

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 ($d \approx 10^{-10}$ m): Atomkern ($d \approx 10^{-14}$ 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

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Naturally occurring radioactive isotopes are designated by a mass number in blue (though some are also manufactured). Letter in brackets indicates an isomer of another isotope of the same mass number. Half-lives follow in parentheses, where s, min, h, d, and y stand respectively for seconds, minutes, hours, days, and years. The table includes mainly the longer-lived radioactive isotopes; many others have been prepared. Isotopes known to be radioactive but with half-lives exceeding 10 ¹⁰ y have not been included. Symbols describing the principal mode (or modes) of decay are as follows (these processes are generally accompanied by gamma radiation):																	
α alpha particle emission β ⁻ beta particle (electron) emission β ⁺ positron emission EC orbital electron capture IT isomeric transition from upper to lower isomeric state SF spontaneous fission																	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.0079	4.0026	6.941	9.01218	10.81	12.01	14.0067	15.9994	18.998403	20.179	20.998	22.989769	24.9608	26.981538	28.96186	30.973762	32.006	35.453
H	He	Li	Be	B	C	N	O	F	Ne	Na	Mg	Al	Si	P	S	Cl	Ar
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
19.000	18.000	6.941	9.01218	10.81	12.01	14.0067	15.9994	18.998403	20.179	20.998	22.989769	24.9608	26.981538	28.96186	30.973762	32.006	35.453
Hydrogen	Helium	Lithium	Beryllium	Boron	Carbon	Nitrogen	Oxygen	Fluorine	Neon	Sodium	Magnesium	Aluminum	Silicon	Phosphorus	Sulfur	Chlorine	Argon
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19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
39.0983	40.08	44.9559	47.90	50.9418	51.996	54.9380	55.847	58.9332	58.70	63.546	65.38	68.72	72.59	74.9216	78.96	79.904	83.80
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
85.4678	87.62	88.9059	91.22	92.9064	95.94	101.07	101.07	102.9055	106.4	106.4	112.41	114.82	118.69	121.75	127.60	126.9048	131.30
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72
132.9054	137.33	138.9055	178.49	178.9479	180.9479	186.207	186.207	190.23	192.22	195.09	198.9065	200.59	200.59	204.37	207.2	208.9804	208.9804
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
87	88	89	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118
223	226.0254	227.0278	(261)	(262)	(263)	208.9804	208.9804	208.9804	208.9804	208.9804	208.9804	208.9804	208.9804	208.9804	208.9804	208.9804	208.9804
Fr	Ra	Ac	Uuq	Uup	Uuh	Uuq	Uup	Uuh	Uuq	Uup	Uuh	Uuq	Uup	Uuh	Uuq	Uup	Uuh

KEY: ATOMIC NUMBER, ATOMIC WEIGHT (2), BOILING POINT, K, MELTING POINT, K, DENSITY at 300 K (3), ELECTRON CONFIGURATION, NAME.

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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