

# Atommodelle

## **Leukipp, Demokrit (5. Jhd. v. Chr.)**

Materie: kleinste nicht teilbare Teilchen

## **Dalton (Anfang 19. Jhd.)**

Chemisches Element: gleiche unteilbare Atome

# Atommodelle

## Thomson (Mitte 19. Jhd.)

Atome: positiv geladene Materiekugeln mit eingebetteten Elektronen

## Rutherford (1911)

Atom (d  $10^{-10}$  m): Atomkern (d  $10^{-14}$  m), Atomhülle

# Atommodelle

## **Bohr (1913)**

Elektronenbahnen: Quantelung von Bahndrehimpuls und Energie

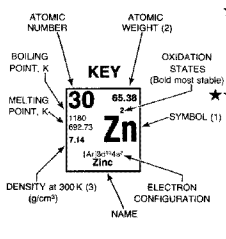
## **Heisenberg, Schrödinger, Pauli (ab 1925)**

Elektronenorbitale, Periodensystem der Elemente

# PERIODIC TABLE OF THE ELEMENTS

Table of Selected Radioactive Isotopes

GROUP IA		GROUP IIA		GROUP IIIA		GROUP IVA		GROUP VA		GROUP VIA		GROUP VIIA		GROUP VIIIA		GROUP IIB		GROUP IIB		GROUP VIII															
1 1.0079 H Hydrogen	2 4.0026 He Helium	3 6.941 Li Lithium	4 9.01218 Be Beryllium	11 22.98977 Na Sodium	12 24.30506 Mg Magnesium	19 39.0983 K Potassium	20 40.08 Ca Calcium	21 44.9559 Sc Scandium	22 47.90 Ti Titanium	23 50.9415 V Vanadium	24 51.996 Cr Chromium	25 54.9380 Mn Manganese	26 55.847 Fe Iron	27 58.9332 Co Cobalt	28 58.70 Ni Nickel	29 63.546 Cu Copper	30 65.38 Zn Zinc	31 68.72 Ga Gallium	32 72.59 Ge Germanium	33 74.9216 As Arsenic	34 78.96 Se Selenium	35 79.904 Br Bromine	36 83.80 Kr Krypton												
13 26.98153 Al Aluminum	14 28.0855 Si Silicon	15 30.97376 P Phosphorus	16 32.06 S Sulfur	17 35.453 Cl Chlorine	18 39.948 Ar Argon	37 85.4678 Rb Rubidium	38 87.62 Sr Strontium	39 88.9059 Y Yttrium	40 91.22 Zr Zirconium	41 92.9064 Nb Niobium	42 95.94 Mo Molybdenum	43 98.01 Tc Technetium	44 101.07 Ru Ruthenium	45 102.9055 Rh Rhodium	46 106.4 Pd Palladium	47 107.868 Ag Silver	48 112.41 Cd Cadmium	49 114.82 In Indium	50 118.69 Sn Tin	51 121.75 Sb Antimony	52 127.60 Te Tellurium	53 126.9045 I Iodine	54 131.30 Xe Xenon												
19 39.0983 K Potassium	20 40.08 Ca Calcium	21 44.9559 Sc Scandium	22 47.90 Ti Titanium	23 50.9415 V Vanadium	24 51.996 Cr Chromium	25 54.9380 Mn Manganese	26 55.847 Fe Iron	27 58.9332 Co Cobalt	28 58.70 Ni Nickel	29 63.546 Cu Copper	30 65.38 Zn Zinc	31 68.72 Ga Gallium	32 72.59 Ge Germanium	33 74.9216 As Arsenic	34 78.96 Se Selenium	35 79.904 Br Bromine	36 83.80 Kr Krypton	37 85.4678 Rb Rubidium	38 87.62 Sr Strontium	39 88.9059 Y Yttrium	40 91.22 Zr Zirconium	41 92.9064 Nb Niobium	42 95.94 Mo Molybdenum	43 98.01 Tc Technetium	44 101.07 Ru Ruthenium	45 102.9055 Rh Rhodium	46 106.4 Pd Palladium	47 107.868 Ag Silver	48 112.41 Cd Cadmium	49 114.82 In Indium	50 118.69 Sn Tin	51 121.75 Sb Antimony	52 127.60 Te Tellurium	53 126.9045 I Iodine	54 131.30 Xe Xenon
55 132.90545 Cs Cesium	56 137.33 Ba Barium	57 138.9055 La Lanthanum	58 178.49 Hf Hafnium	59 178.49 Ta Tantalum	60 183.85 W Tungsten	61 186.207 Re Rhenium	62 186.207 Os Osmium	63 190.23 Ir Iridium	64 195.084 Pt Platinum	65 197.22 Au Gold	66 197.22 Hg Mercury	67 197.22 Tl Thallium	68 207.2 Pb Lead	69 208.9804 Bi Bismuth	70 208.9804 Po Polonium	71 208.9804 At Astatine	72 208.9804 Rn Radon	87 223 Fr Francium	88 226.0254 Ra Radium	89 227.0278 Ac Actinium	104 261 Uuq (Ununquadium)	105 262 Uup (Ununpentium)	106 263 Uuh (Ununhexium)												



58 140.12 Ce Cerium	59 140.9077 Pr Praseodymium	60 144.24 Nd Neodymium	61 144.9126 Pm Promethium	62 150.4 Sm Samarium	63 151.96 Eu Europium	64 157.25 Gd Gadolinium	65 158.9254 Tb Terbium	66 162.50 Dy Dysprosium	67 164.9304 Ho Holmium	68 167.26 Er Erbium	69 168.9342 Tm Thulium	70 173.04 Yb Ytterbium	71 174.967 Lu Lutetium
90 232.0375 Th Thorium	91 231.0369 Pa Protactinium	92 238.0289 U Uranium	93 238.0289 Np Neptunium	94 244 Pu Plutonium	95 244 Am Americium	96 247 Cm Curium	97 247 Bk Berkelium	98 251 Cf Californium	99 252 Es Einsteinium	100 257 Fm Fermium	101 258 Md Mendelevium	102 259 No Nobelium	103 260 Lr Lawrencium

NOTES:  
(1) Black — solid  
Red — gas  
Blue — liquid  
Outline — synthetically prepared.  
(2) Based upon carbon-12, (1) indicates most stable or best known isotope.  
(3) Entries marked with asterisks refer to the gaseous state at 273 K and 1 atm and are given in units of g/l.

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