
Q
RE
M
KE
69 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-6
Lanthanoid
electron configuration
[Xe] 4f13 6s2
54
Aufbau
Azmithal & Magnetic numbers
atomic shell
energy level
Orbitals & sub-orbitals

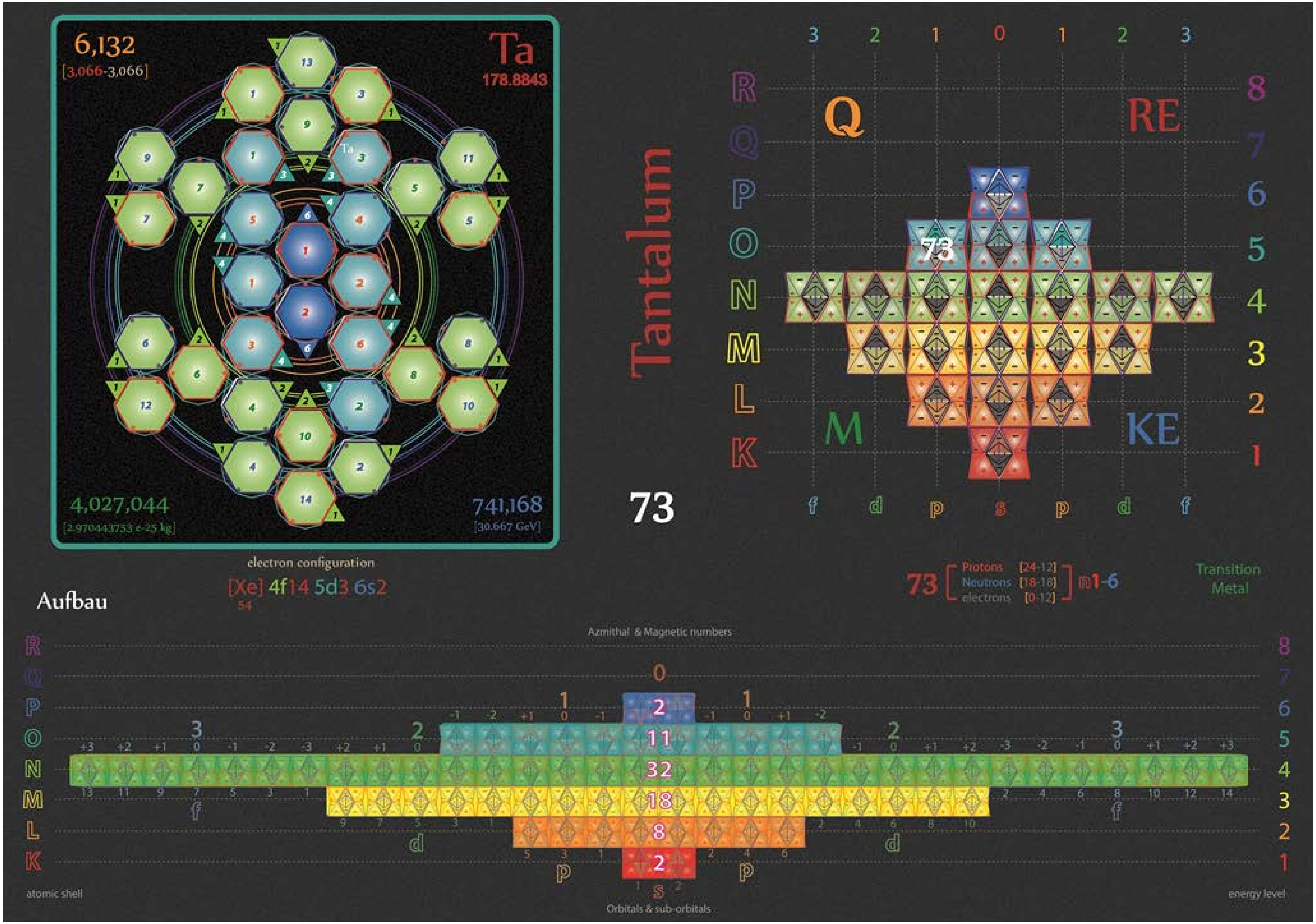


Tetryonics 51.70 - Ytterbium atom

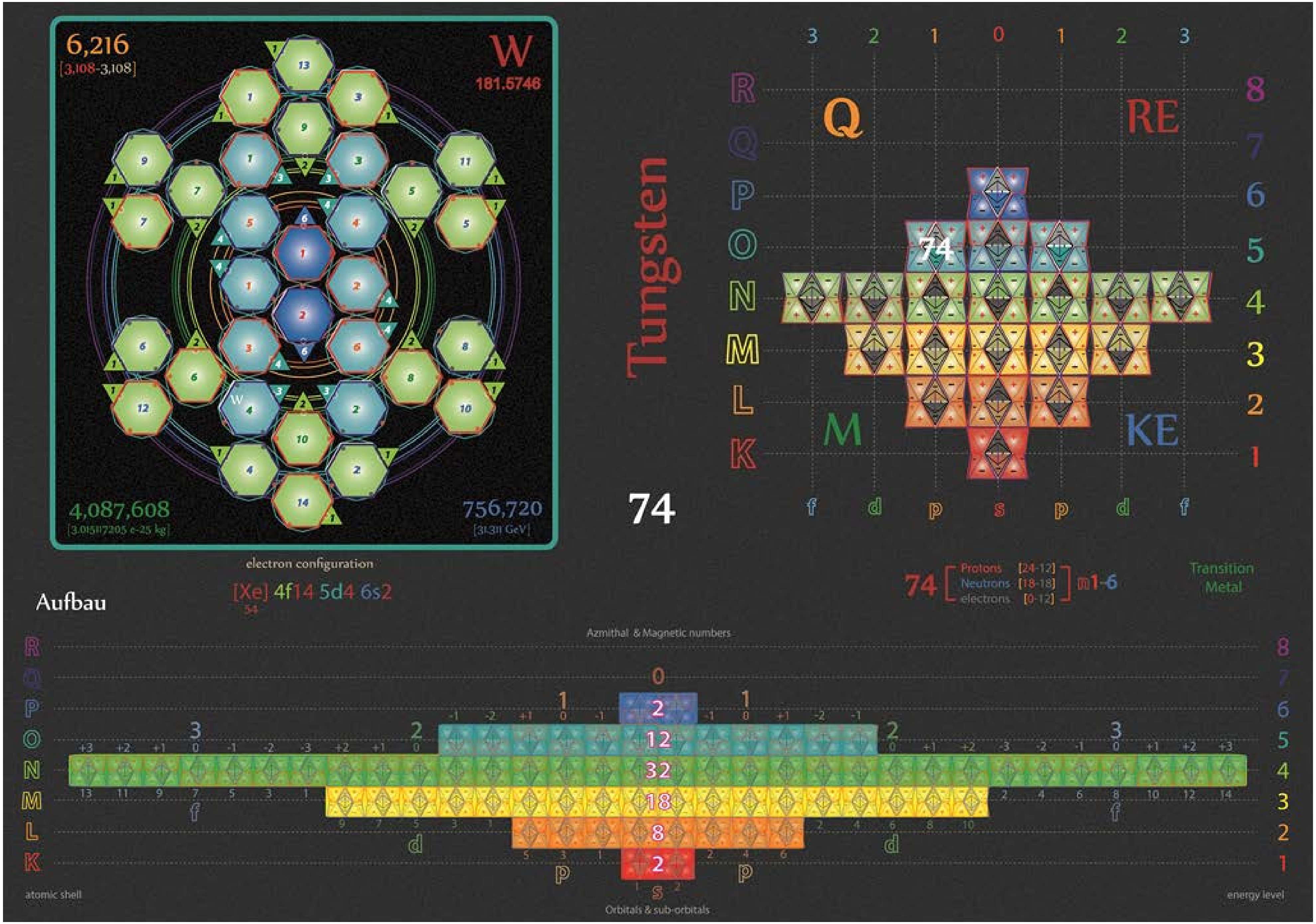

5,964
[2,982-2,982]
Lu
173.5037
3,905,916
[2.881096850 e-25 kg]
710,064
[29.380 GeV]
Lutetium
71
Q
RE
M
KE
R Q P O N M L K
8 7 6 5 4 3 2 1
3 2 1 0 1 2 3
f d p s p d f
electron configuration
[Xe] 4f14 5d1 6s2
54
71 Protons [24-12] Neutrons [18-18] electrons [0-12] n1-6
Lanthanoid
Aufbau
Azmithal & Magnetic numbers
2
9
32
18
8
2
atomic shell
energy level
Orbitals & sub-orbitals



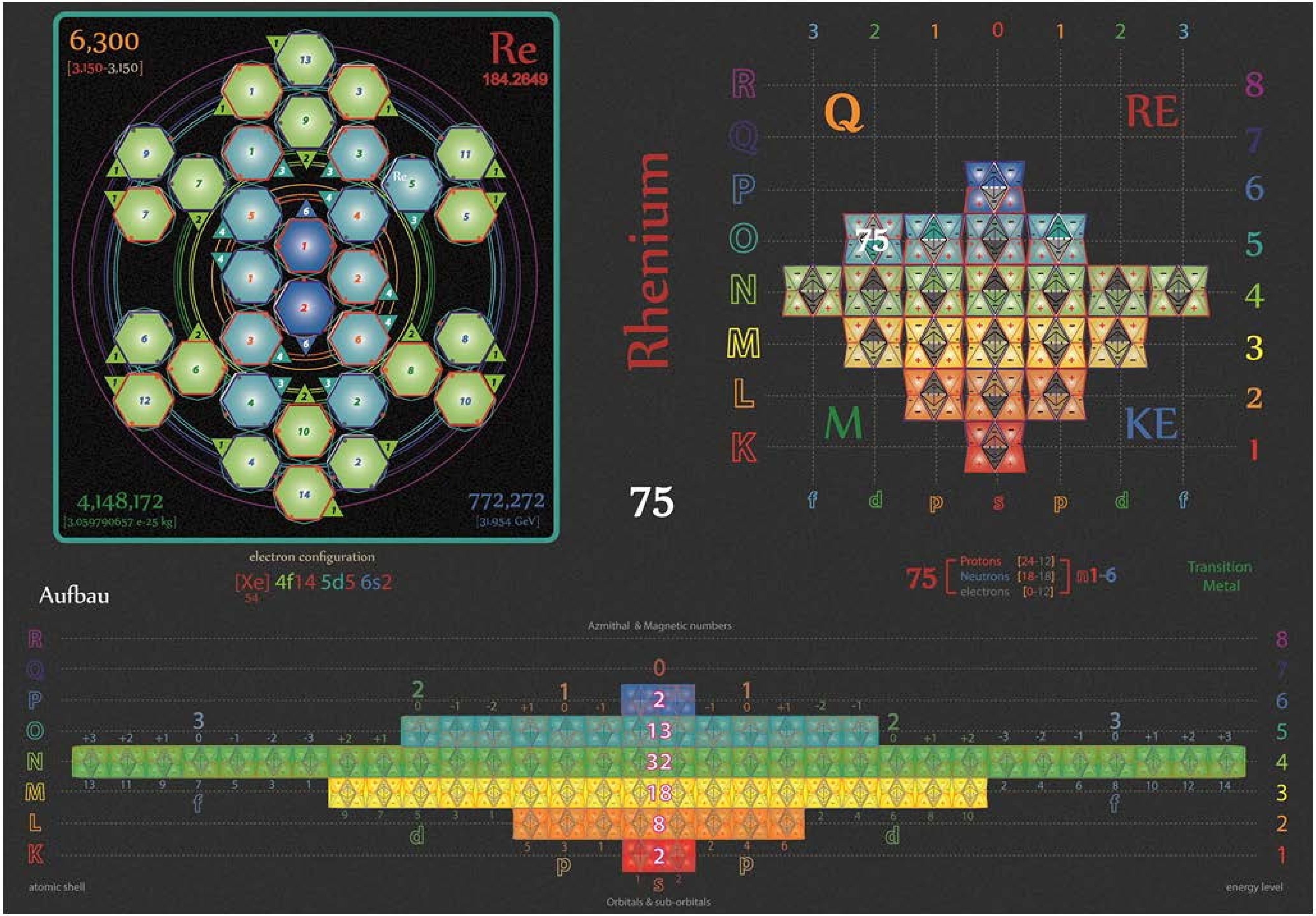
Tetryonics 51.72 - Hafnium atom



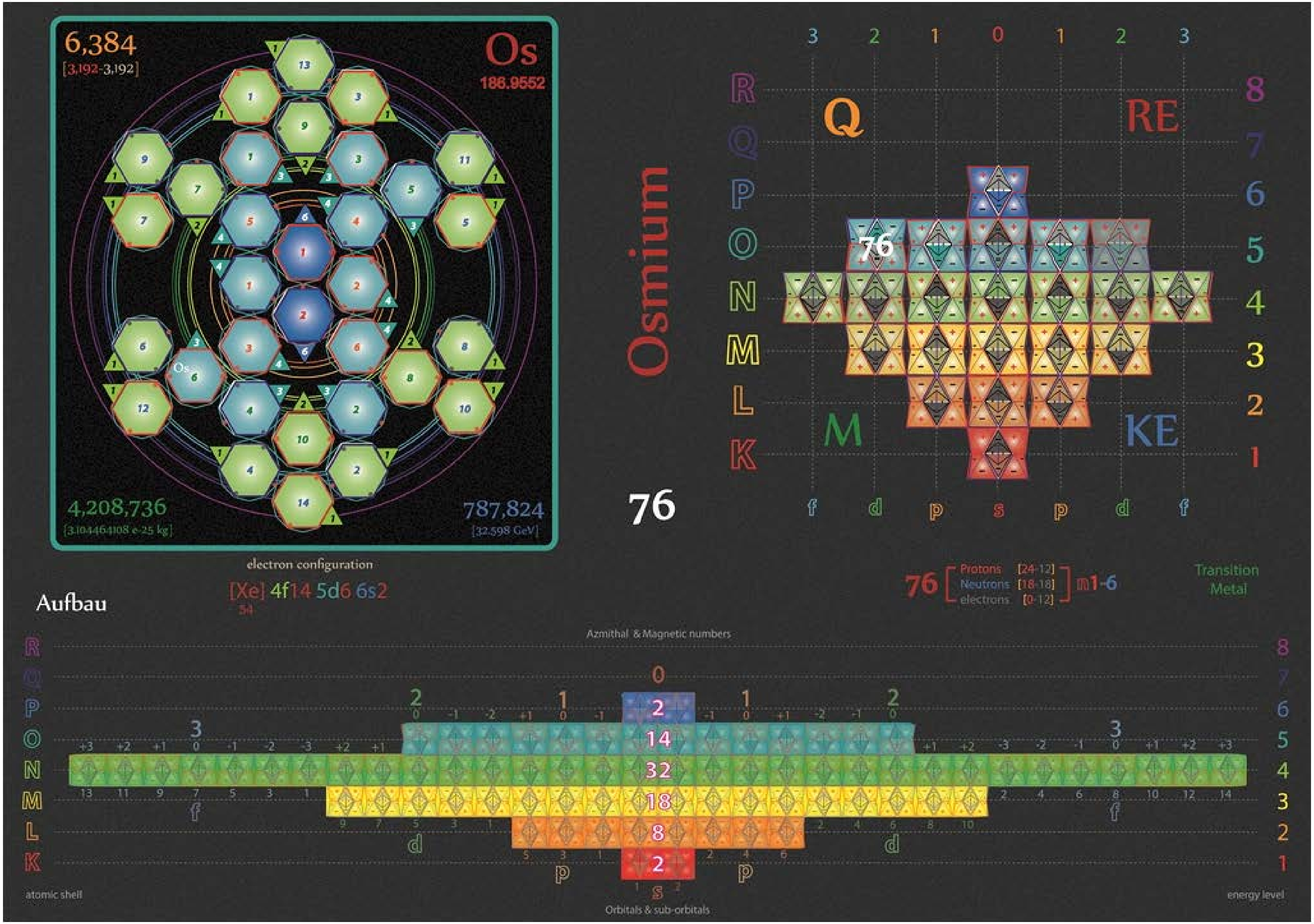
Tetryonics 51.73 - Tantalum atom



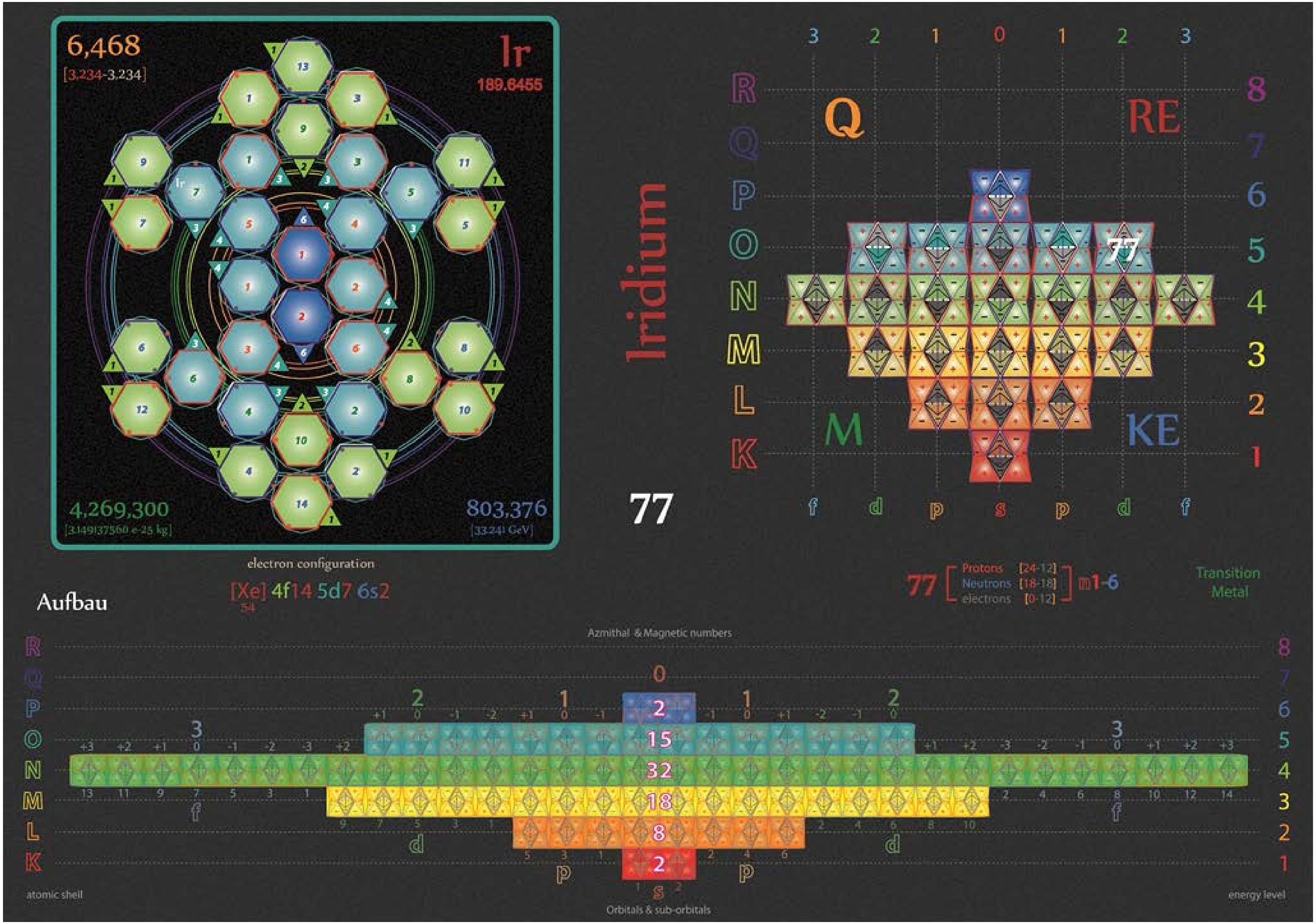
Tetryonics 51.74 - Tungsten atom



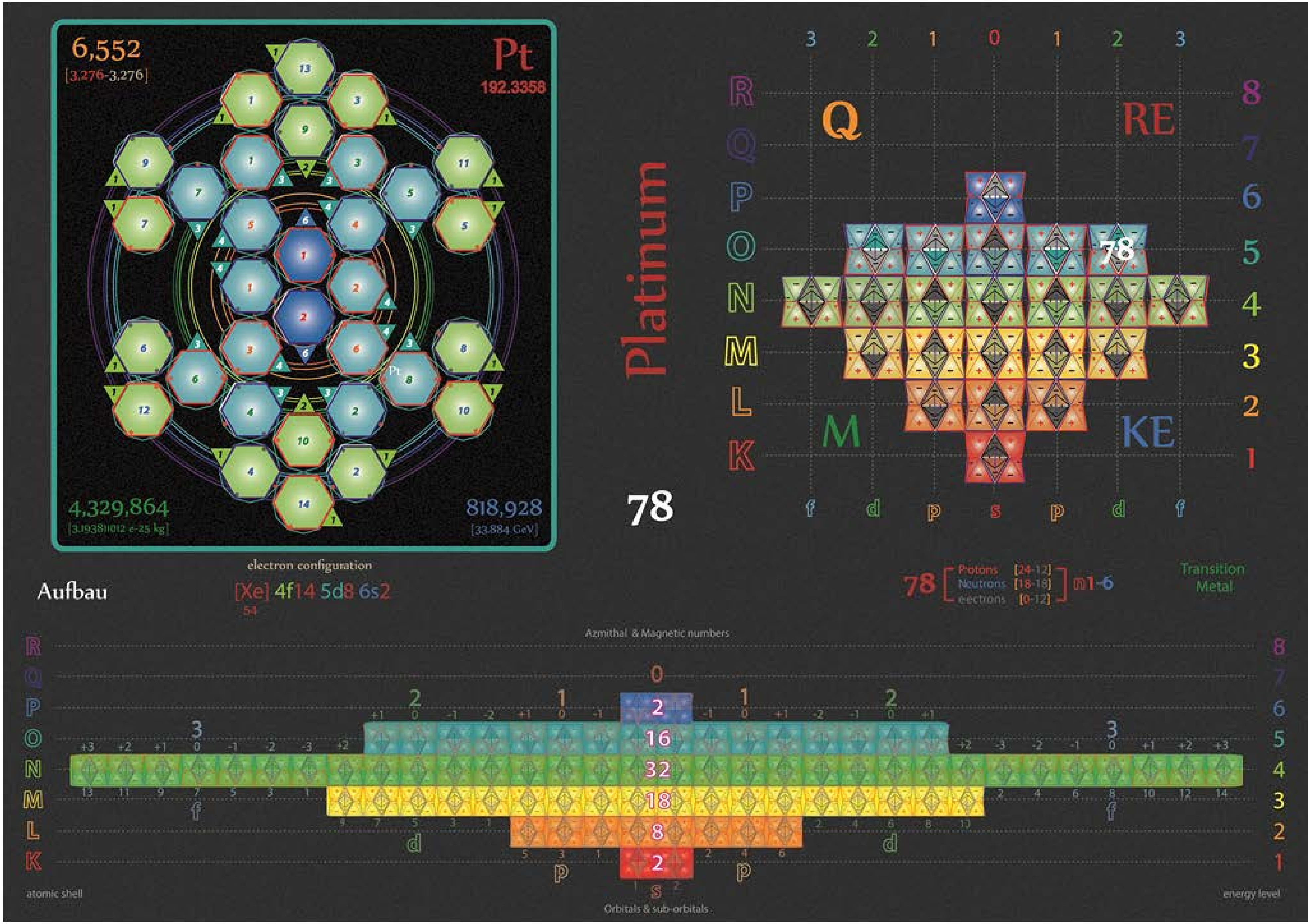
Tetryonics 51.75 - Rhenium atom



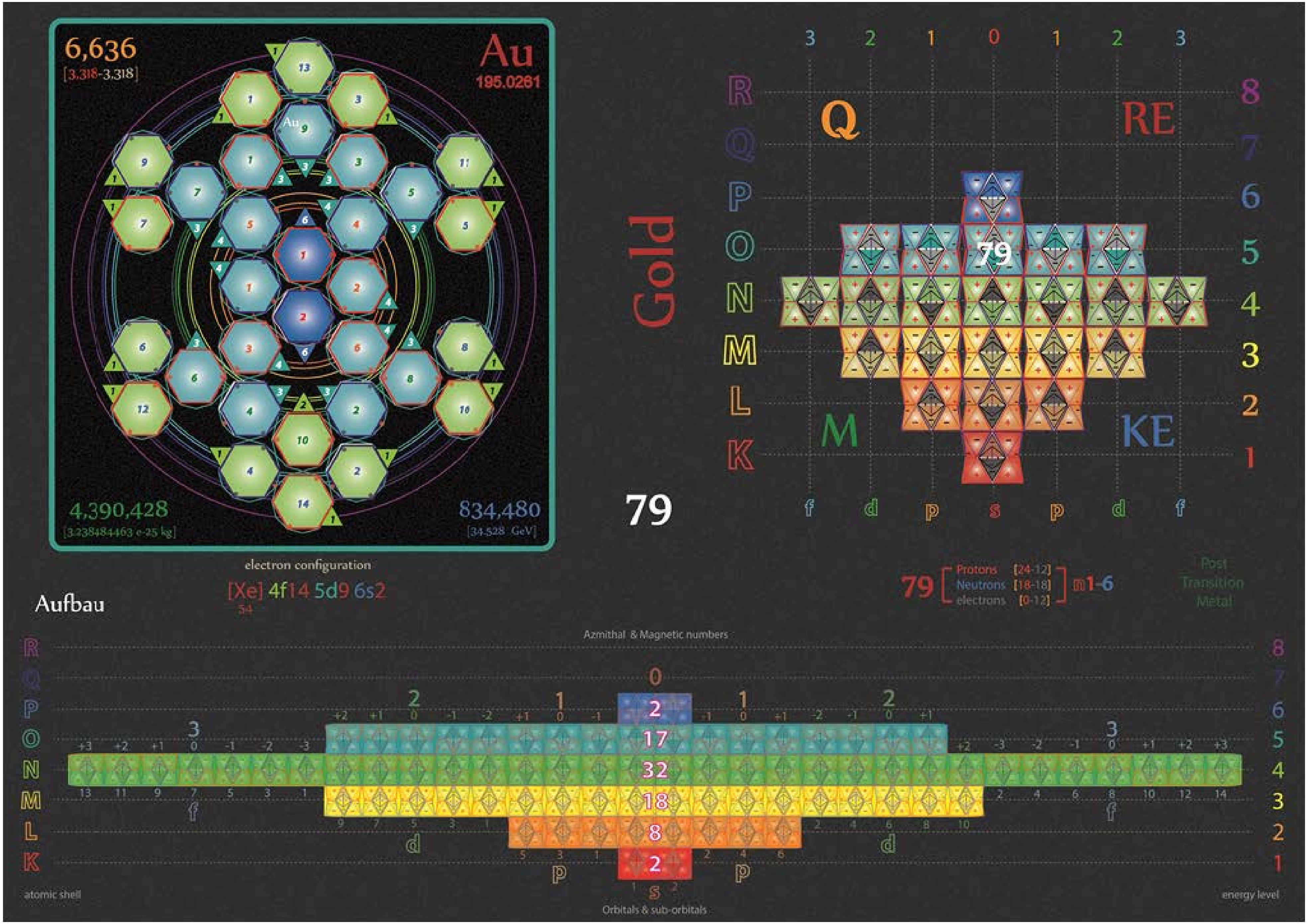
Tetryonics 51.76 - Osmium atom



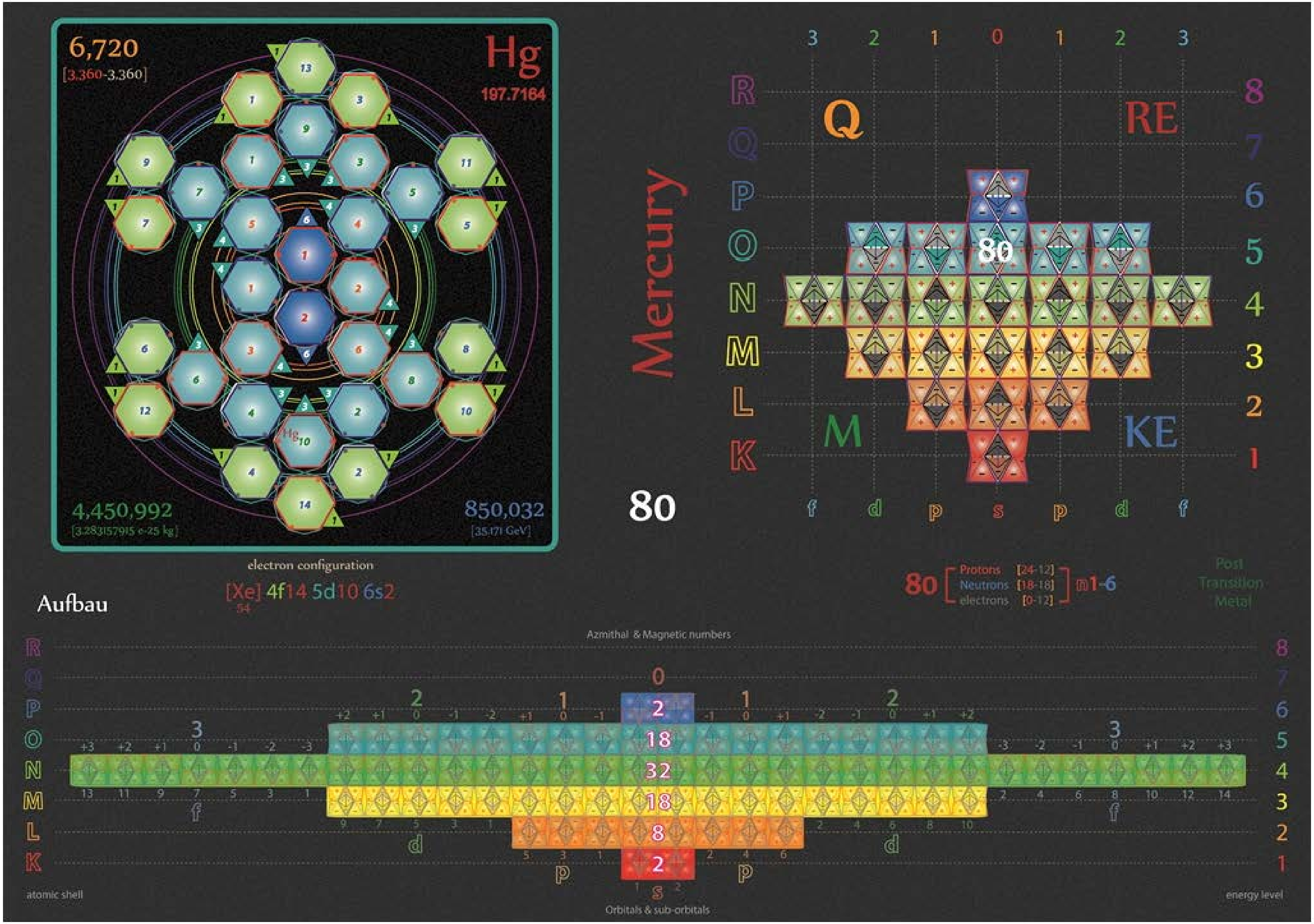
Tetryonics 51.77 - Iridium atom



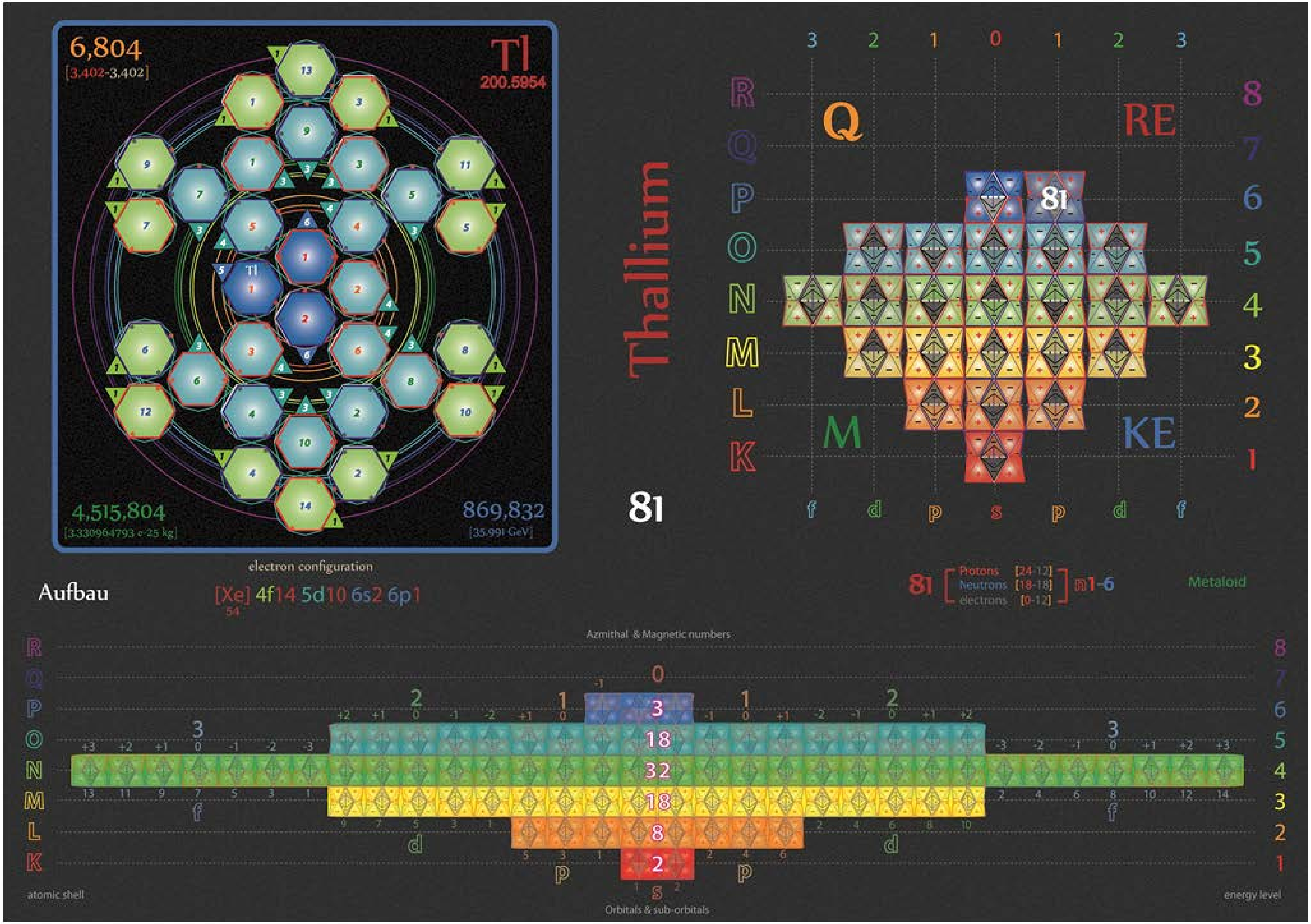
Tetryonics 51.78 - Platinum atom

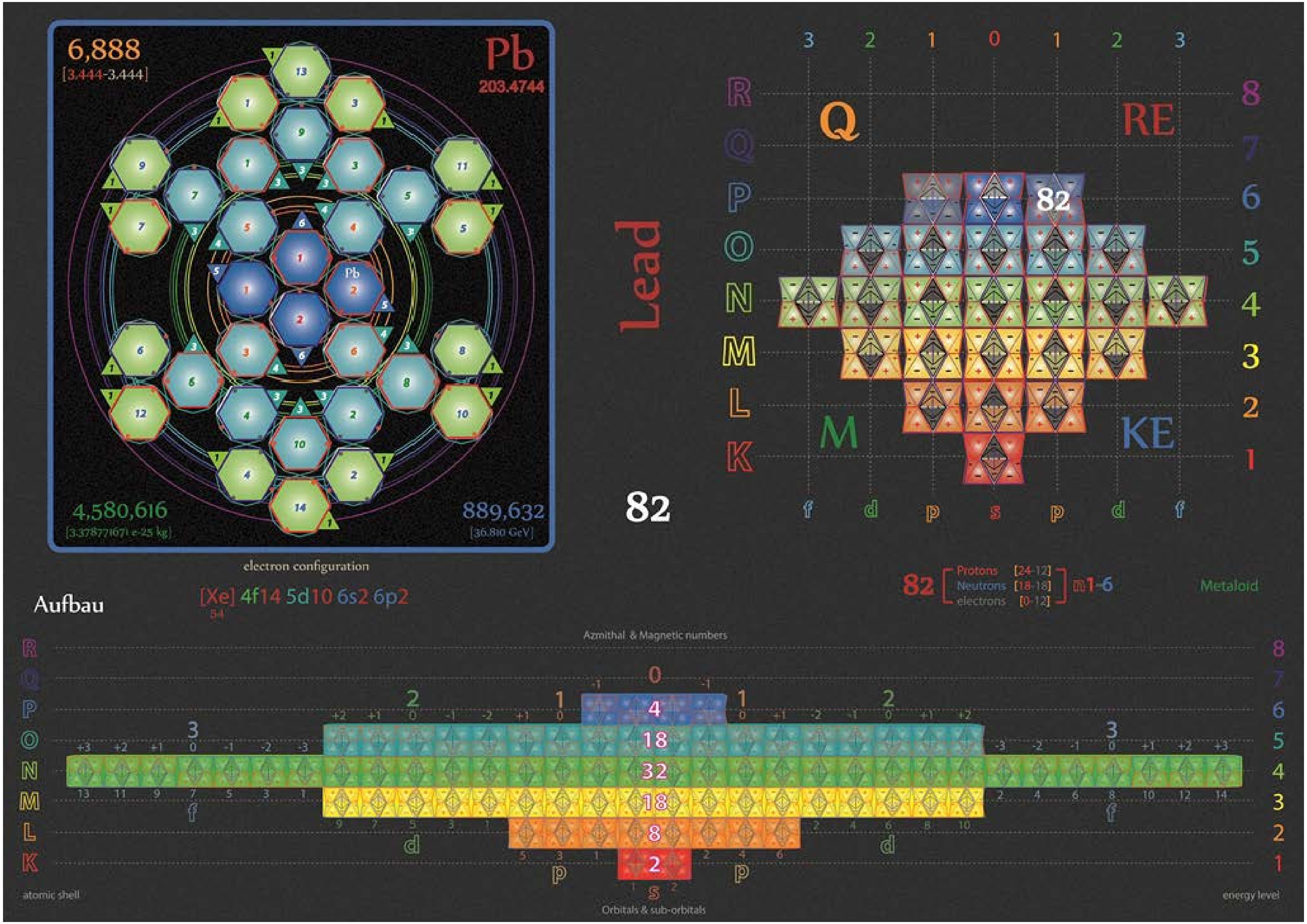


Tetryonics 51.79 - Gold atom

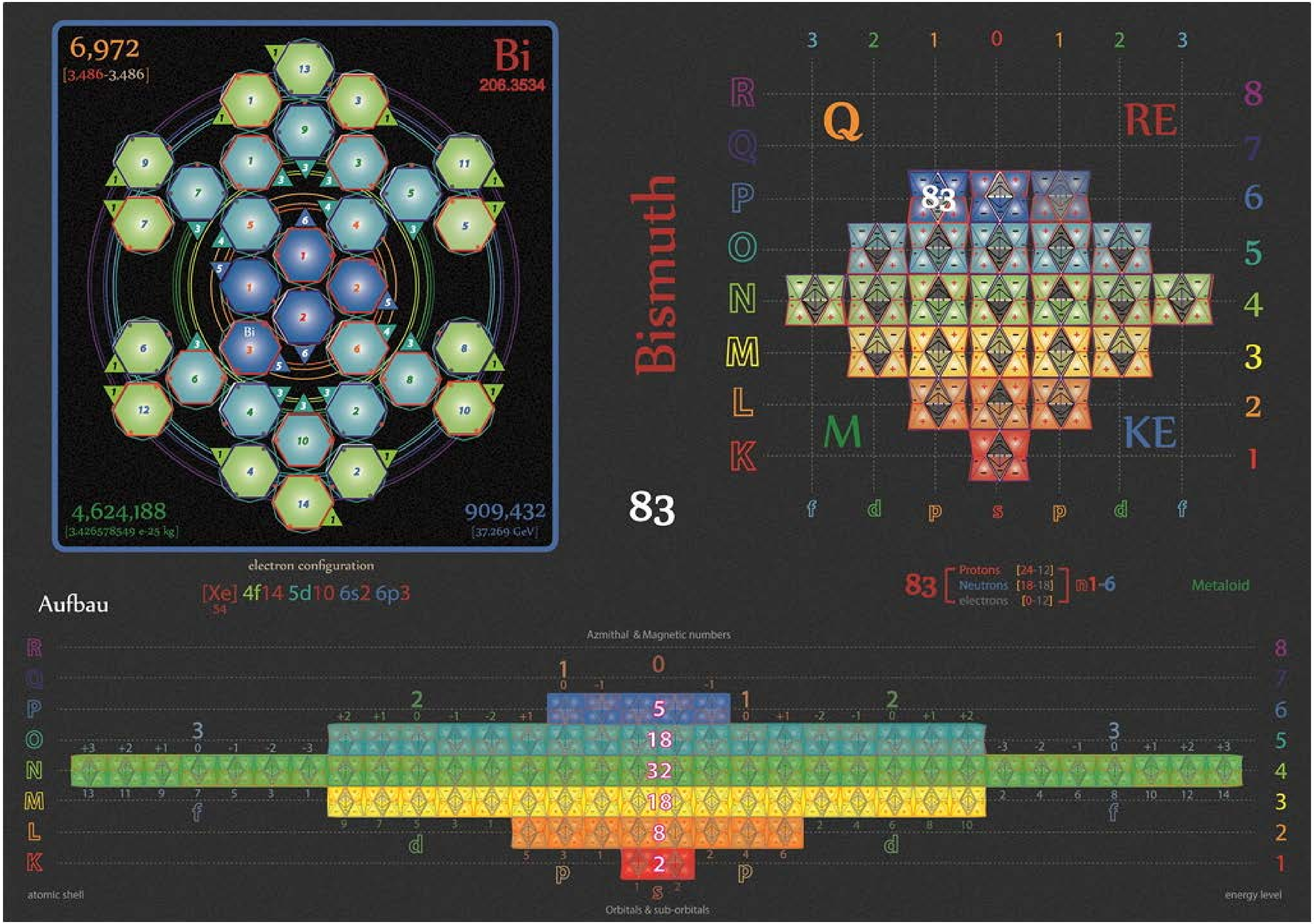


Tetryonics 51.80 - Mercury atom

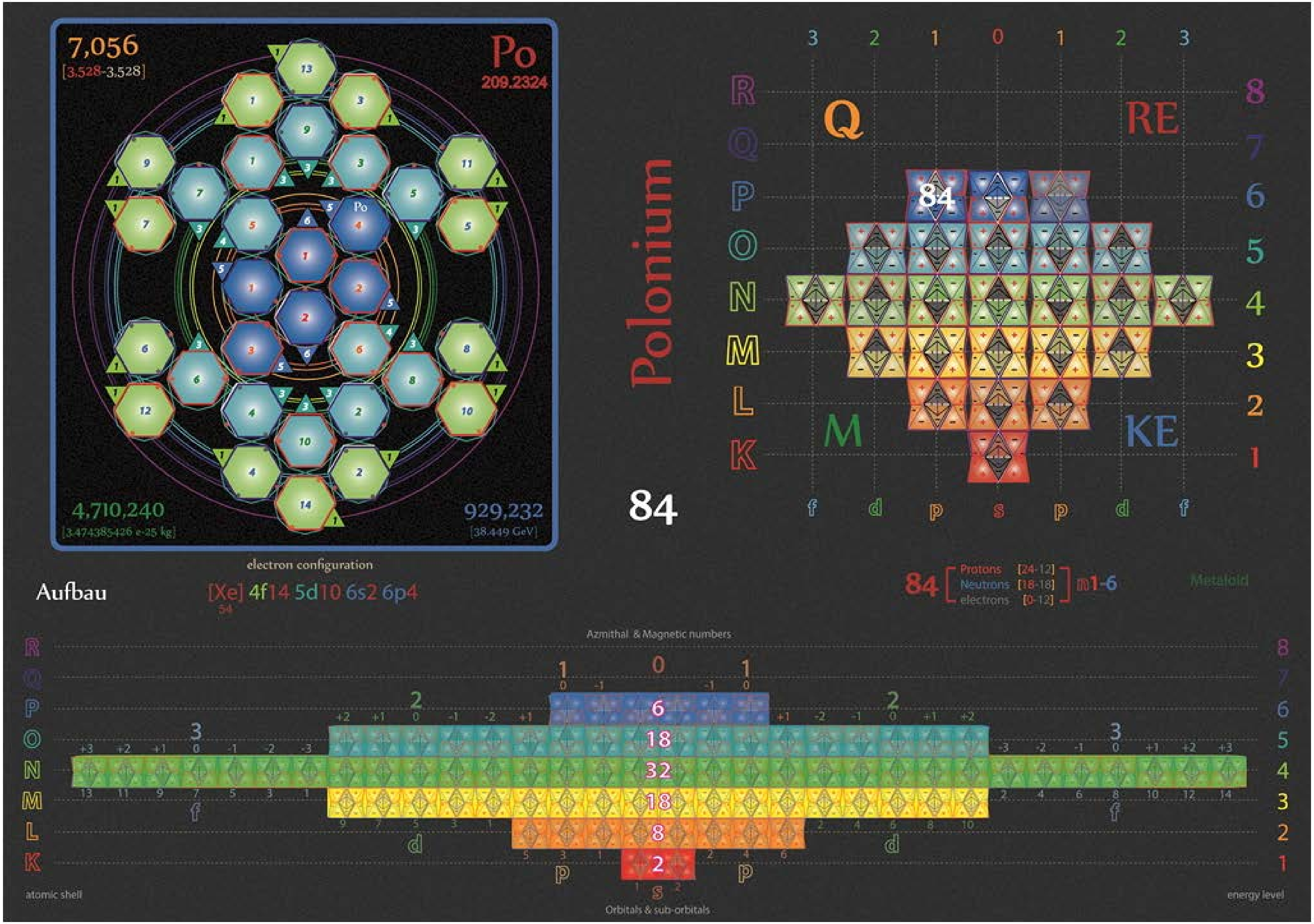

6,804
[3,402-3,402]
Tl
200.5954
4,515,804
[3.330964793 e-25 kg]
869,832
[35.991 GeV]
Thallium
81
Q
RE
M
KE
electron configuration
Aufbau
[Xe] 4f14 5d10 6s2 6p1
54
81 Protons [24-12] Neutrons [18-18] electrons [0-12] n1-6
Metaloid
Azmithal & Magnetic numbers
atomic shell
energy level
Orbitals & sub-orbitals



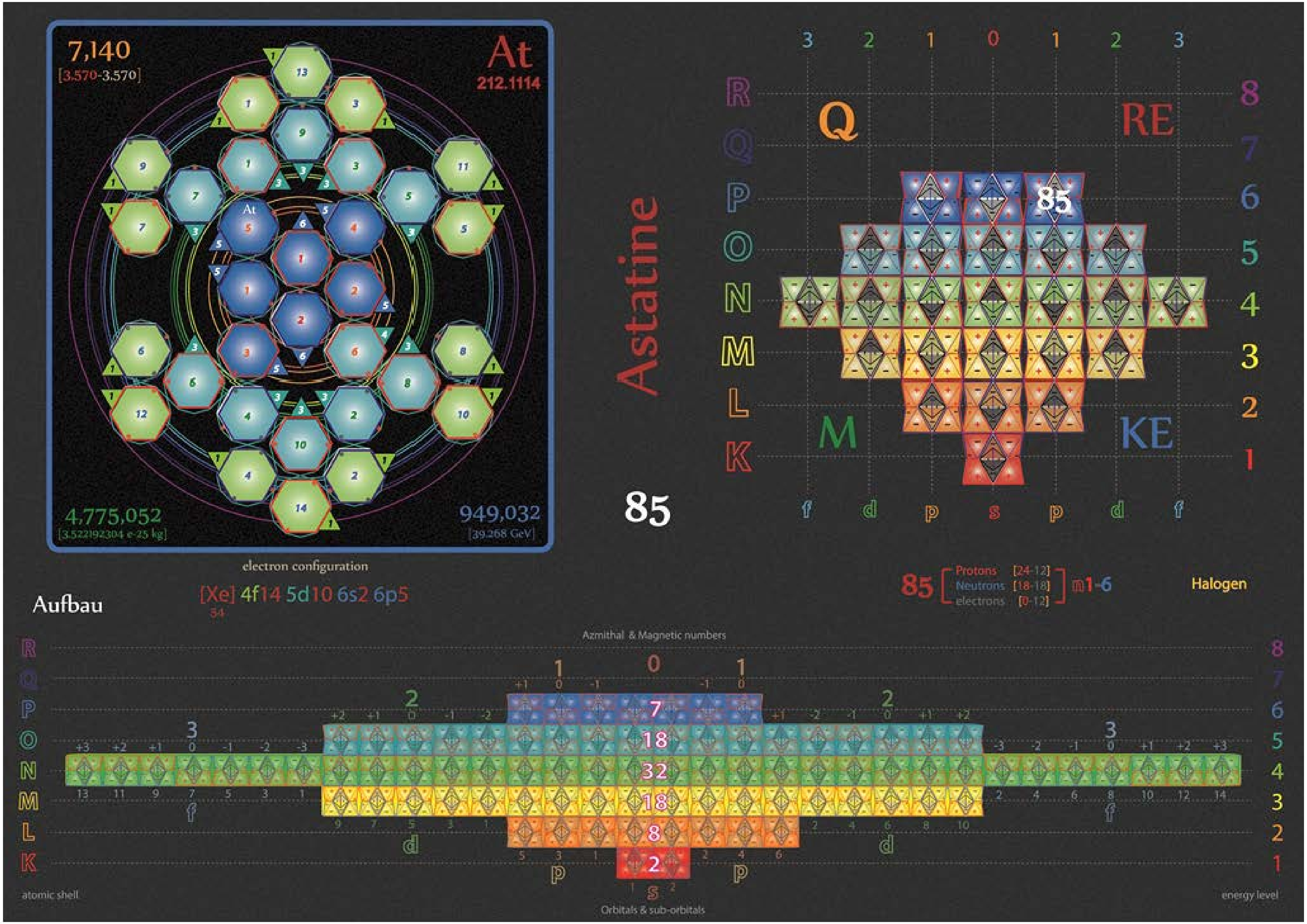
Tetryonics 51.82 - Lead atom

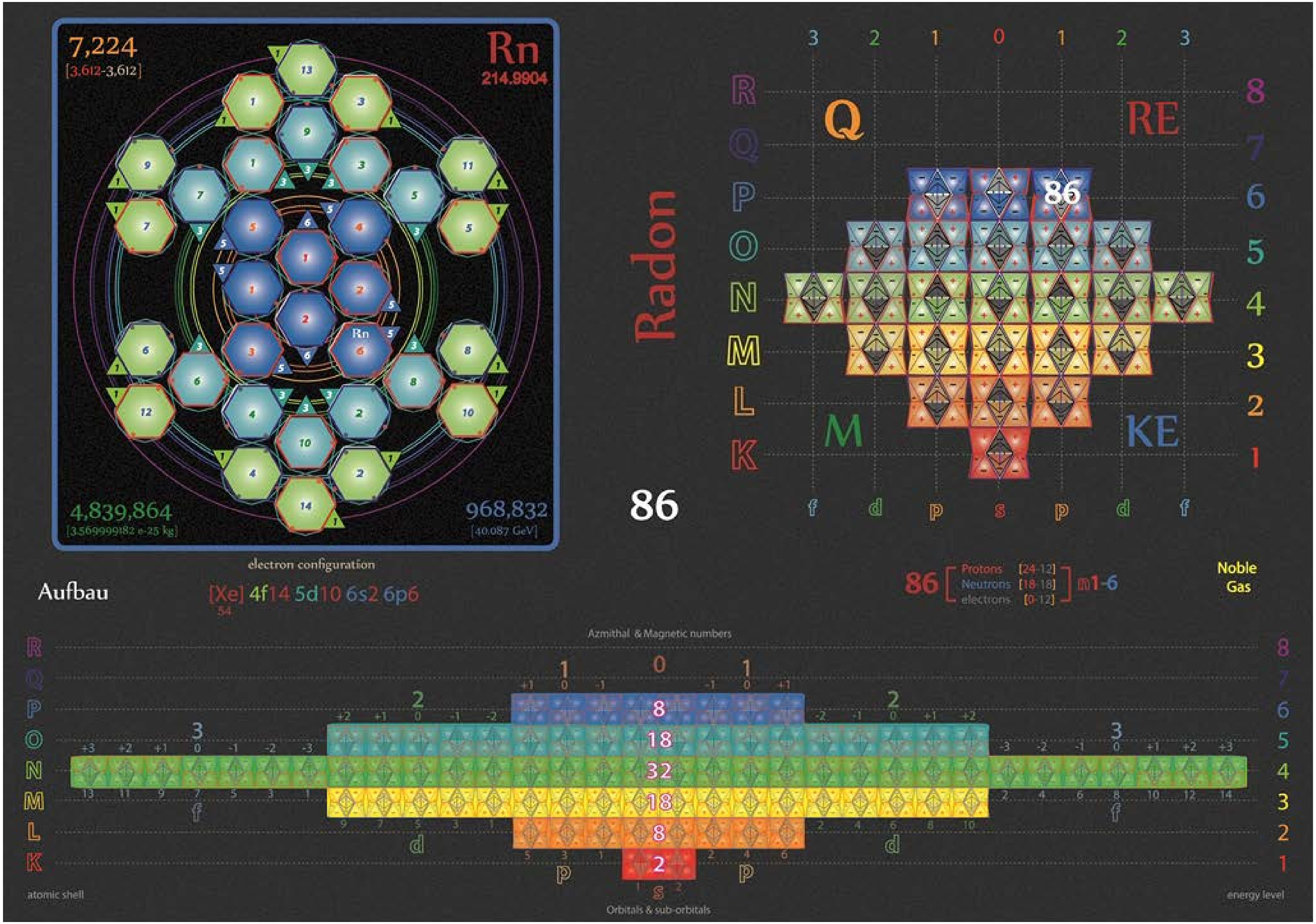


Tetryonics 51.83 - Bismuth atom

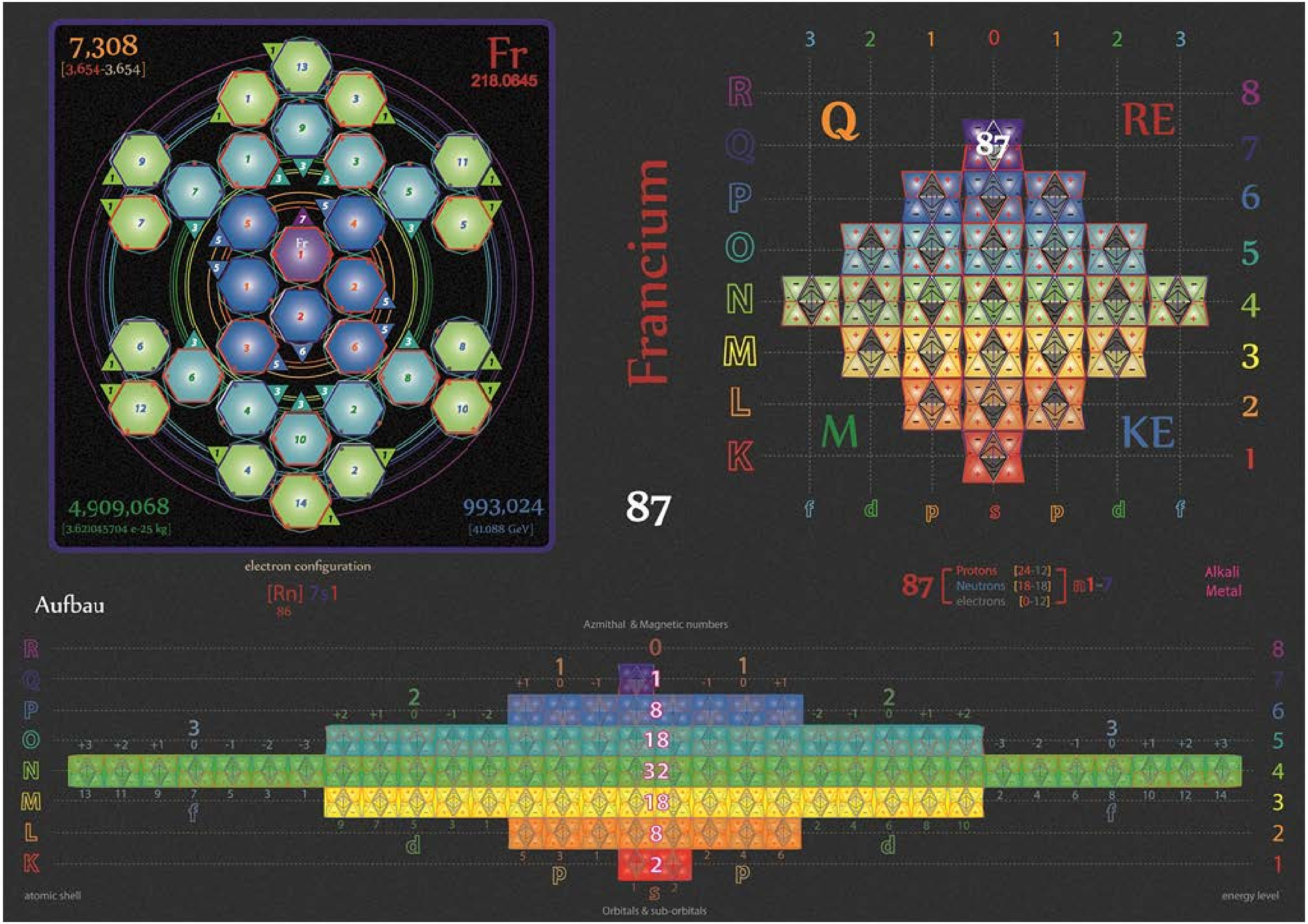


7,056
[3.528-3.528]
Po
209.2324
4,710,240
[3.474385426 e-25 kg]
929,232
[38.449 GeV]
Polonium
84
Q
RE
M
KE
electron configuration
Aufbau
[Xe] 4f14 5d10 6s2 6p4
54
84 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-6
Metaloid
Azmithal & Magnetic numbers
atomic shell
energy level
Orbitals & sub-orbitals

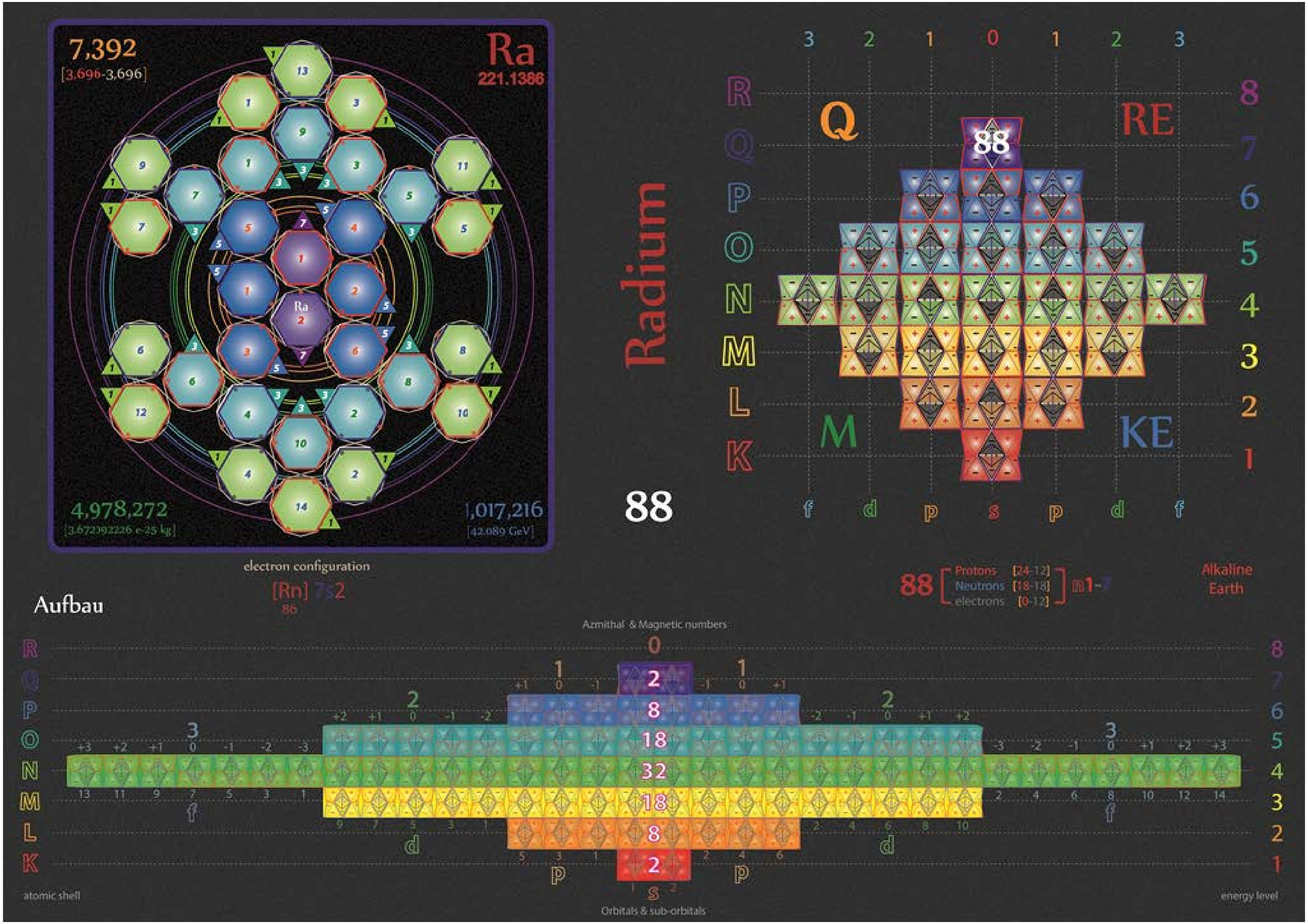

7,140
[3.570-3.570]
At
212.1114
4,775,052
[3.522192304 e-25 kg]
949,032
[39.268 GeV]
Astatine
85
Q
RE
M
KE
R Q P O N M L K
8 7 6 5 4 3 2 1
3 2 1 0 1 2 3
f d p s p d f
electron configuration
Aufbau
[Xe] 4f14 5d10 6s2 6p5
54
85 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-6
Halogen
Azmithal & Magnetic numbers
7
18
32
18
8
2
atomic shell
energy level
Orbitals & sub-orbitals



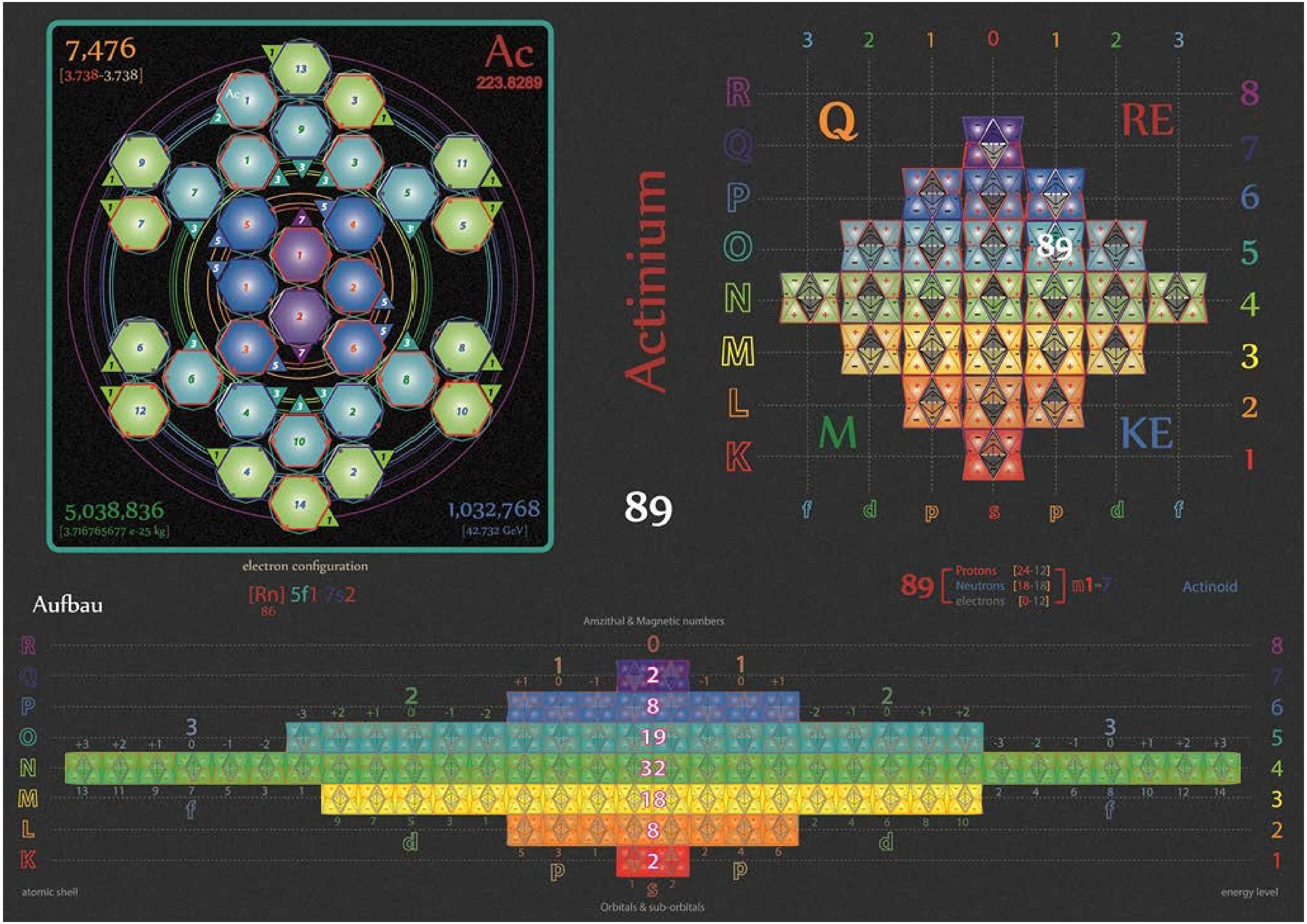
Tetryonics 51.86 - Radon atom



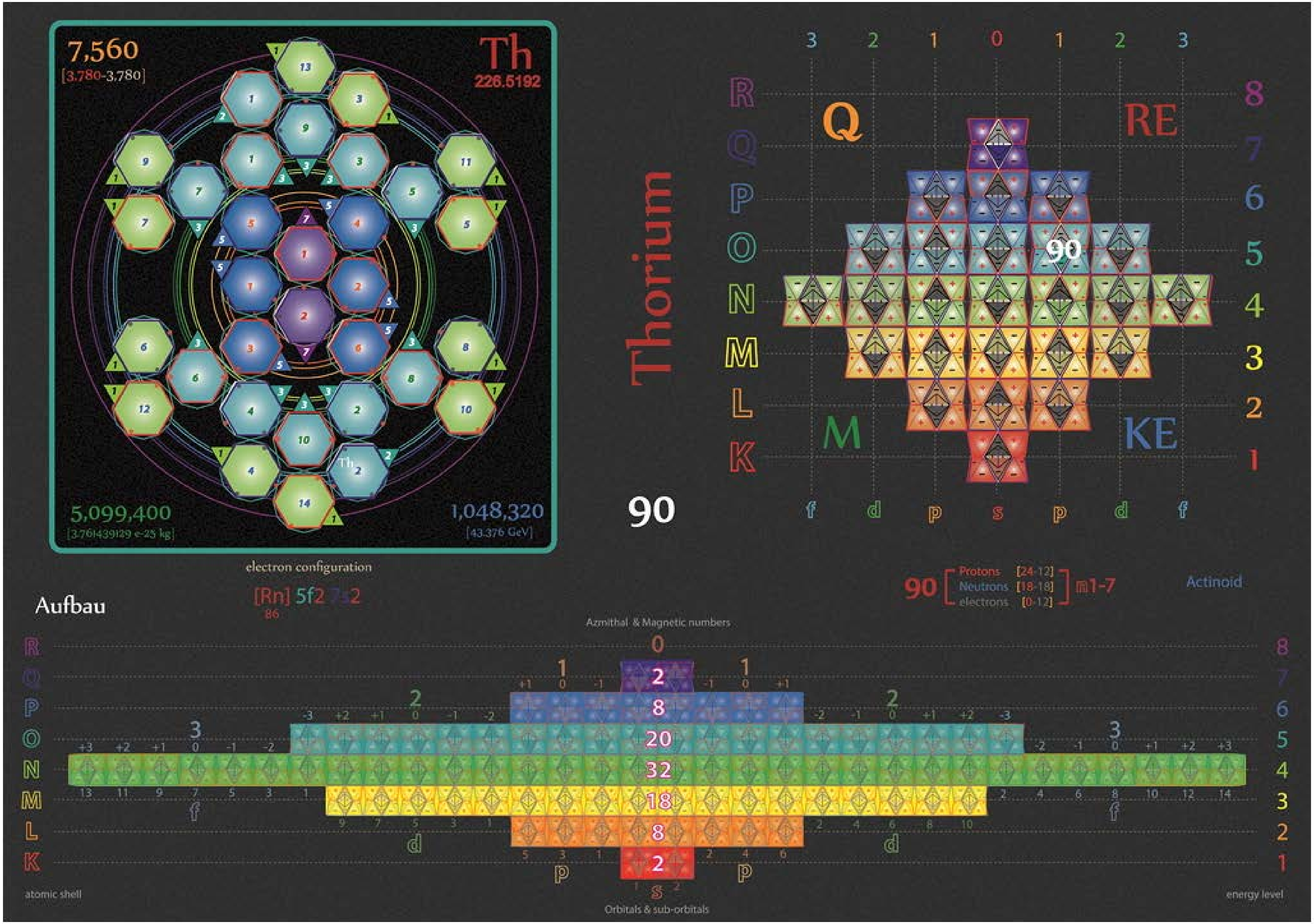
Tetryonics 51.87 - Francium atom



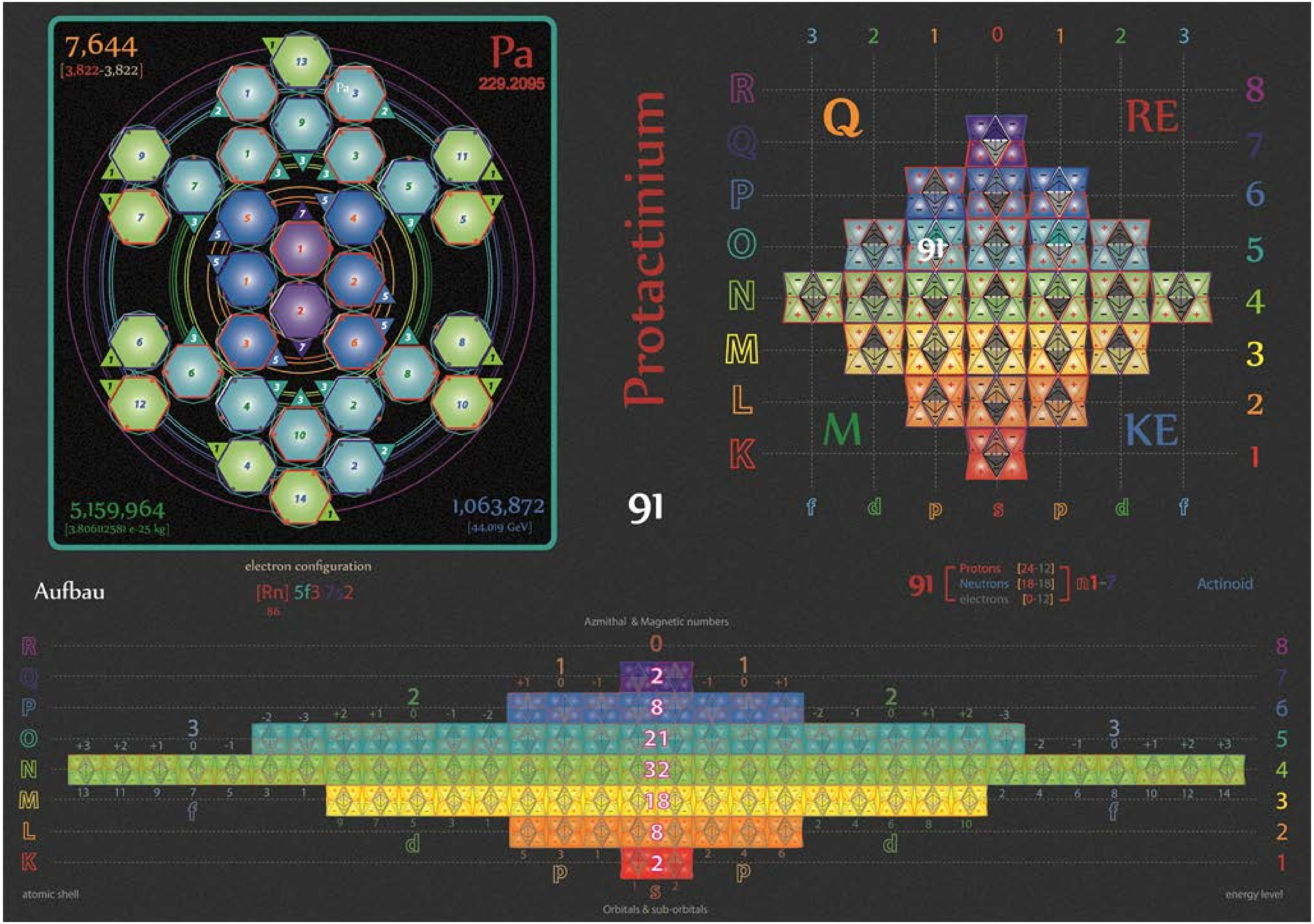
Tetryonics 51.88 - Radium atom

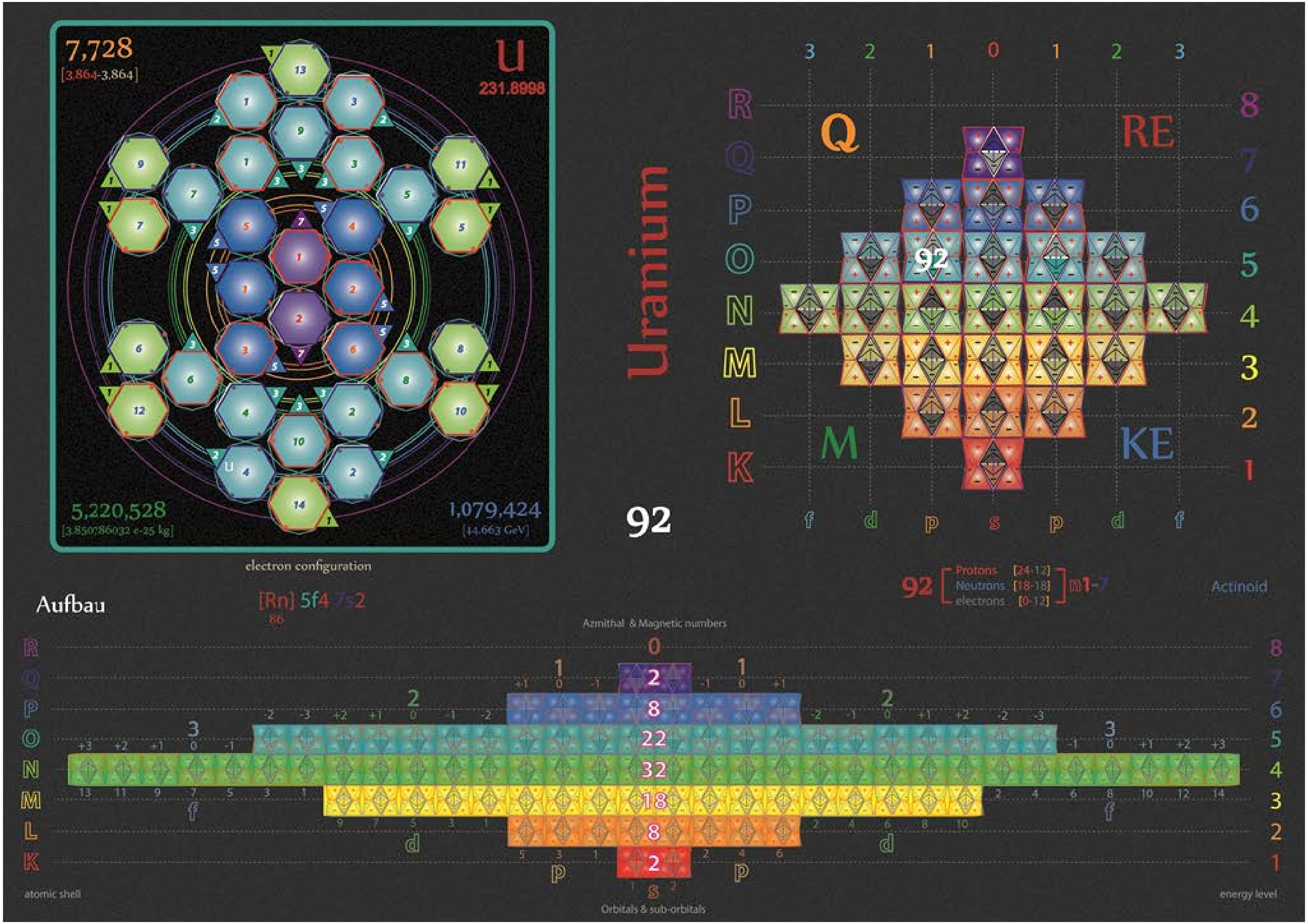


Tetryonics 51.89 - Actinium atom

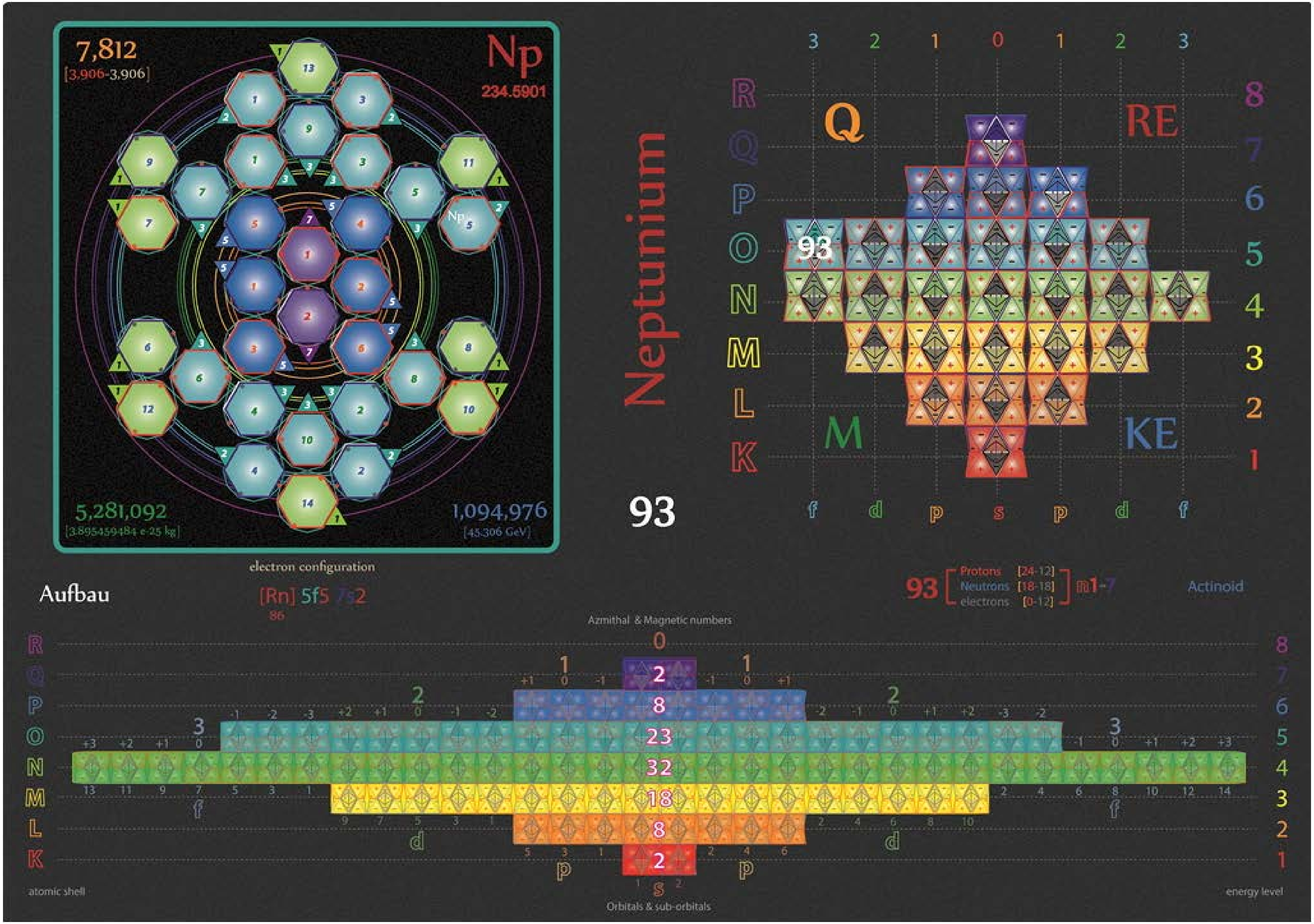


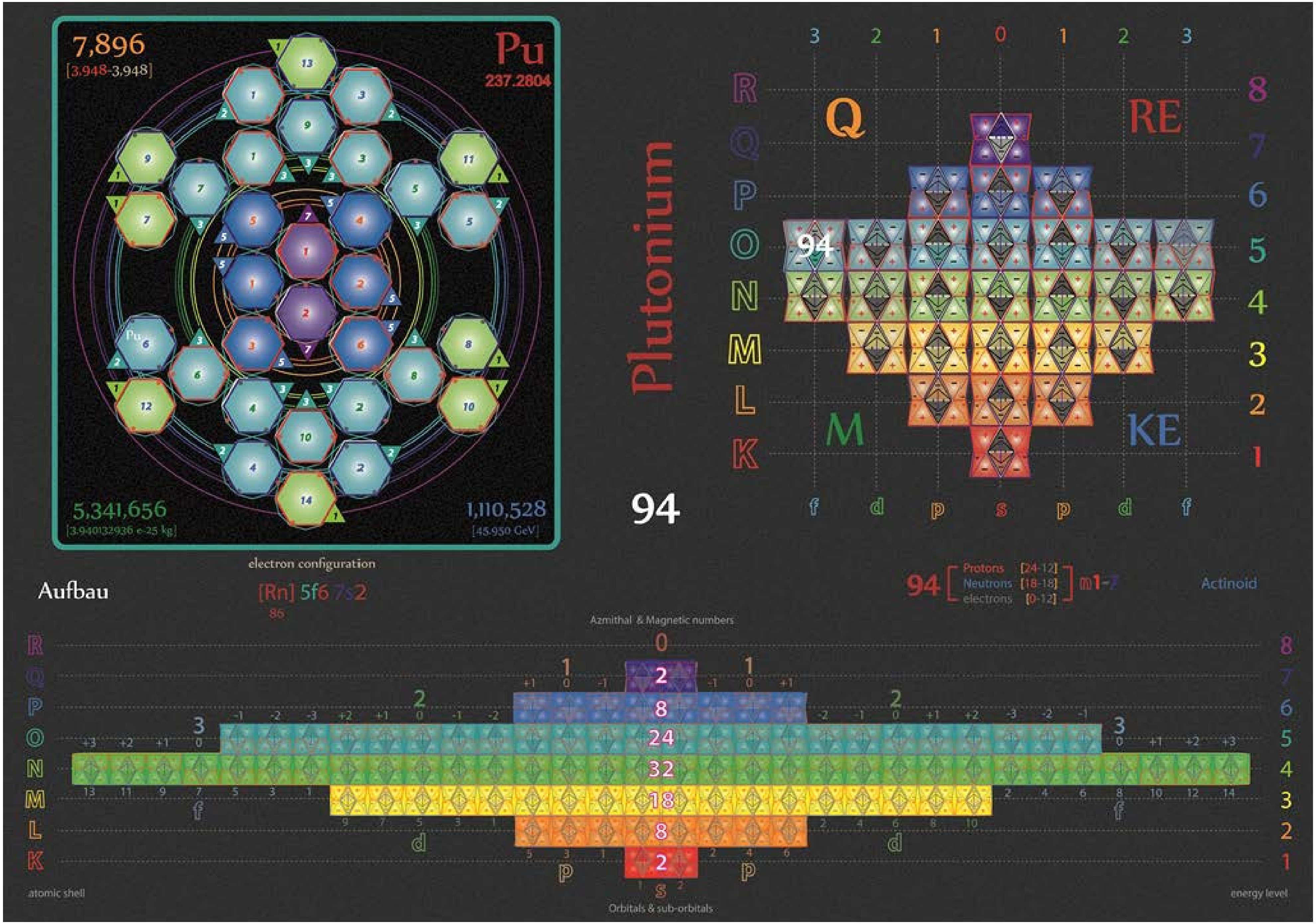
Tetryonics 51.90 - Thorium atom


7,644
[3,822-3,822]
Pa
229.2095
5,159,964
[3.806112581 e-25 kg]
1,063,872
[44.019 GeV]
Protactinium
91
Q
RE
M
KE
Aufbau
electron configuration
[Rn] 5f3 7s2
86
91 Protons [24-12] Neutrons [18-18] electrons [0-12] n1-7
Actinoid
Azmithal & Magnetic numbers
atomic shell
energy level
Orbitals & sub-orbitals

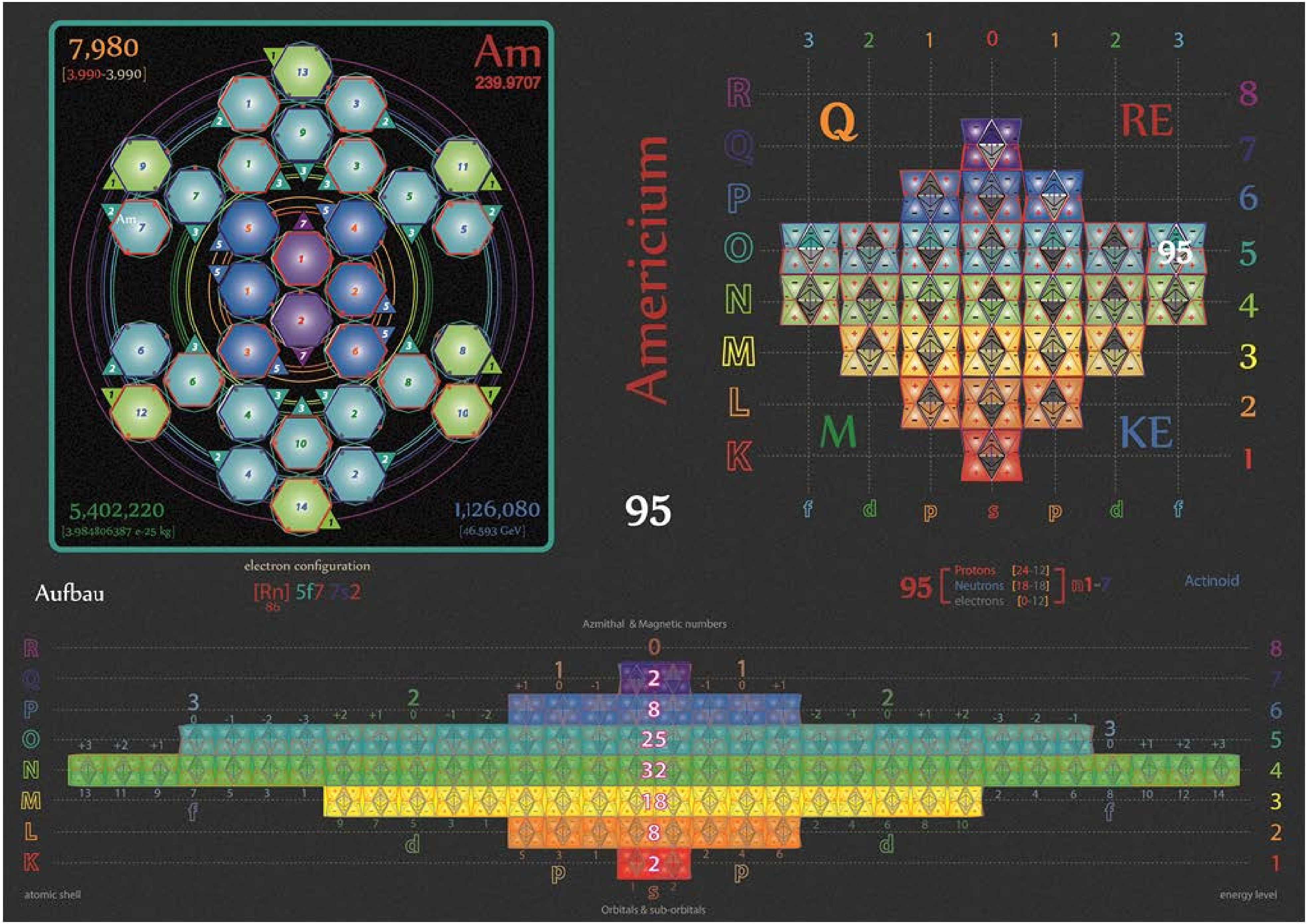


Tetryonics 51.92 - Uranium atom

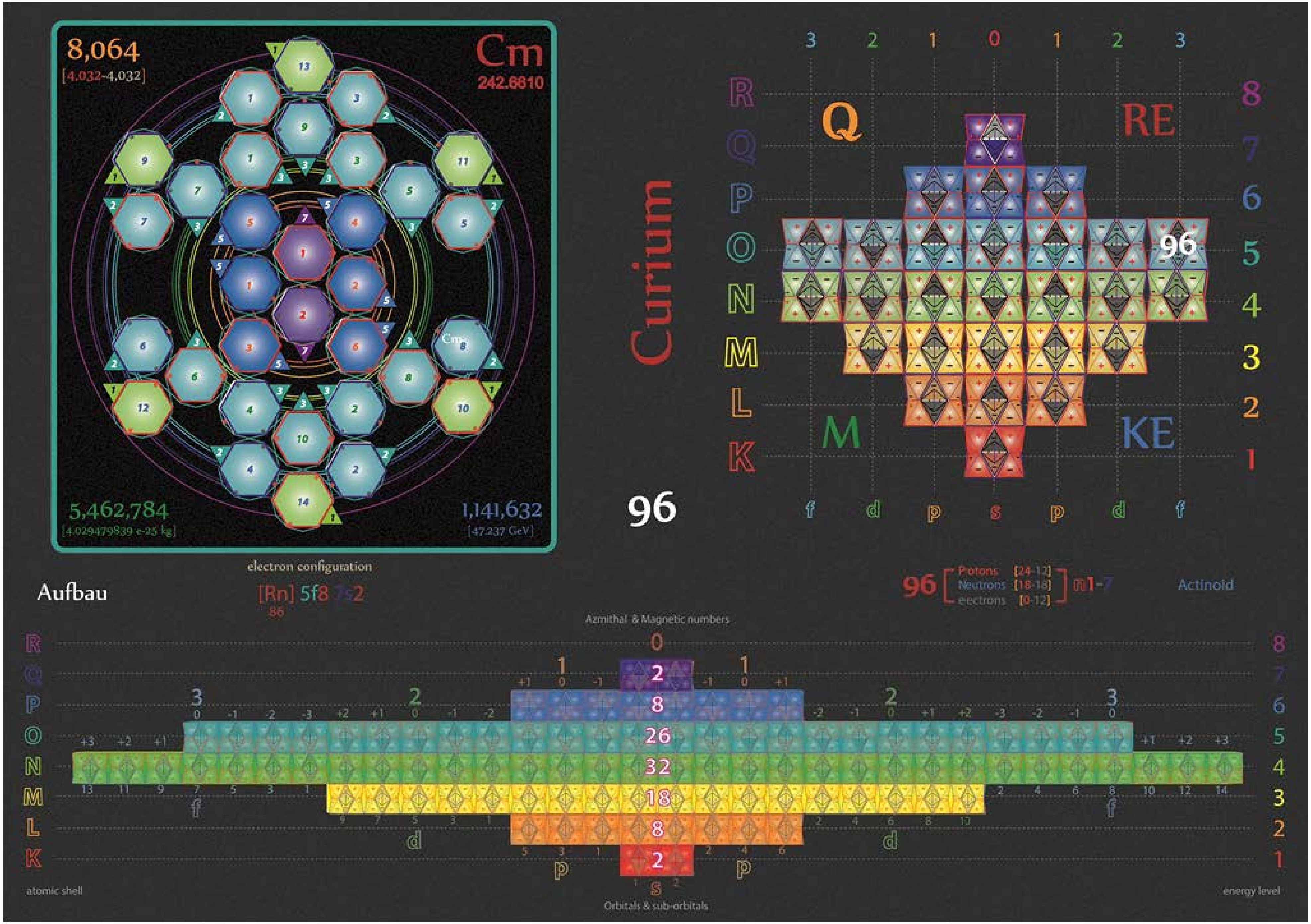

7,812
[3,906-3,906]
Np
234.5901
5,281,092
[3.895459484 e-25 kg]
1,094,976
[45.306 GeV]
Neptunium
93
Q
RE
M
KE
electron configuration
Aufbau
[Rn] 5f5 7s2
86
93
Protons [24-12]
Neutrons [18-18]
electrons [0-12]
Actinoid
Azmithal & Magnetic numbers
atomic shell
energy level
Orbitals & sub-orbitals

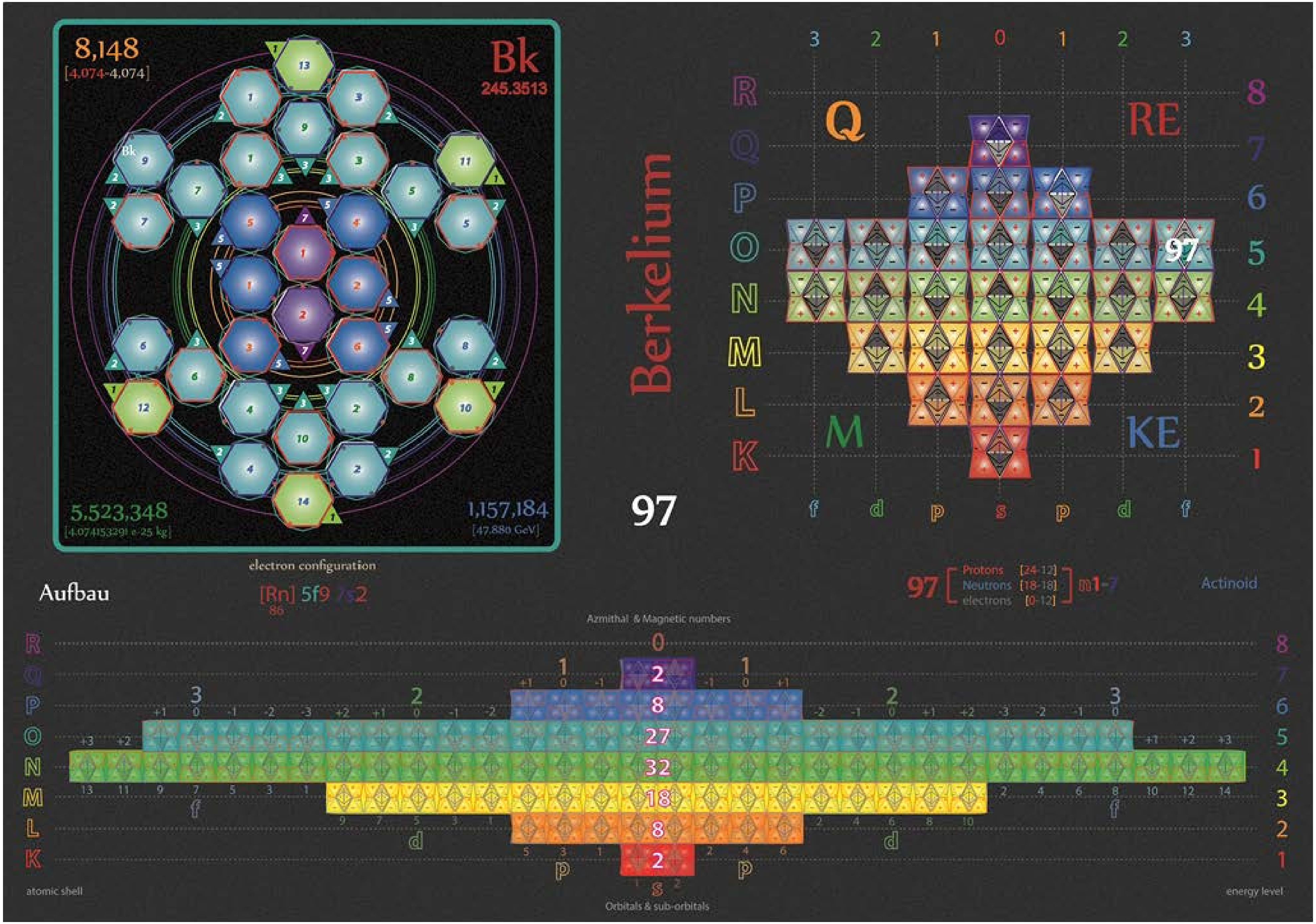


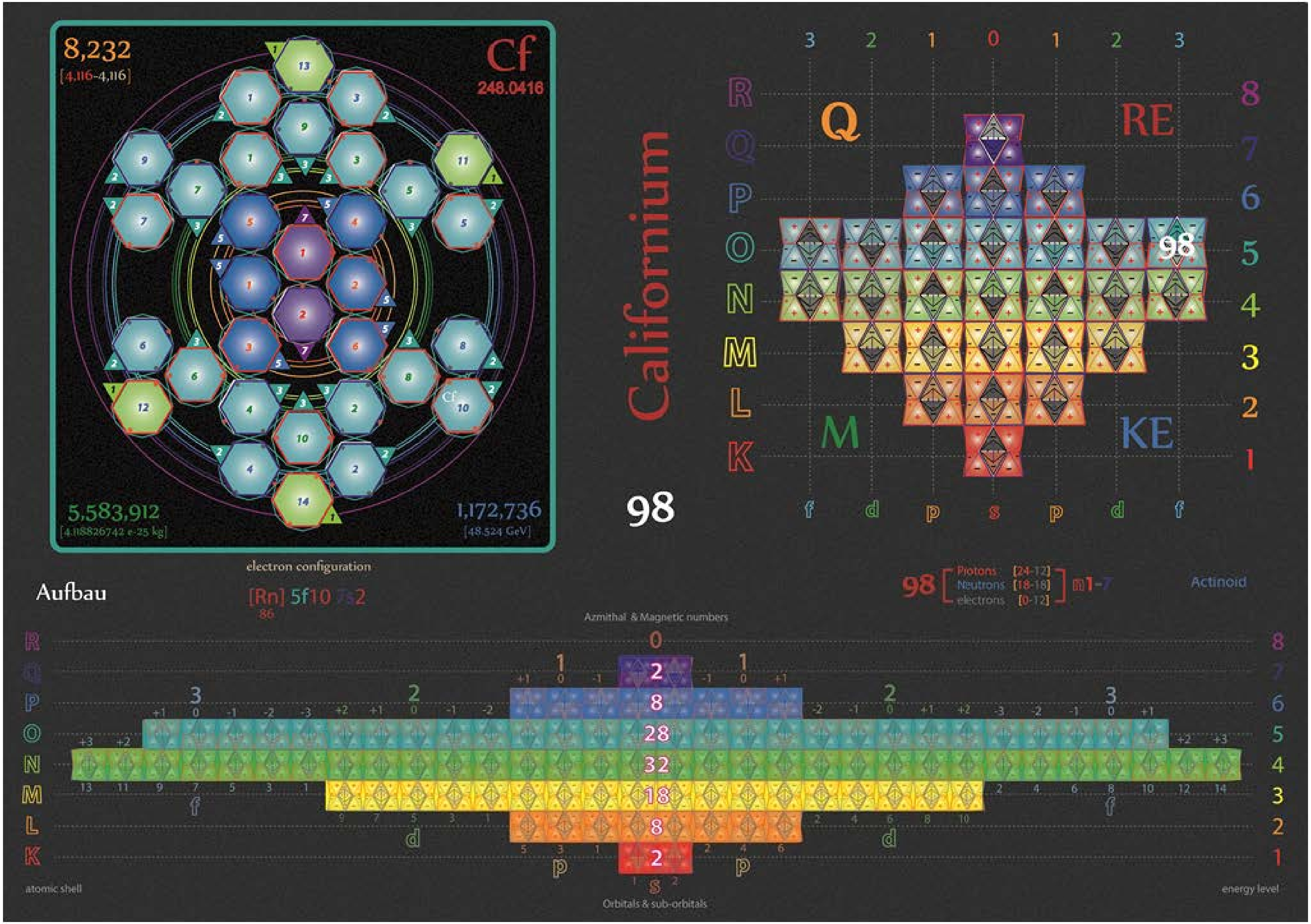
7,896
[3,948-3,948]
Pu
237.2804
5,341,656
[3.940132936 e-25 kg]
1,110,528
[45.950 GeV]
Plutonium
94
Q
RE
M
KE
R Q P O N M L K
8 7 6 5 4 3 2 1
3 2 1 0 1 2 3
f d p s p d f
electron configuration
Aufbau
[Rn] 5f6 7s2
86
94 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-7
Actinoid
Azmithal & Magnetic numbers
2
8
24
32
18
8
2
atomic shell
energy level
Orbitals & sub-orbitals



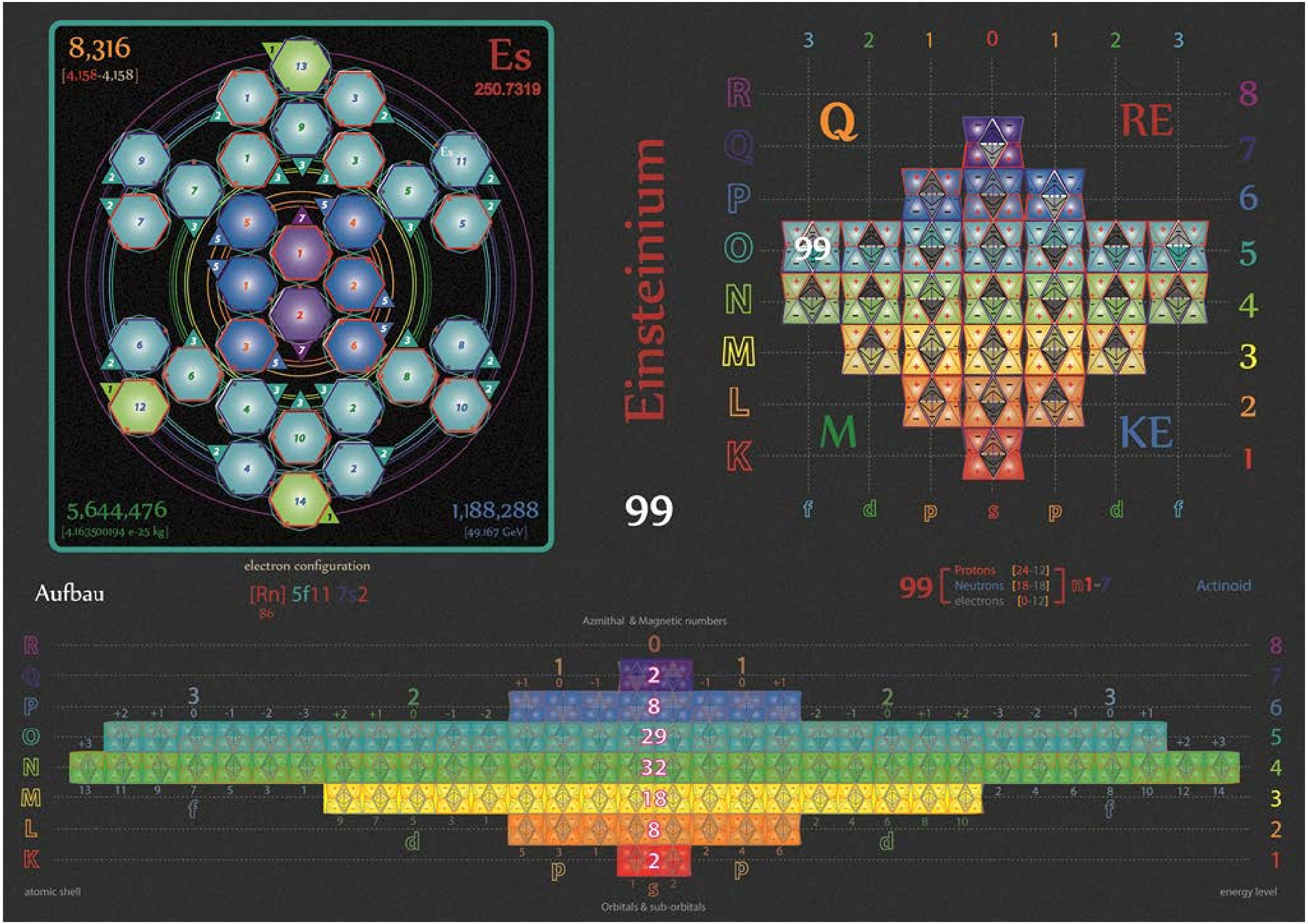
Tetryonics 51.95 - Americium atom

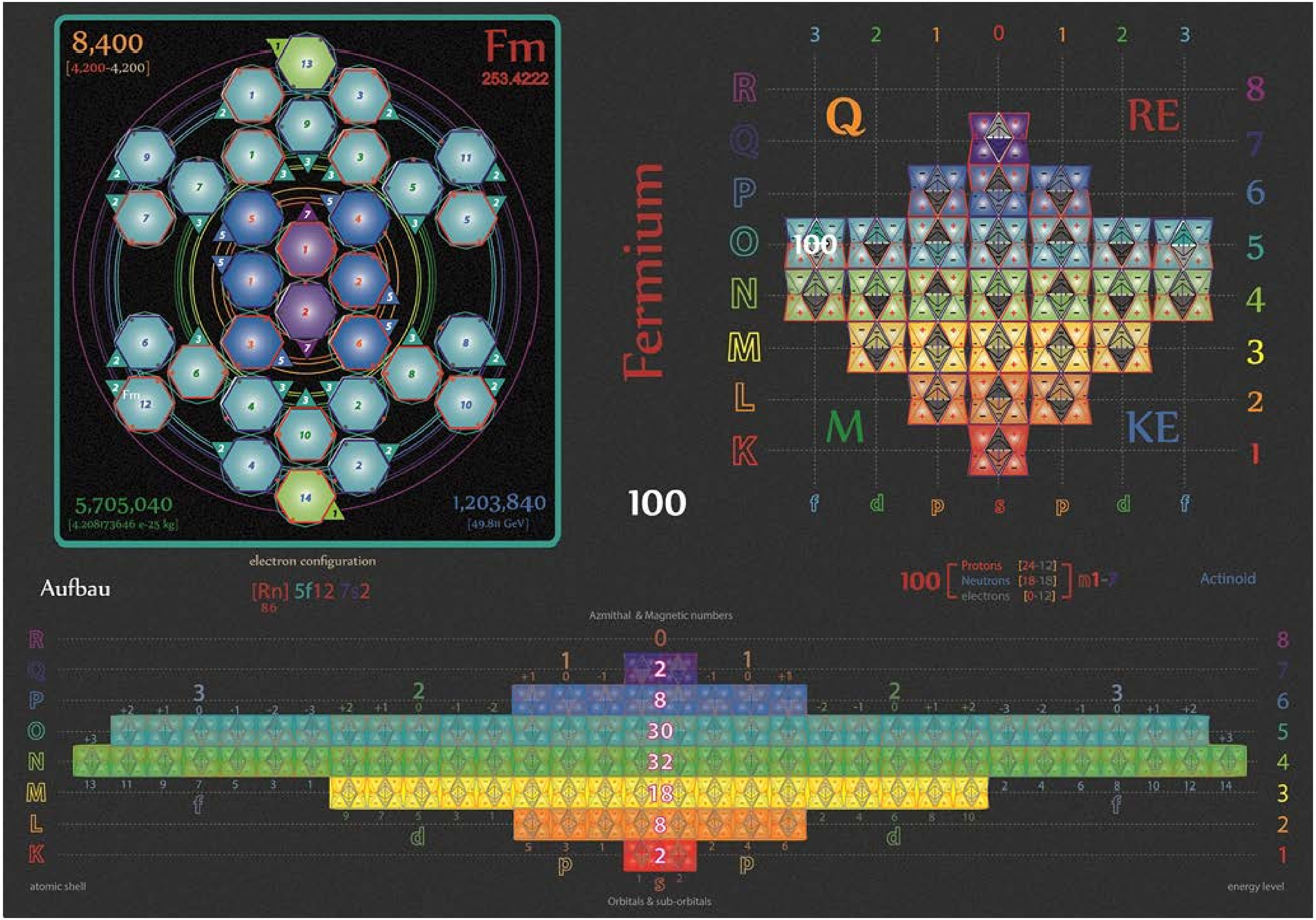

8,064
[4,032-4,032]
Cm
242.6810
5,462,784
[4.029479839 e-25 kg]
1,141,632
[47.237 GeV]
Curium
96
Q
RE
M
KE
R Q P O N M L K
8 7 6 5 4 3 2 1
3 2 1 0 1 2 3
f d p s p d f
electron configuration
Aufbau
[Rn] 5f8 7s2
86
96 Protons [24-12] Neutrons [18-18] electrons [0-12] n1-7
Actinoid
Azmithal & Magnetic numbers
2
8
26
32
18
8
2
atomic shell
energy level
Orbitals & sub-orbitals


8,148
[4.074-4.074]
Bk
245.3513
5,523,348
[4.07415329] e-25 kg]
1,157,184
[47.880 GeV]
Berkelium
97
Q
RE
M
KE
electron configuration
Aufbau
[Rn] 5f9 7s2
86
97
Protons [24-12]
Neutrons [18-18]
electrons [0-12]
m1-7
Actinoid
Azmithal & Magnetic numbers
Orbitals & sub-orbitals
atomic shell
energy level

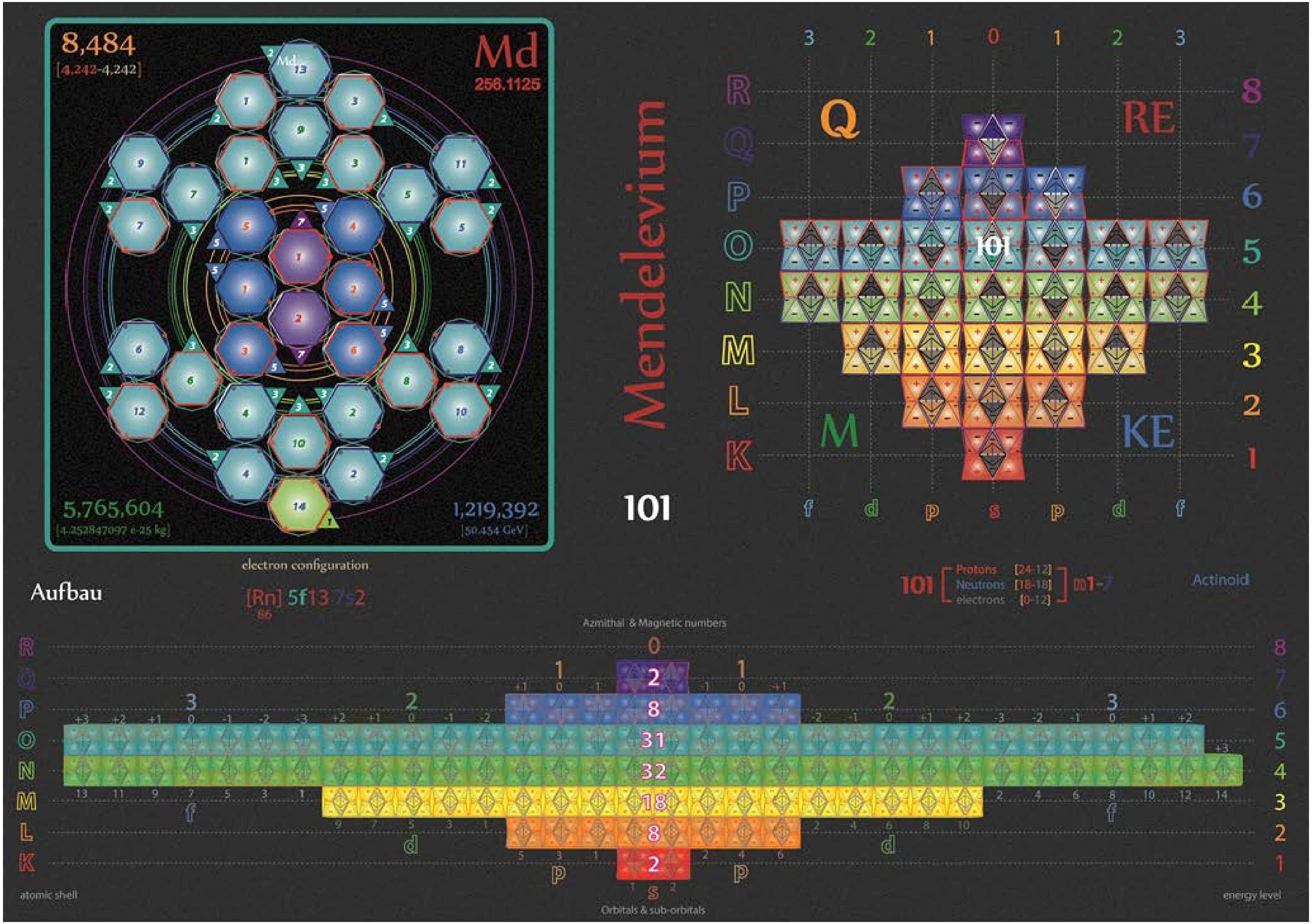


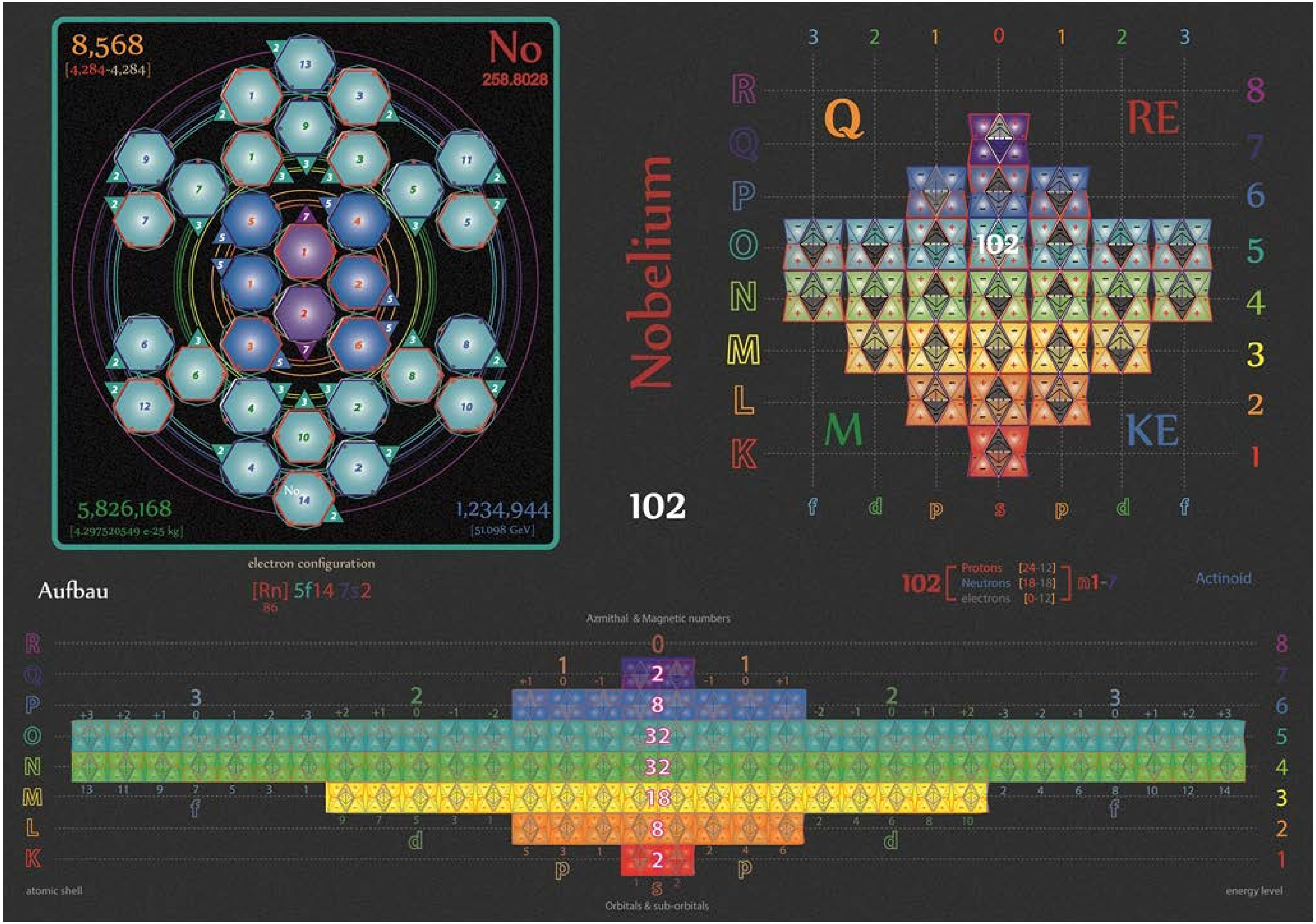
Tetryonics 51.98 - Californium atom


8,316
[4,158-4,158]
Es
250.7319
5,644,476
[4.163500194 e-25 kg]
1,188,288
[49.167 GeV]
Einsteinium
99
R Q P O N M L K
8 7 6 5 4 3 2 1
3 2 1 0 1 2 3
Q
RE
M
KE
f d p s p d f
electron configuration
Aufbau
[Rn] 5f11 7s2
86
99 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-7
Actinoid
Azmithal & Magnetic numbers
2
8
29
32
18
8
2
atomic shell
energy level
Orbitals & sub-orbitals

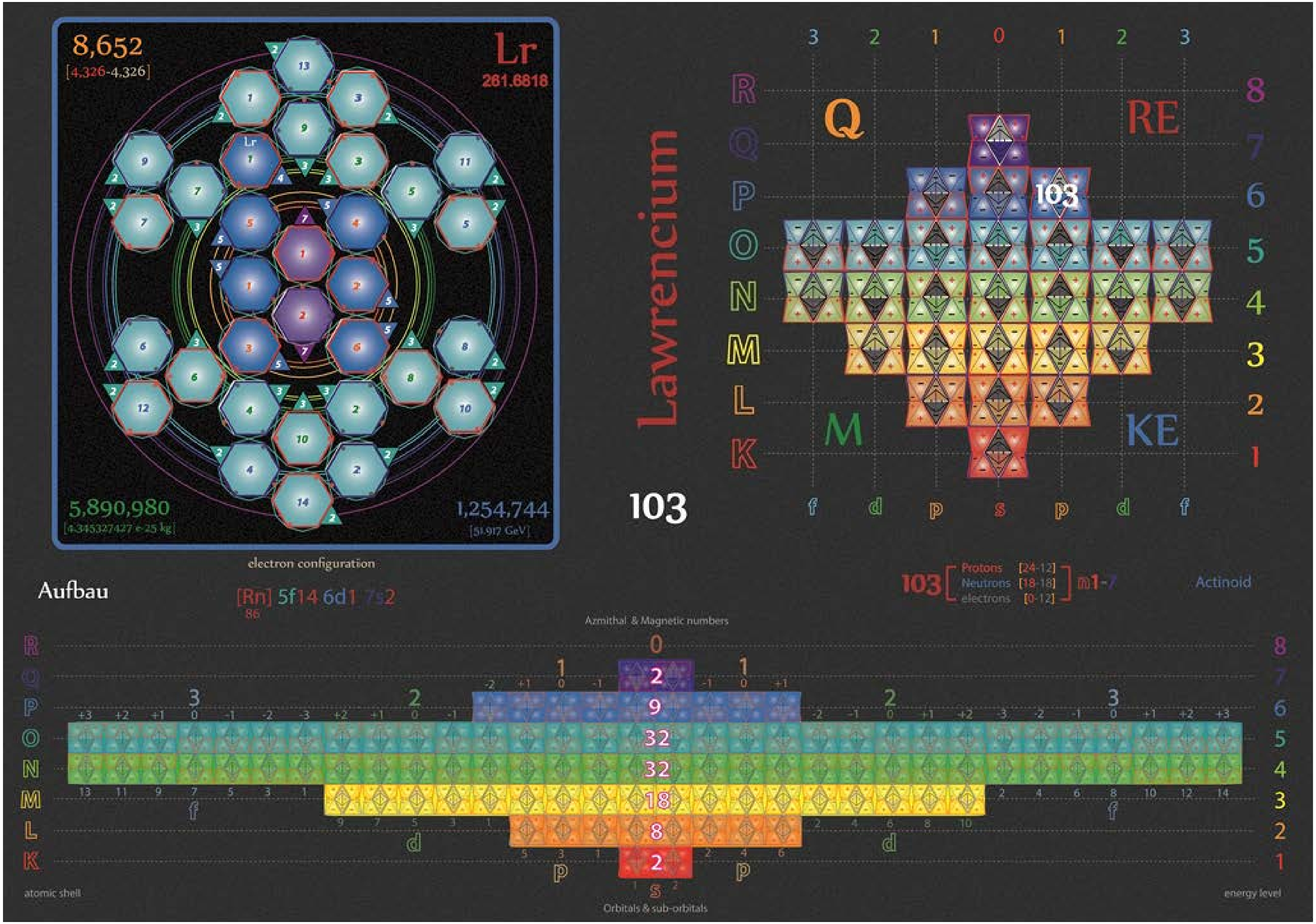


8,400
[4,200-4,200]
Fm
253.4222
5,705,040
[4.208173646 e-25 kg]
1,203,840
[49.811 GeV]
Fermium
100
electron configuration
Aufbau
[Rn] 5f12 7s2
86
Q
RE
M
KE
100 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-7
Actinoid
Azmithal & Magnetic numbers
Orbitals & sub-orbitals
atomic shell
energy level

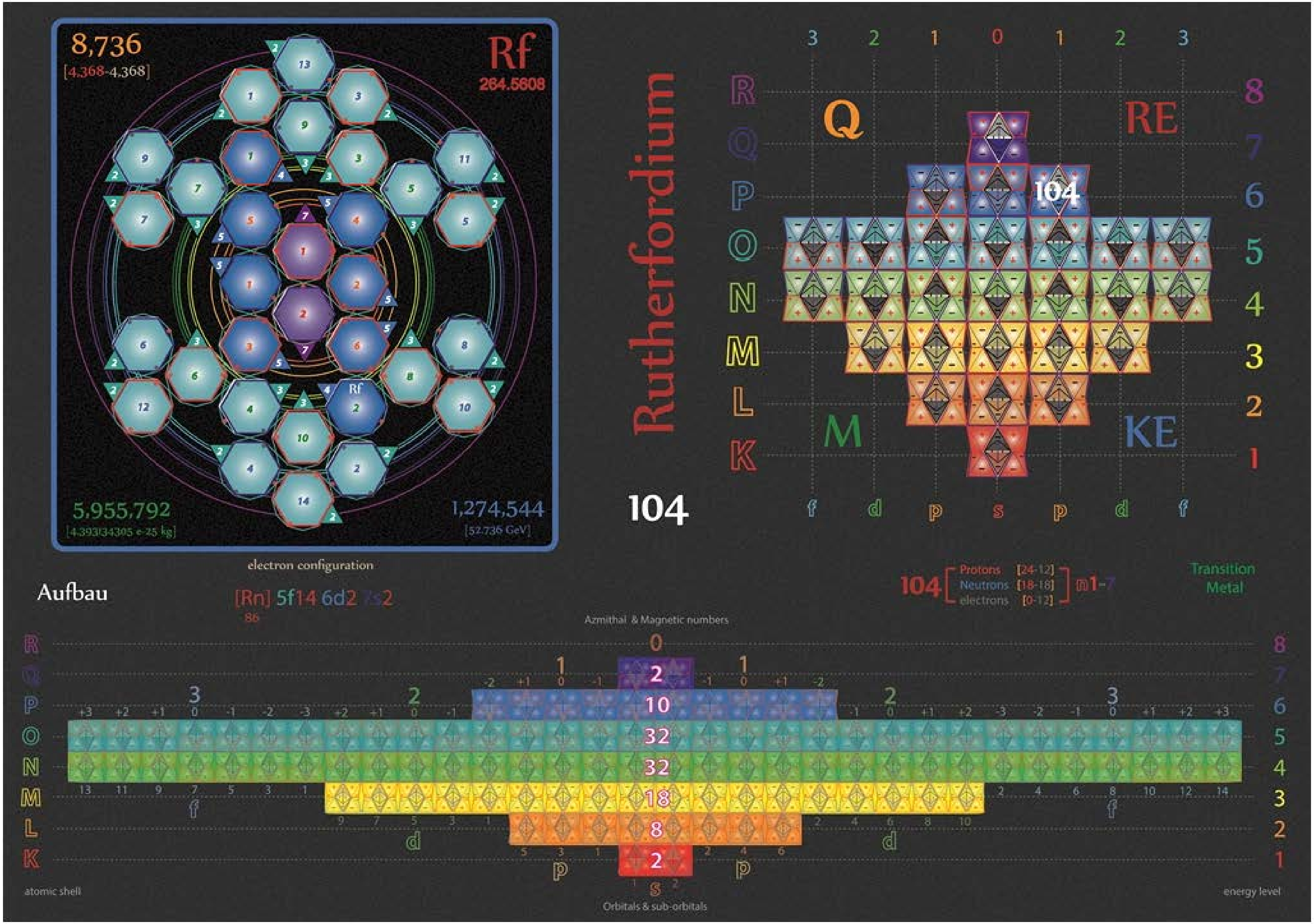

8,484
[4,242-4,242]
Md
256.1125
5,765,604
[4.252847097 e-25 kg]
1,219,392
[50.454 GeV]
Mendelevium
101
Q
RE
M
KE
R
Q
P
O
N
M
L
K
8
7
6
5
4
3
2
1
f
d
p
s
p
d
f
electron configuration
Aufbau
[Rn] 5f13 7s2
86
101
Protons [24-12]
Neutrons [18-18]
electrons [0-12]
m1-7
Actinoid
Azmithal & Magnetic numbers
2
8
31
32
18
8
2
Orbitals & sub-orbitals
atomic shell
energy level

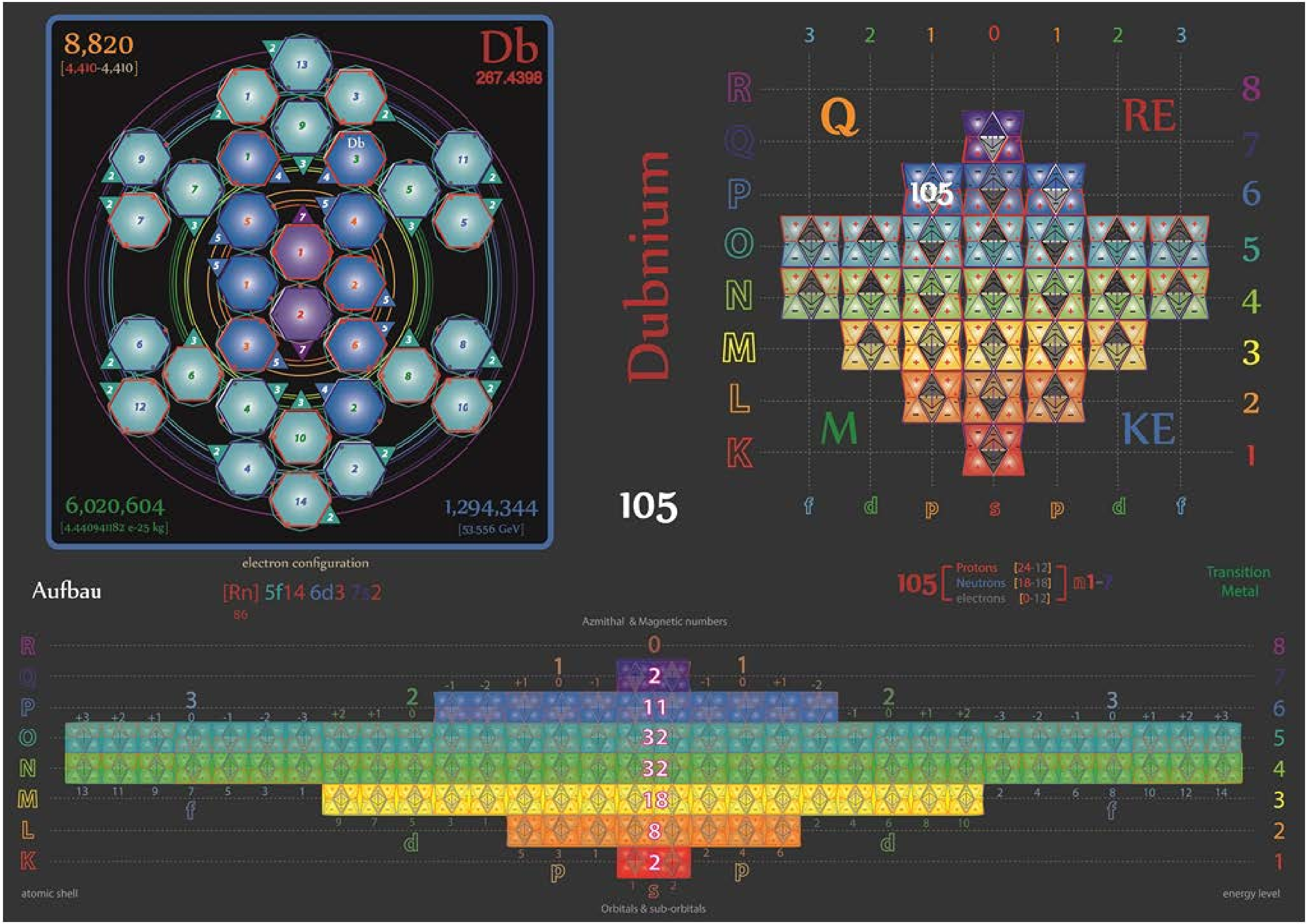


Tetryonics 51.102 - Nobelium atom

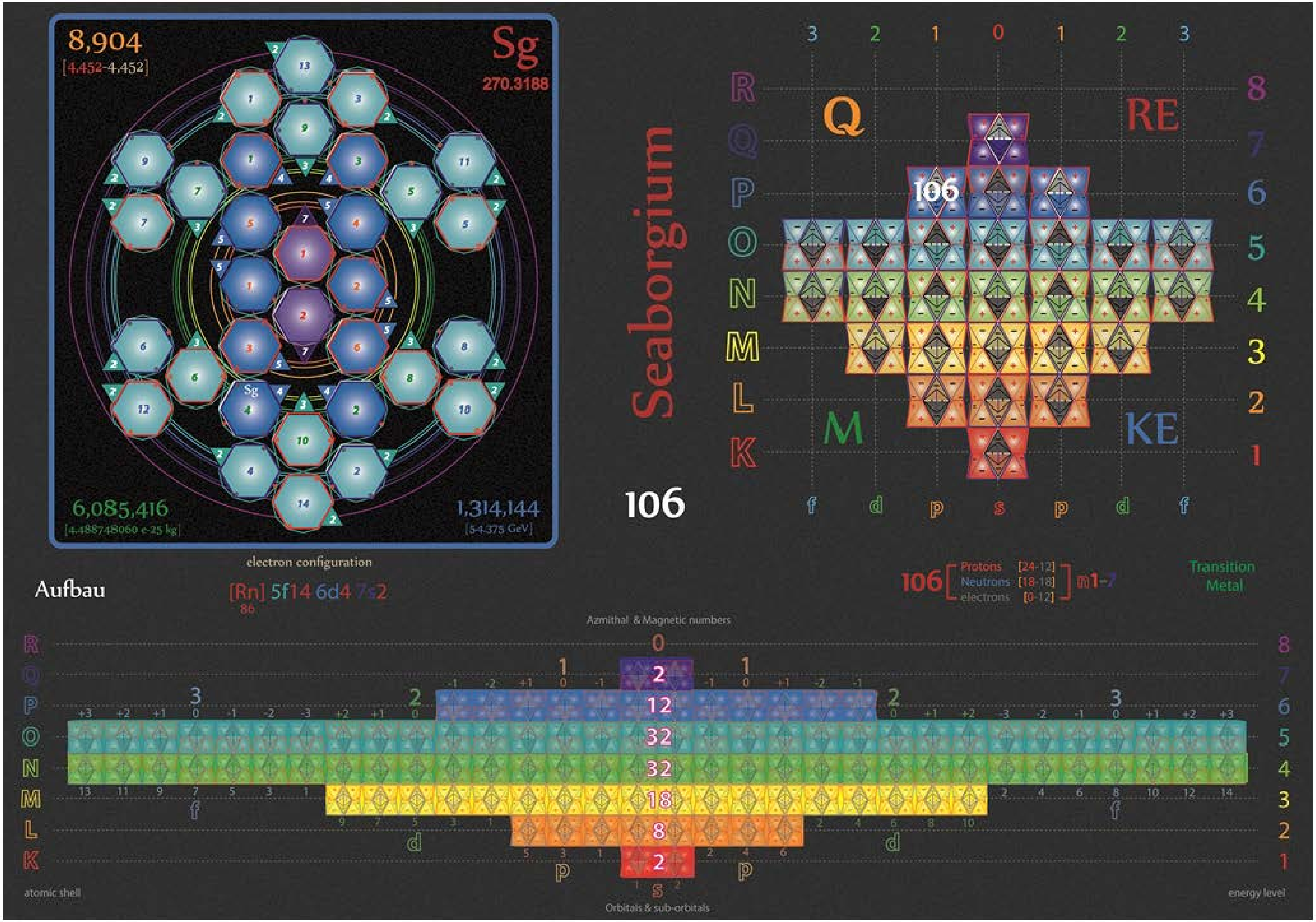


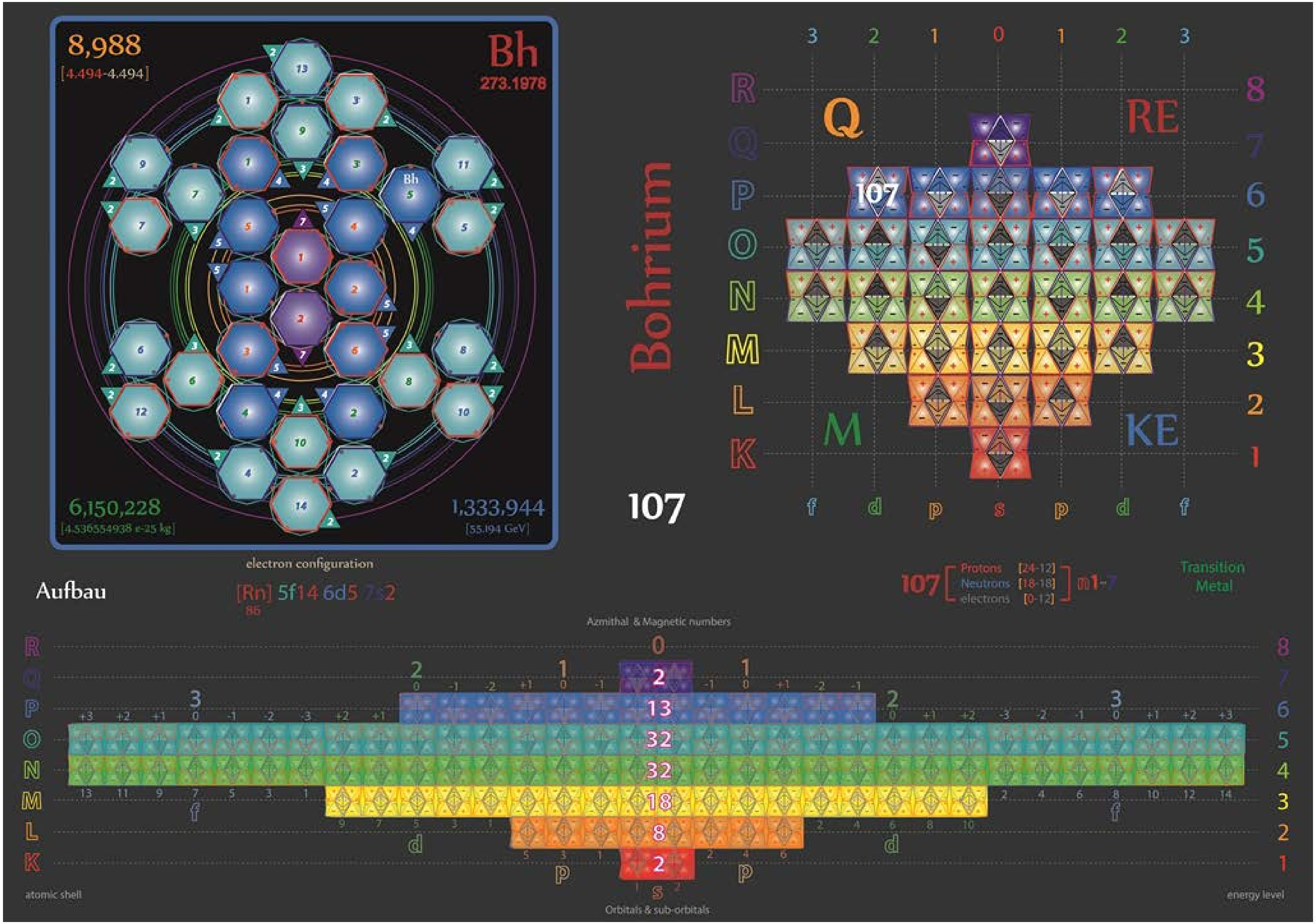
Tetryonics 51.103 - Lawrencium atom


8,736
[4,368-4,368]
Rf
264.5608
5,955,792
[4.393134305 e-25 kg]
1,274,544
[52.736 GeV]
Rutherfordium
104
electron configuration
Aufbau
[Rn] 5f14 6d2 7s2
86
Q
RE
M
KE
104 Protons [24-12] Neutrons [18-18] electrons [0-12] n1-7
Transition Metal
Azmithal & Magnetic numbers
Orbitals & sub-orbitals
atomic shell
energy level

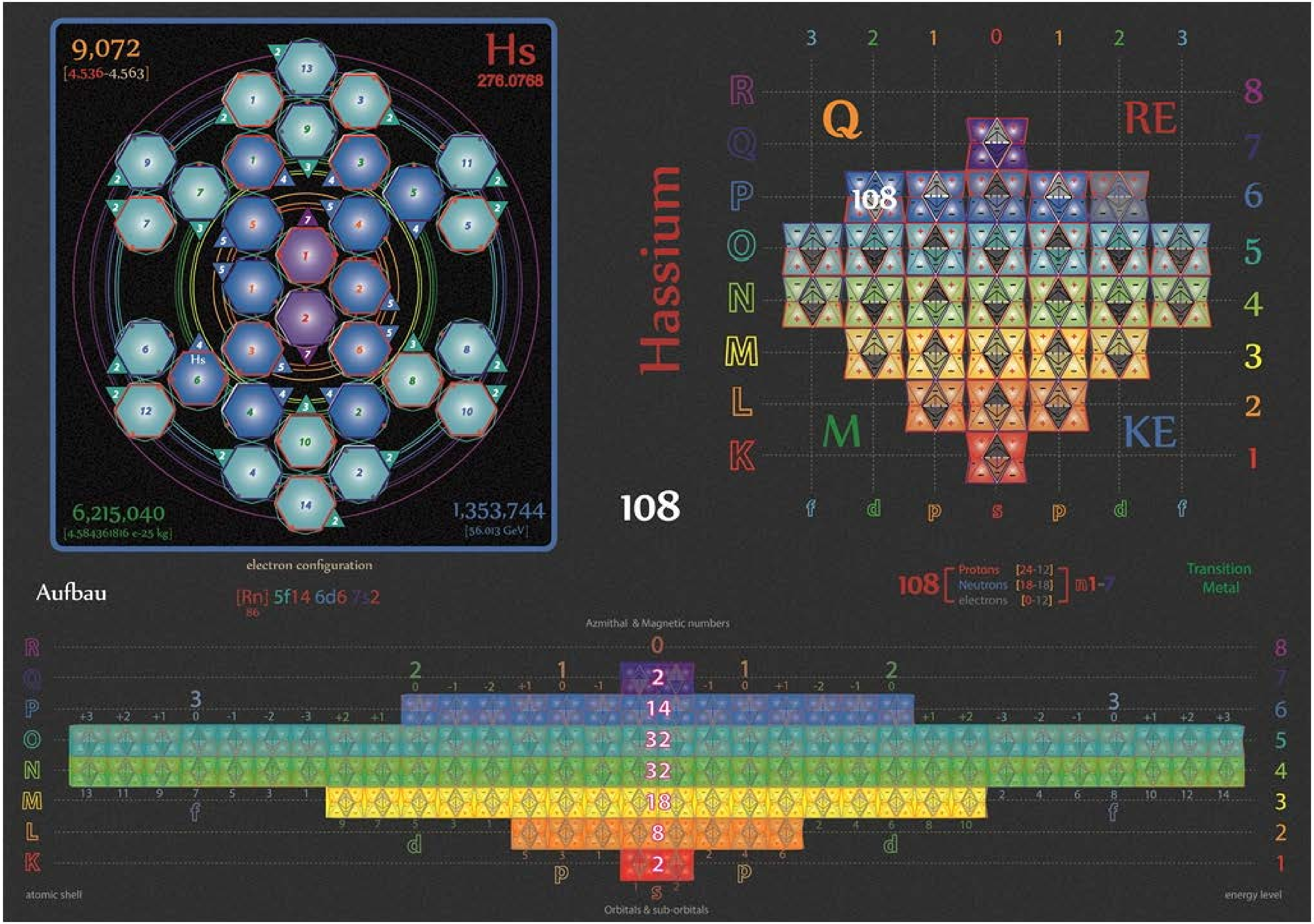


8,820
[4,410-4,410]
Db
267.4398
6,020,604
[4.44094182 e-25 kg]
1,294,344
[53.556 GeV]
Dubnium
105
Q
RE
M
KE
electron configuration
Aufbau
[Rn] 5f14 6d3 7s2
86
105 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-7
Transition Metal
Azmithal & Magnetic numbers
atomic shell
energy level
Orbitals & sub-orbitals

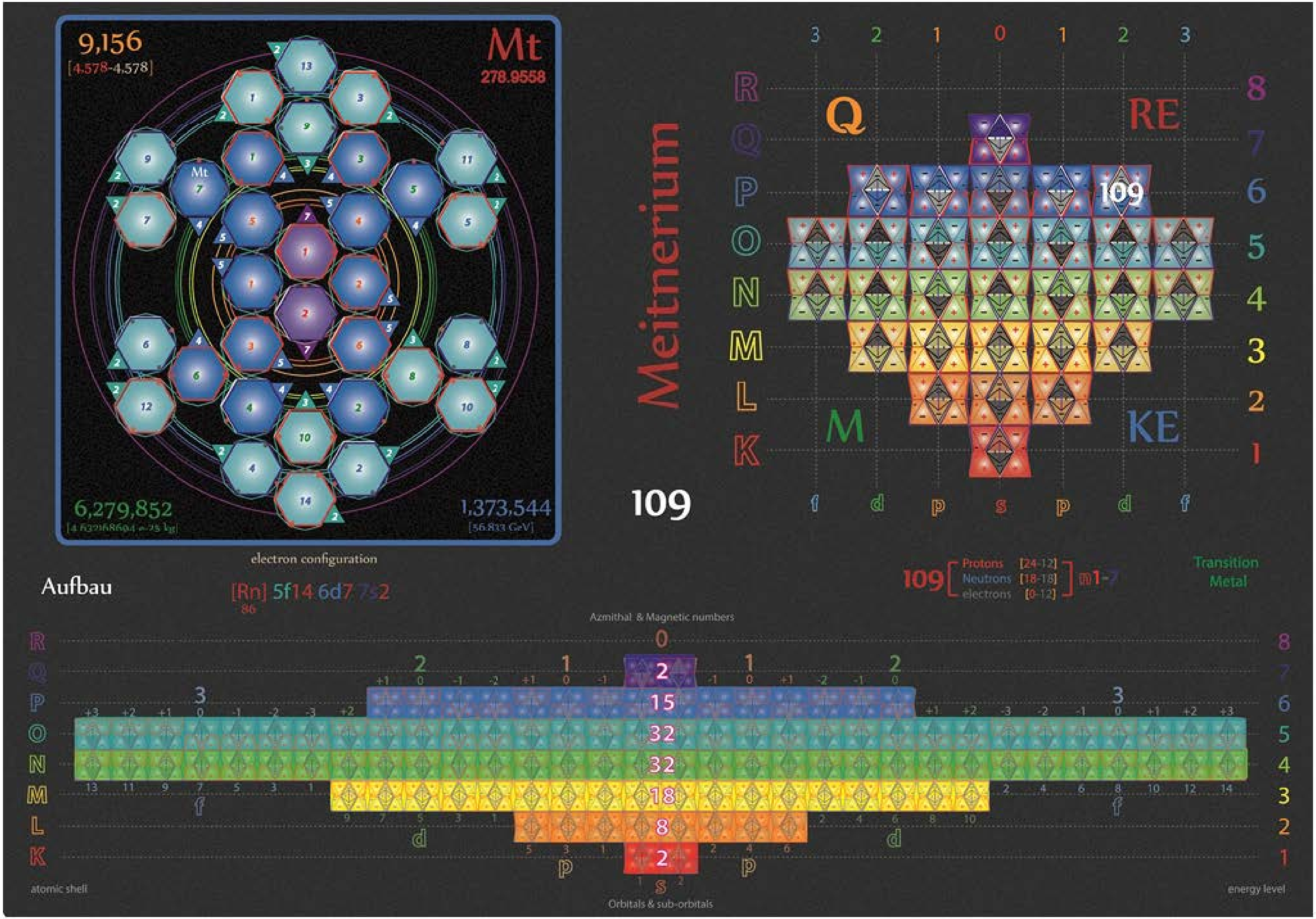

8,904
[4,452-4,452]
Sg
270.3188
6,085,416
[4.488748060 e-25 kg]
1,314,144
[54.375 GeV]
Seaborgium
106
electron configuration
Aufbau
[Rn] 5f14 6d4 7s2
86
106 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-7
Transition Metal
Q
RE
M
KE
Azimthal & Magnetic numbers
Orbitals & sub-orbitals
atomic shell
energy level



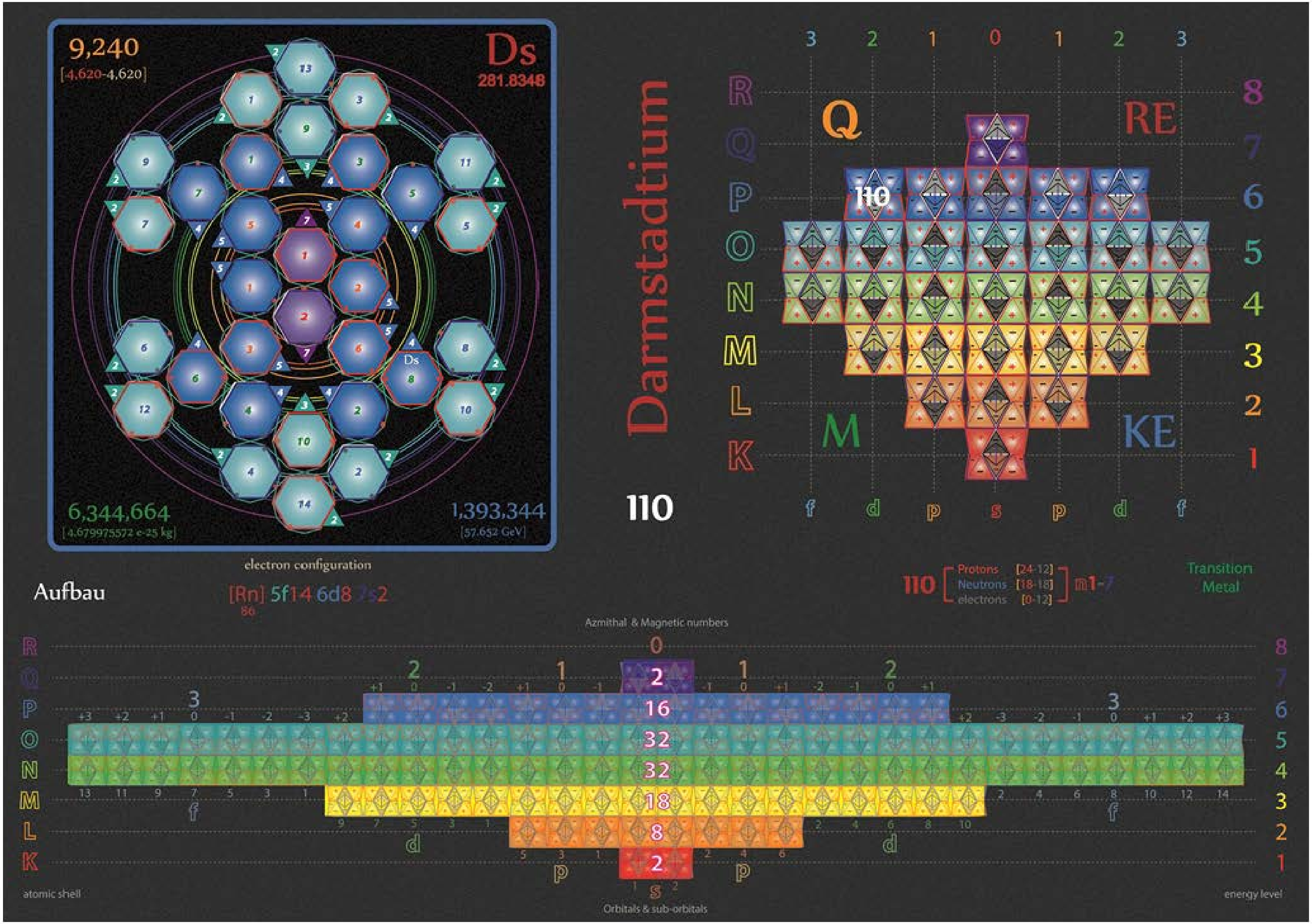
Tetryonics 51.107 - Bohrium atom



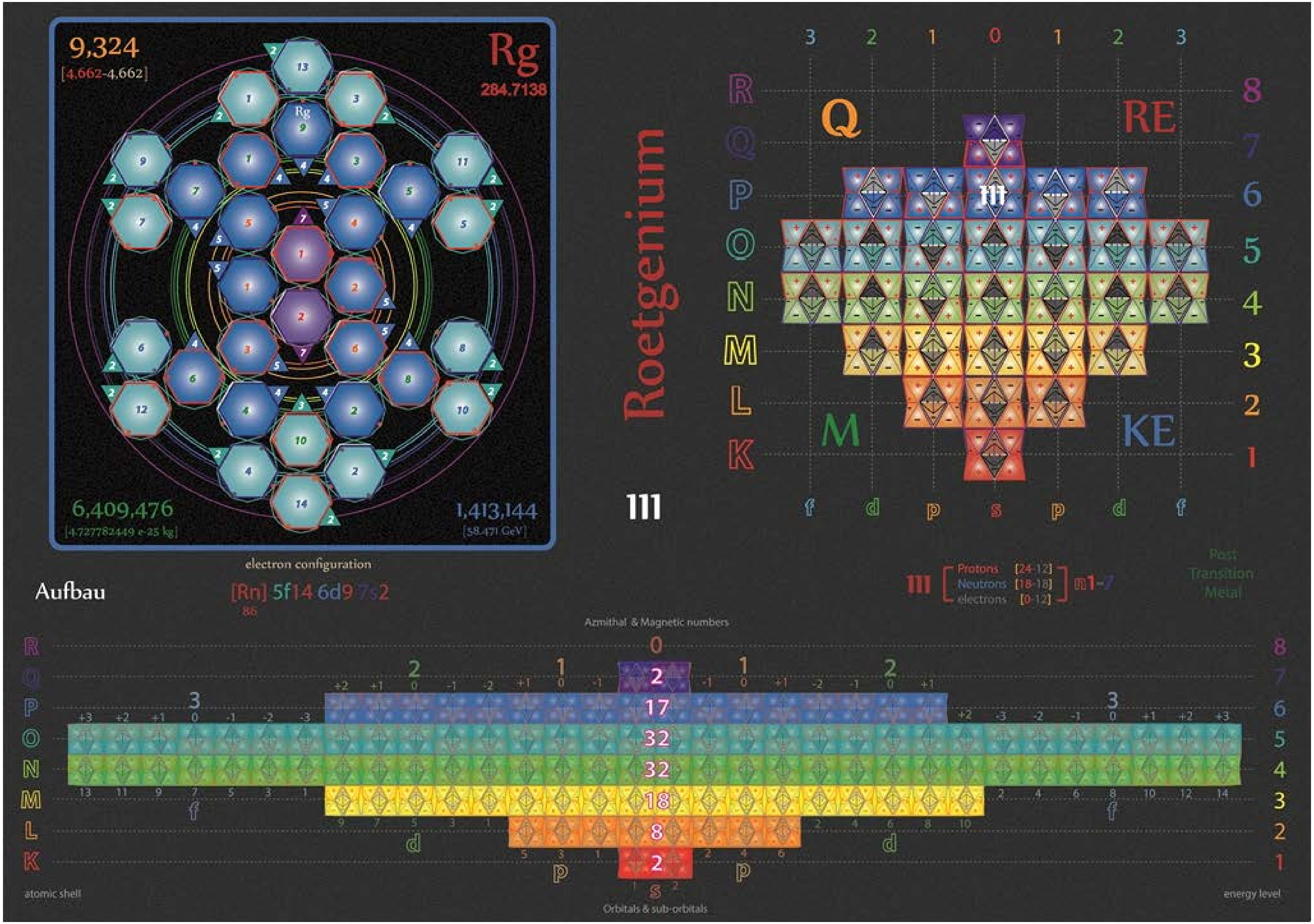
Tetryonics 51.108 - Hassium atom



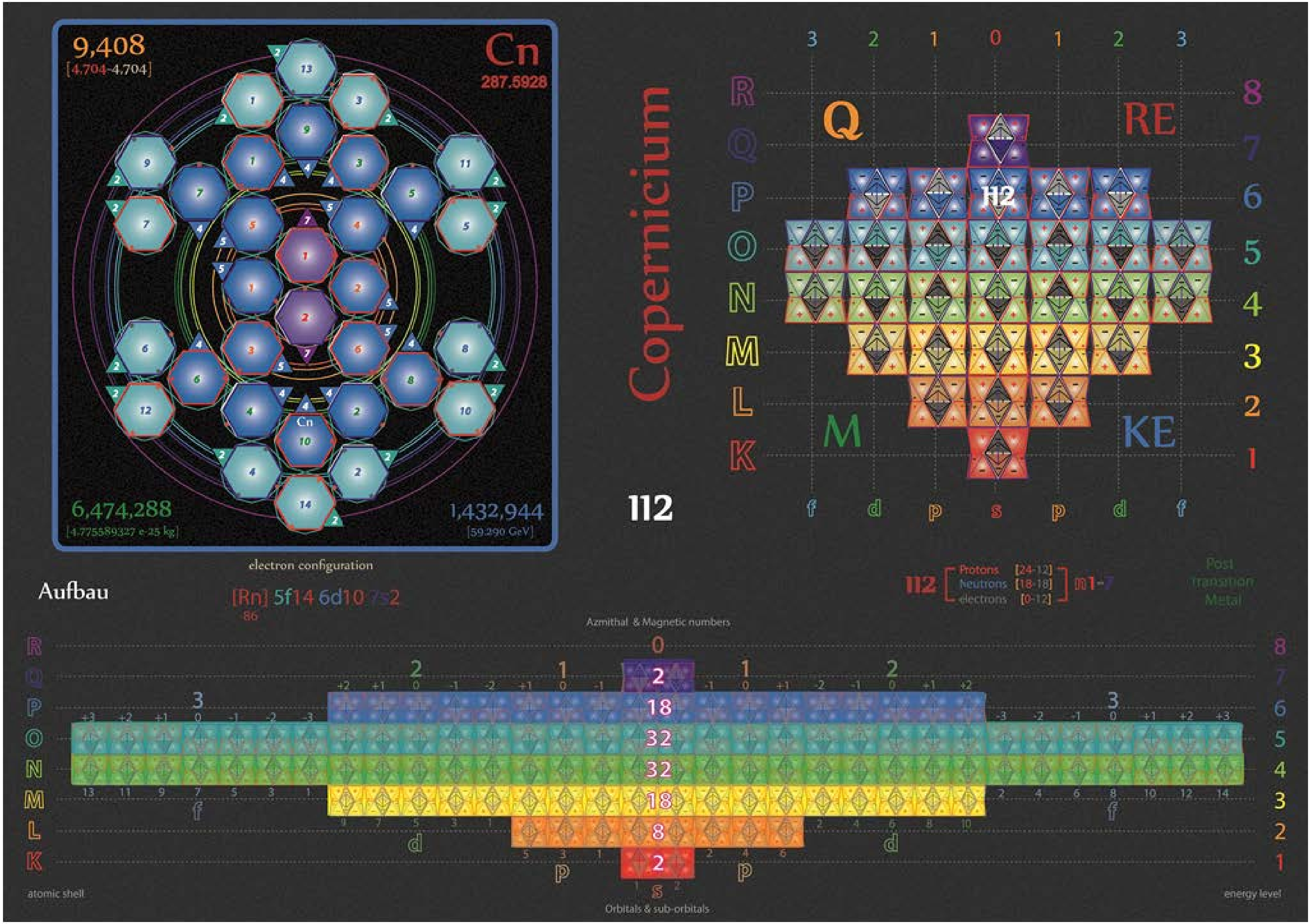
Tetryonics 51.109 - Meitnerium atom



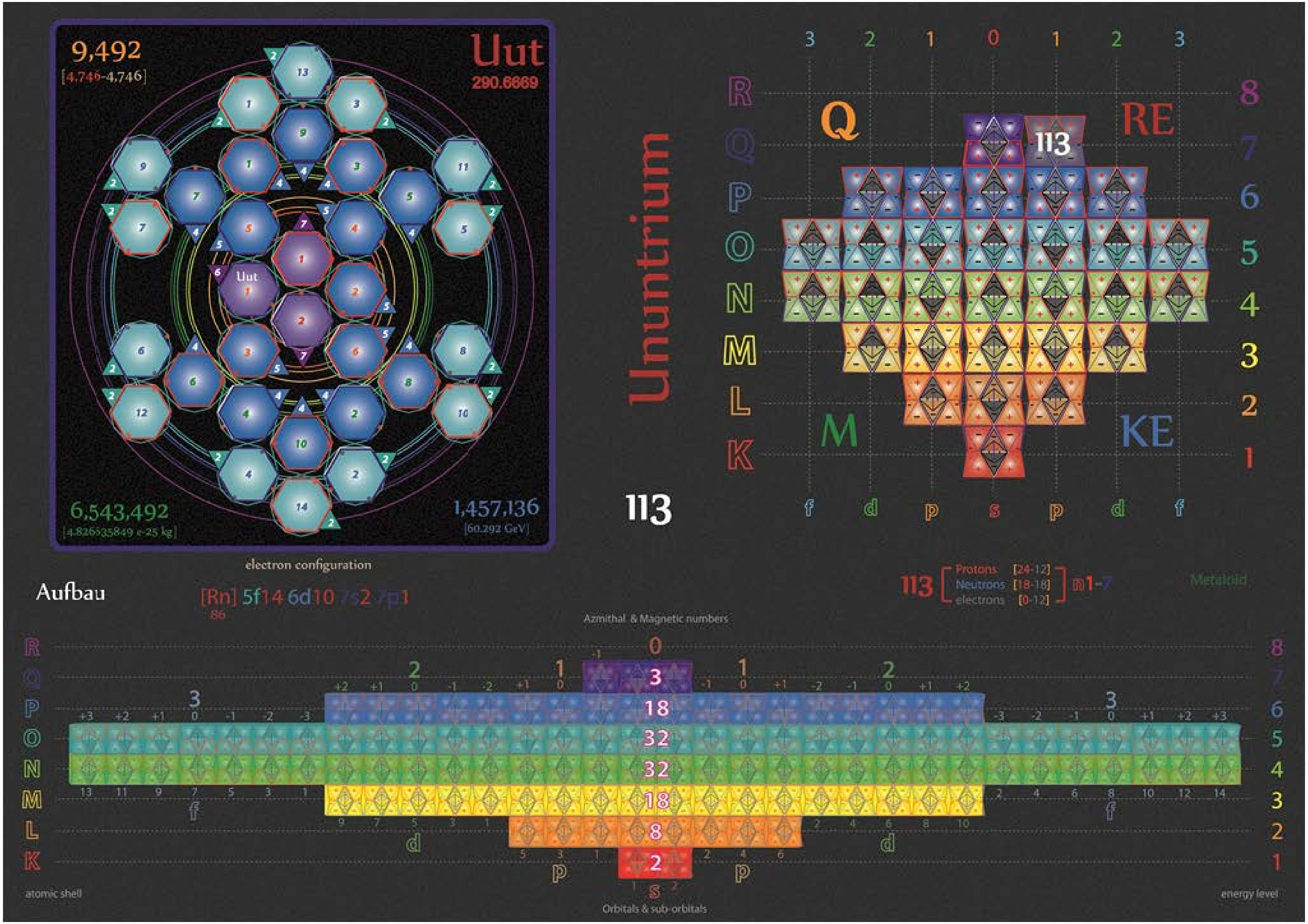
9,240
[4,620-4,620]
Ds
281.8348
6,344,664
[4.679975572 e-25 kg]
1,393,344
[57.652 GeV]
Darmstadtium
110
electron configuration
Aufbau
[Rn] 5f14 6d8 7s2
86
Q
RE
M
KE
110 Protons [24-12] Neutrons [18-18] electrons [0-12] m1-7
Transition Metal
Azmithal & Magnetic numbers
Orbitals & sub-orbitals
atomic shell
energy level



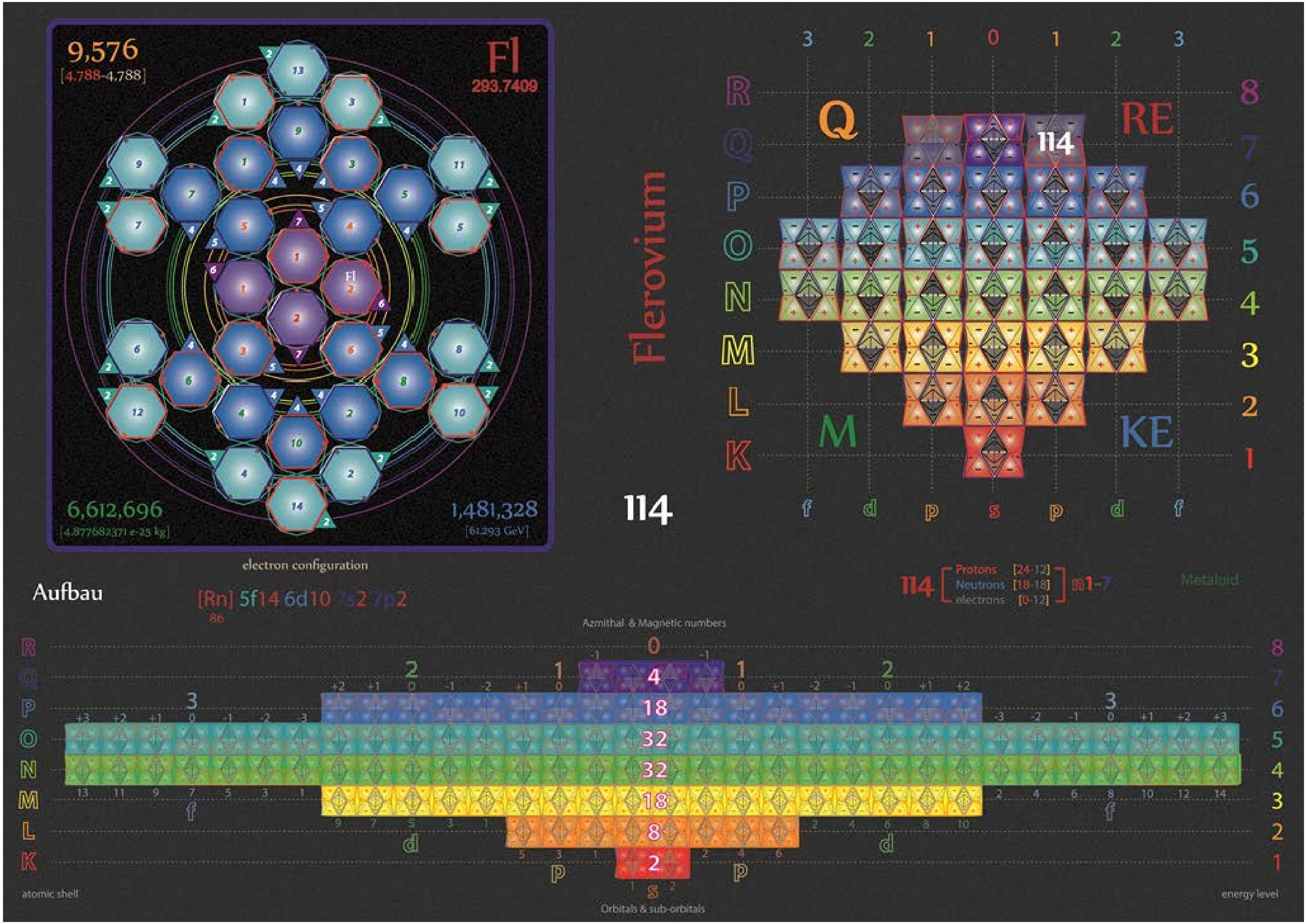
Tetryonics 51.111 - Roetgenium atom



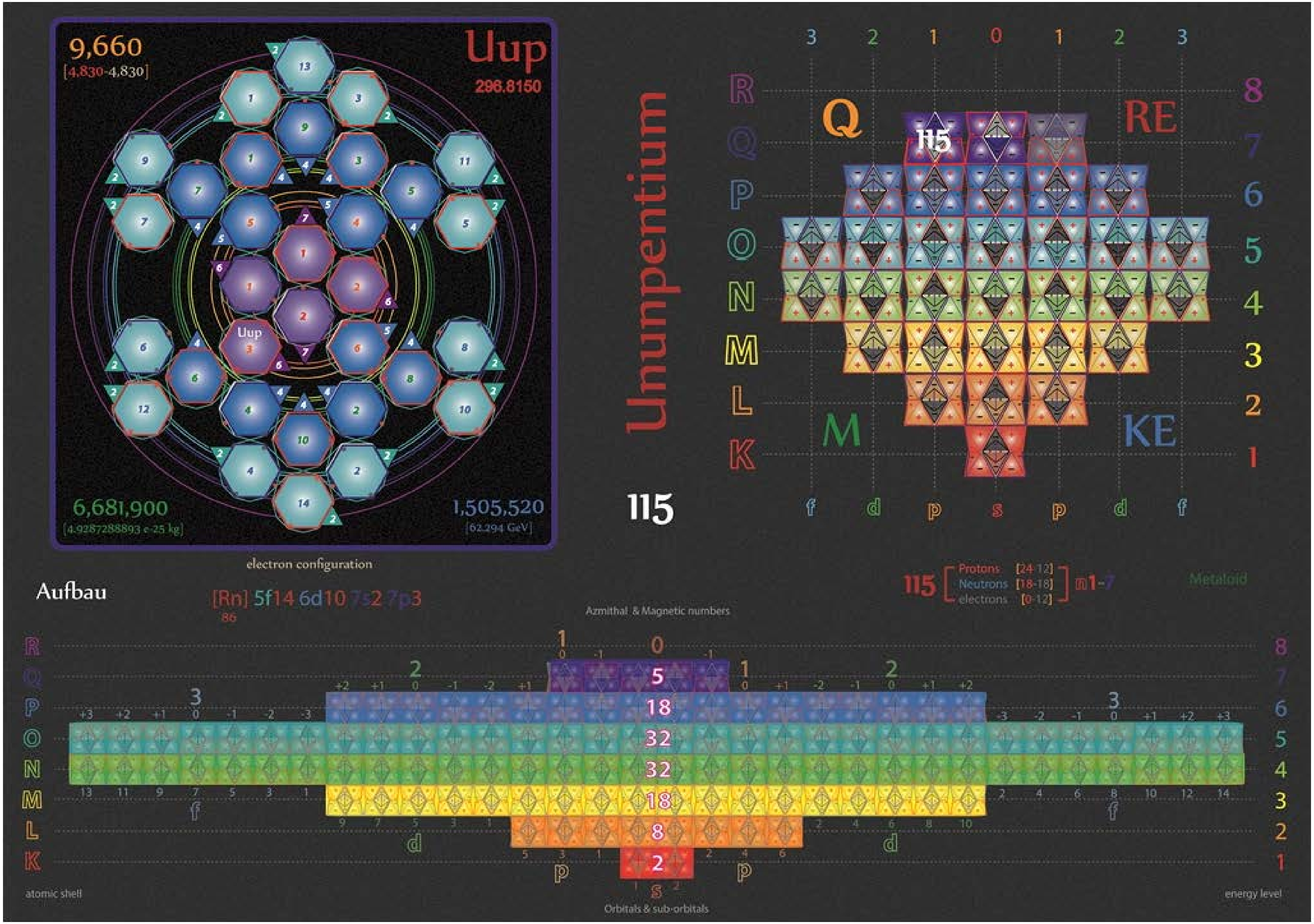
Tetryonics 51.112 - Copernicium atom



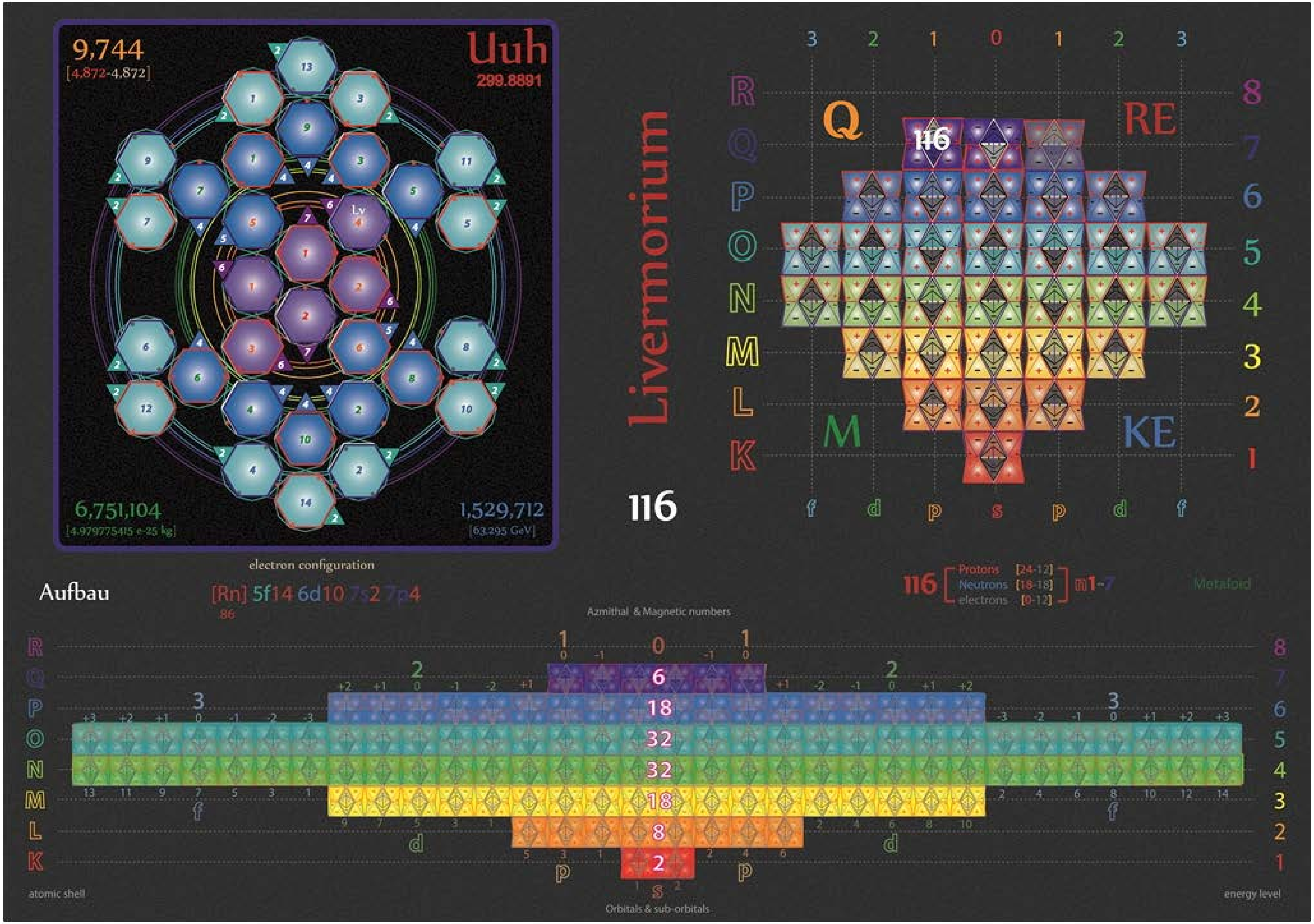
Tetryonics 51.113 - Ununtrium atom



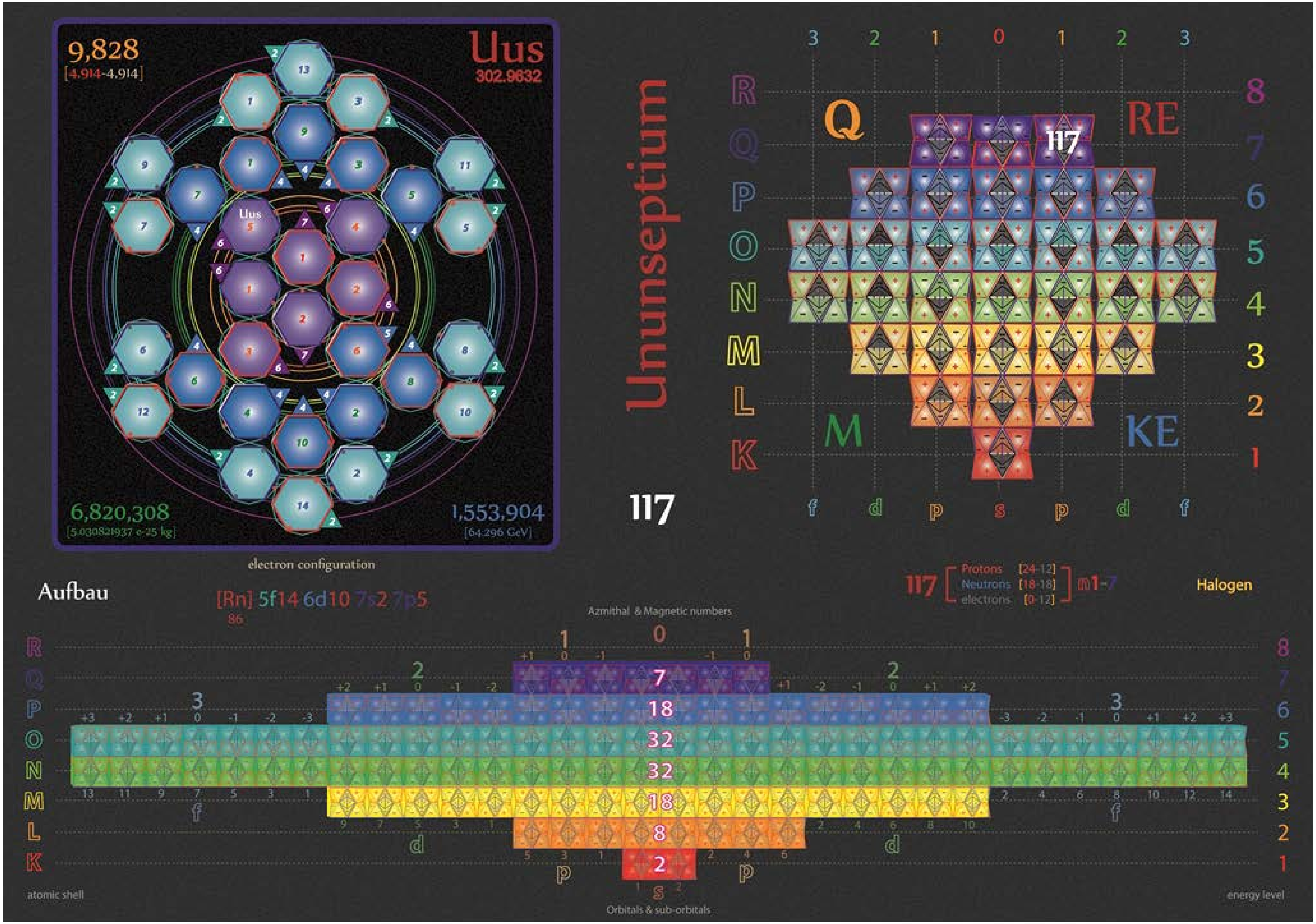
Tetryonics 51.114 - Flerovium atom

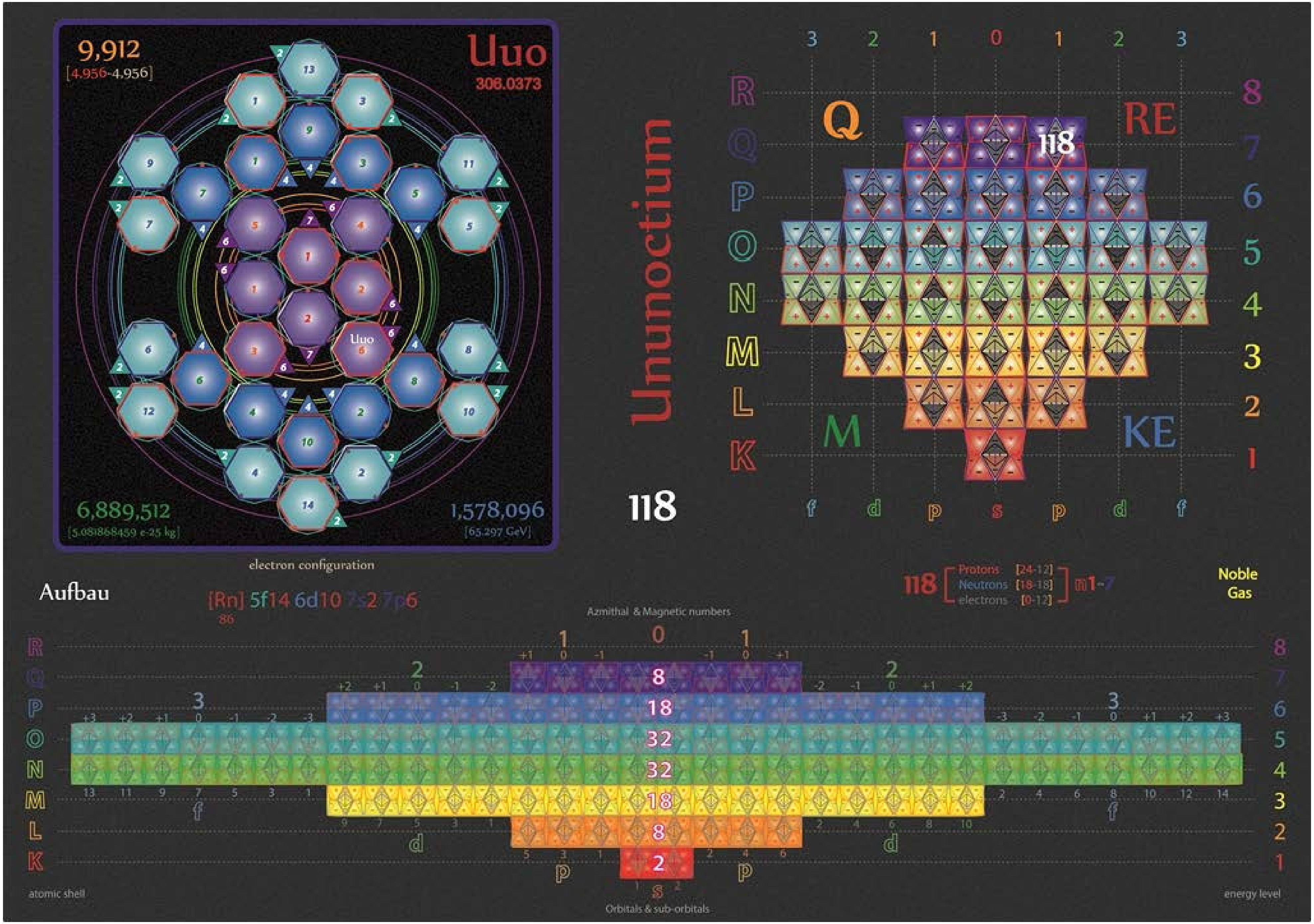


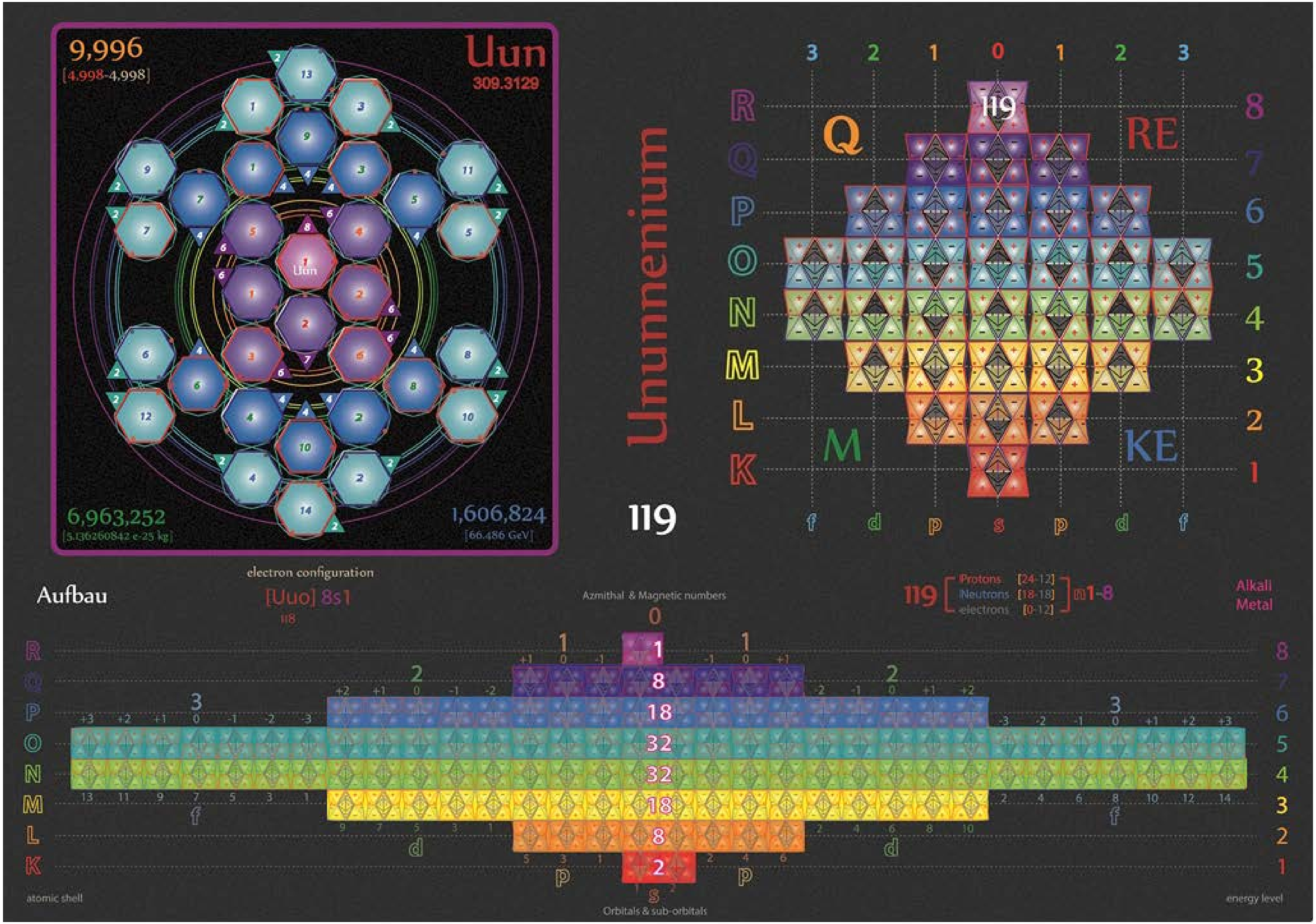
Tetryonics 51.115 - Ununpentium atom



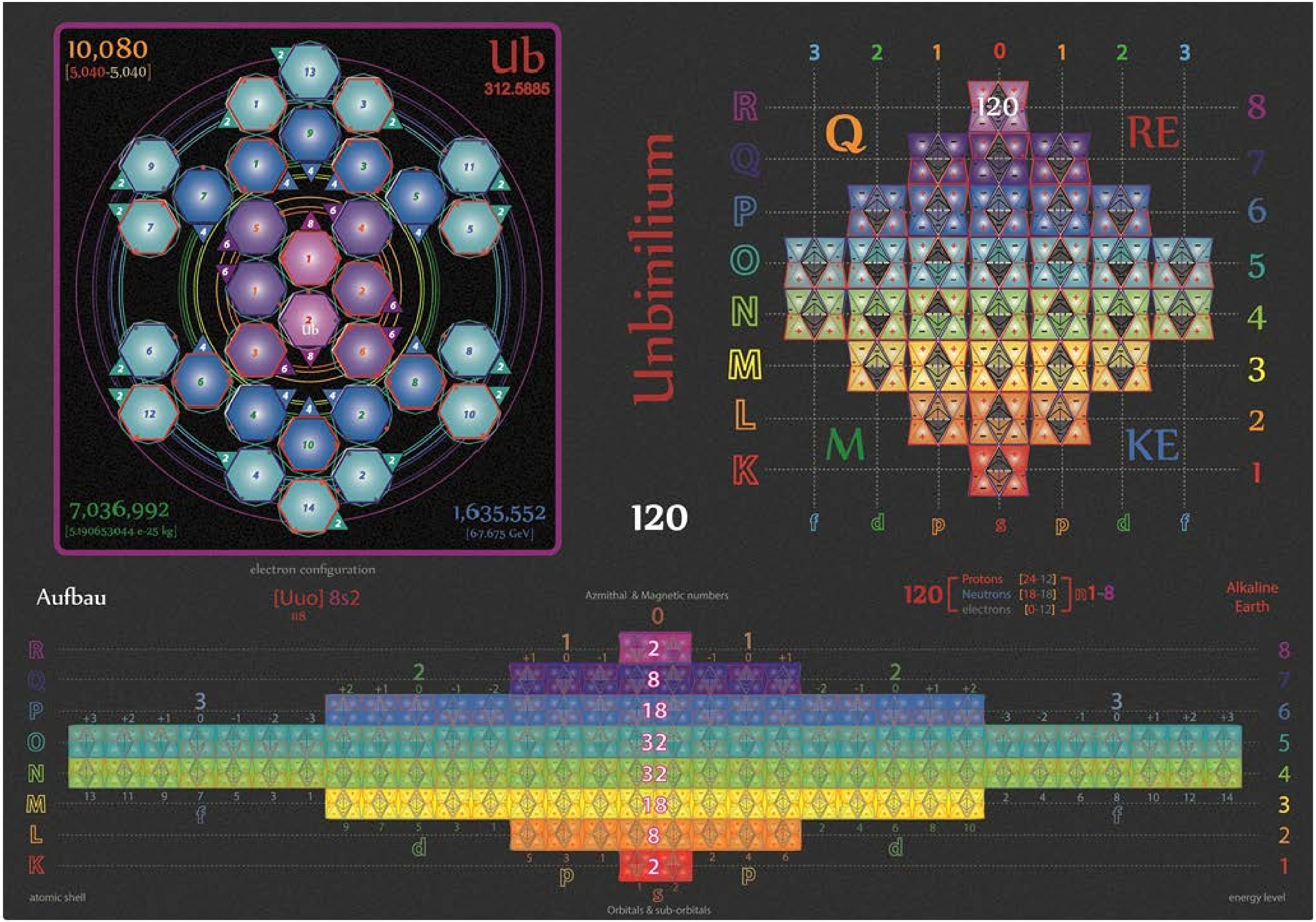
Tetryonics 51.116 - Livermorium atom


9,828
[4.914-4.914]
Uus
302.9832
6,820,308
[5.030821937 e-25 kg]
1,553,904
[64.296 GeV]
electron configuration
Ununseptium
117
Q
RE
M
KE
Aufbau
[Rn] 5f14 6d10 7s2 7p5
86
117 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-7
Halogen
Azmithal & Magnetic numbers
atomic shell
energy level
Orbitals & sub-orbitals

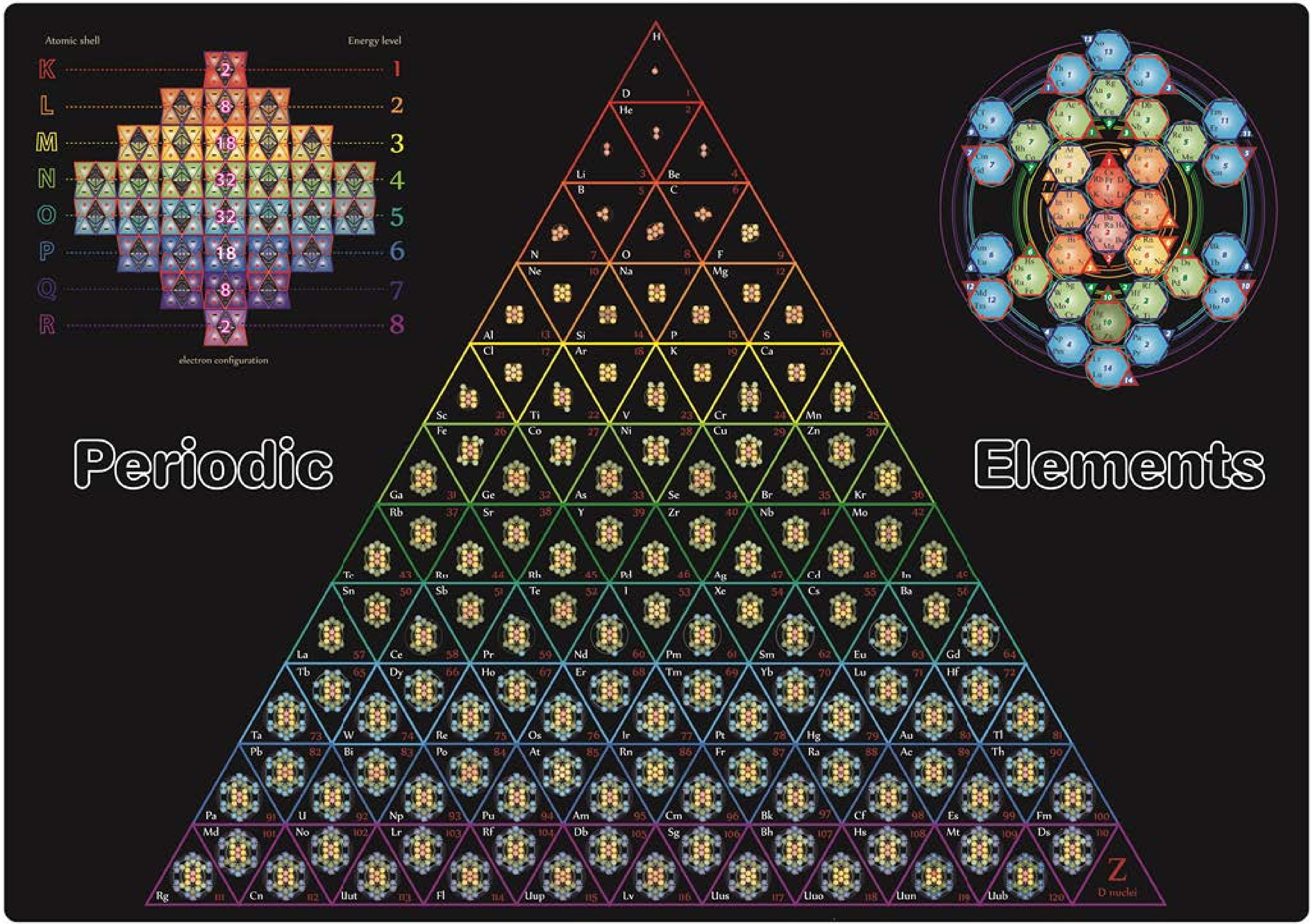

9,912
[4,956-4,956]
Uuo
308.0373
6,889,512
[5.081868459 e-25 kg]
1,578,096
[65.297 GeV]
Ununoctium
118
Q
RE
M
KE
R Q P O N M L K
8 7 6 5 4 3 2 1
f d p s p d f
electron configuration
Aufbau
[Rn] 5f14 6d10 7s2 7p6
86
118 [Protons [24-12] Neutrons [18-18] electrons [0-12]] m1-7
Noble Gas
Azmithal & Magnetic numbers
8
18
32
32
18
8
2
atomic shell
energy level
Orbitals & sub-orbitals

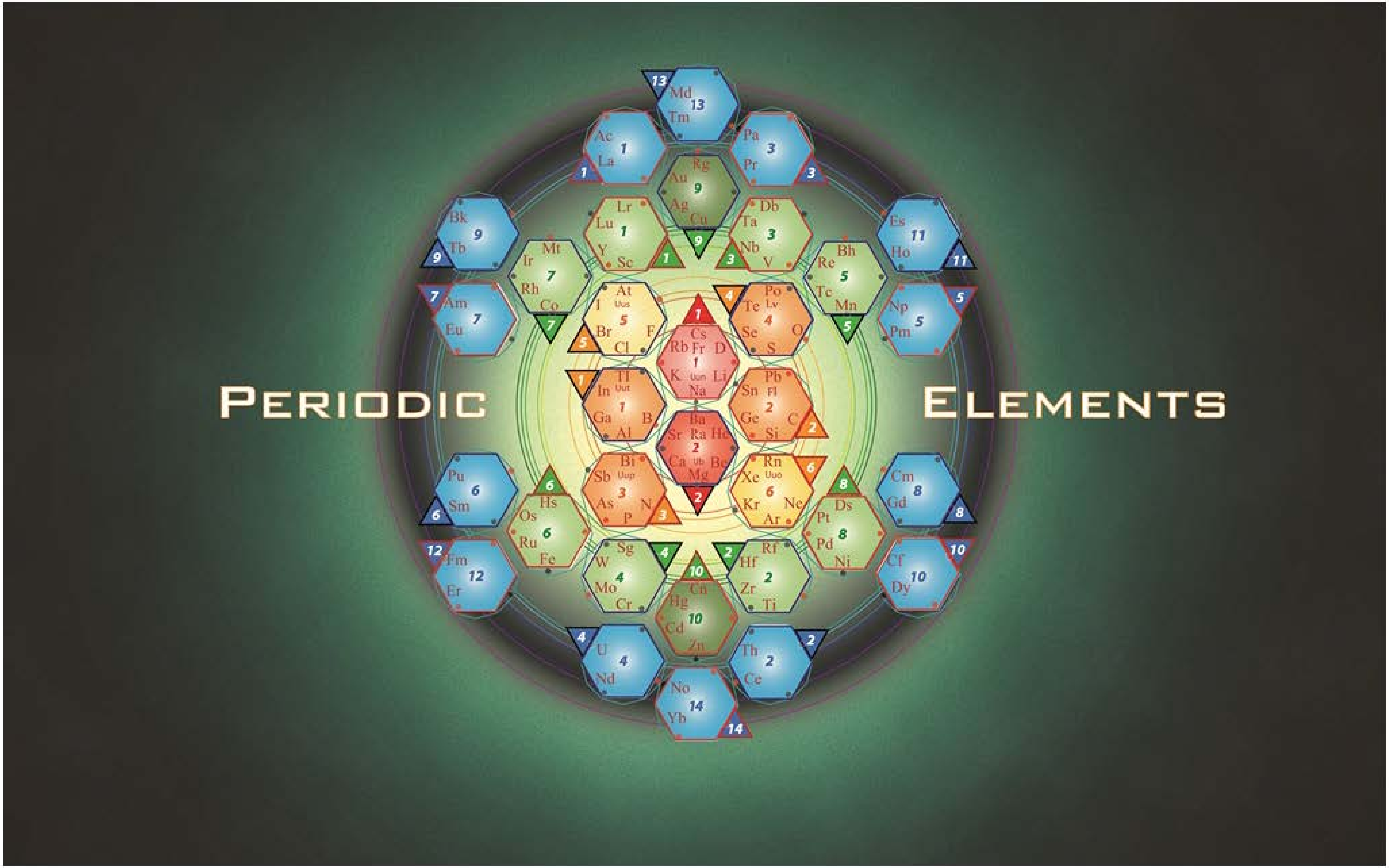


Tetryonics 51.119 - Ununnenium atom



10,080
[5,040-5,040]
Ub
312.5885
7,036,992
[5.190653044 e-25 kg]
1,635,552
[67.675 GeV]
Unbinilium
120
Q
RE
M
KE
electron configuration
Aufbau
[Uuo] 8s2
Azmithal & Magnetic numbers
120 [Protons [24-12] Neutrons [18-18] electrons [0-12]] n1-8
Alkaline Earth
atomic shell
energy level
Orbitals & sub-orbitals


Atomic shell
Energy level
K 1
L 2
M 3
N 4
O 5
P 6
Q 7
R 8
electron configuration
Periodic
Elements
Z
D nuclei



Tetryonics 52.02 - Periodic Table [Elements]