

Atommodelle

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

Æ Materie: kleinste nicht teilbare Teilchen

Dalton (Anfang 19. Jhd.)

Æ Chemisches Element: gleiche unteilbare Atome

Atommodelle

Thomson (Mitte 19. Jhd.)

Æ Atome: positiv geladene Materiekugeln mit eingebetteten Elektronen

Rutherford (1911)

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

Atommodelle

Bohr (1913)

Æ Elektronenbahnen: Quantelung von Bahndrehimpuls und Energie

Heisenberg, Schrödinger, Pauli (ab 1925)

Æ Elektronenorbitale, Periodensystem der Elemente

Table of Selected Radioactive Isotopes

Selected Radioactive Isotopes

Naturally occurring radioactive isotopes are designated by a mass number in blue (although some are also manufactured). Letter m 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^{16} y have not been included. Symbols denoting decay processes are as follows: α , alpha particle; β^- , beta minus; β^+ , beta plus; γ , 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

B	IVB	VB	VIB	VII
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10.81	6	12.011	7	14.0067	8	15.9994	9	18.9
3		±4.2		±3.5, 4.2		-2		
D	4470*	C	77.35	N	90.18	O	84.95	
100.00		100.00	100.00	100.00	100.00	100.00	100.00	

B	C	N	O
4100	63.14	50.35	53.48
2.62	1.251*	1.429*	1.696*
1s ² 2s ² 2p ²	1s ² 2s ² 2p ¹	1s ² 2s ² 2p ¹	1s ² 2s ² 2p ¹

on	Carbon	Nitrogen	Oxygen	Fluo
98154	14 28.0855	15 30.97376	16 32.06	17

Al	Si	P	S
3540	550	717.75	229.1
1685	317.30	388.56	172.16

2.33	1.82	2.07	3.17 ^a
[Ne]3s ² 3p ² Silicon	[Ne]3s ² 3p ³ Phosphorus	[Ne]3s ² 3p ⁴ Sulfur	[Ne]3s ² 3p ⁵ Chlorine

69.72 3	32 72.59 4	33 74.9216 +3.5	34 78.96 +2.46	35
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Ga	Ge	As	Se
3107 1210.4 5.32	7264 1217.4 5.72	7594 1217.4 4.80	7924 1217.4 3.12

$[\text{Ar}]3d^{10}4s^2p^1$ Germanium	$[\text{Ar}]3d^{10}4s^2p^2$ Arsenic	$[\text{Ar}]3d^{10}4s^2p^3$ Selenium	$[\text{Ar}]3d^{10}4s^2p^4$ Bromine
50	51	52	53

14.82	30	118.69	51	121.75	52	127.60	53
3		4.2		-3.5		-2.4	
In	2875	Sn	1860	Sb	1281	Ta	456.4
	505.06		904		722.65		386.7

7.30	6.66	6.24	4.92
$5s^2p^1$	$[Kr]4d^95s^4p^1$	$[Kr]4d^{10}5s^2p^1$	$[Kr]4d^{10}5s^4p^1$

204.37	82	207.2	83	208.9804	84	(209)	85
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5.1 Tl	2023 600.6 11.4	8.4 Pb	1837 544.52 9.8	9.5 Bi	1236 527 9.4	9.6 Po	610 675
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$[\text{Xe}]4f^{14}5d^06s^2p^1$ Th	$[\text{Xe}]4f^{14}5d^06s^2p^2$ Lead	$[\text{Xe}]4f^{14}5d^06s^2p^3$ Bismuth	$[\text{Xe}]4f^{14}5d^06s^2p^4$ Polonium	$[\text{Xe}]4f^{14}5d^06s^2p^5$ Astatine
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subgroup designations, applicable to elements 6 and 7, are those recommended by the International Union of Pure and Applied Chemistry (IUPAC).

0, and 7, are those recommended by the International Union of Pure and Applied Chemistry. It should be noted that the authors and organizations use the opposite con-

distinguishing these subgroups.

9304	68	167.26	69	168.9342	70	173.04	71	177.15
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3	3	3.2	3.2	3.2
3136	2220	1467	3666	
1795	1818	1097	1936	

9.05	$[Xe]4f^{14}6s^2$ Erbium	9.33	$[Xe]4f^{14}6s^2$ Thulium	9.66	$[Xe]4f^{14}6s^2$ Ytterbium	9.84	$[Xe] 4f^{14}$ Lutetium
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(252)	100 (257)	101 (258)	102 (259)	103
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ES	Fm	Md	No
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$[Rn]5f^{14}7s^2$ Fermium	$[Rn]5f^{14}7s^2$ Mendelevium	$[Rn]5f^{14}7s^1$ Nobelium	$[Rn]5f^{14}6$ Lawrencium
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