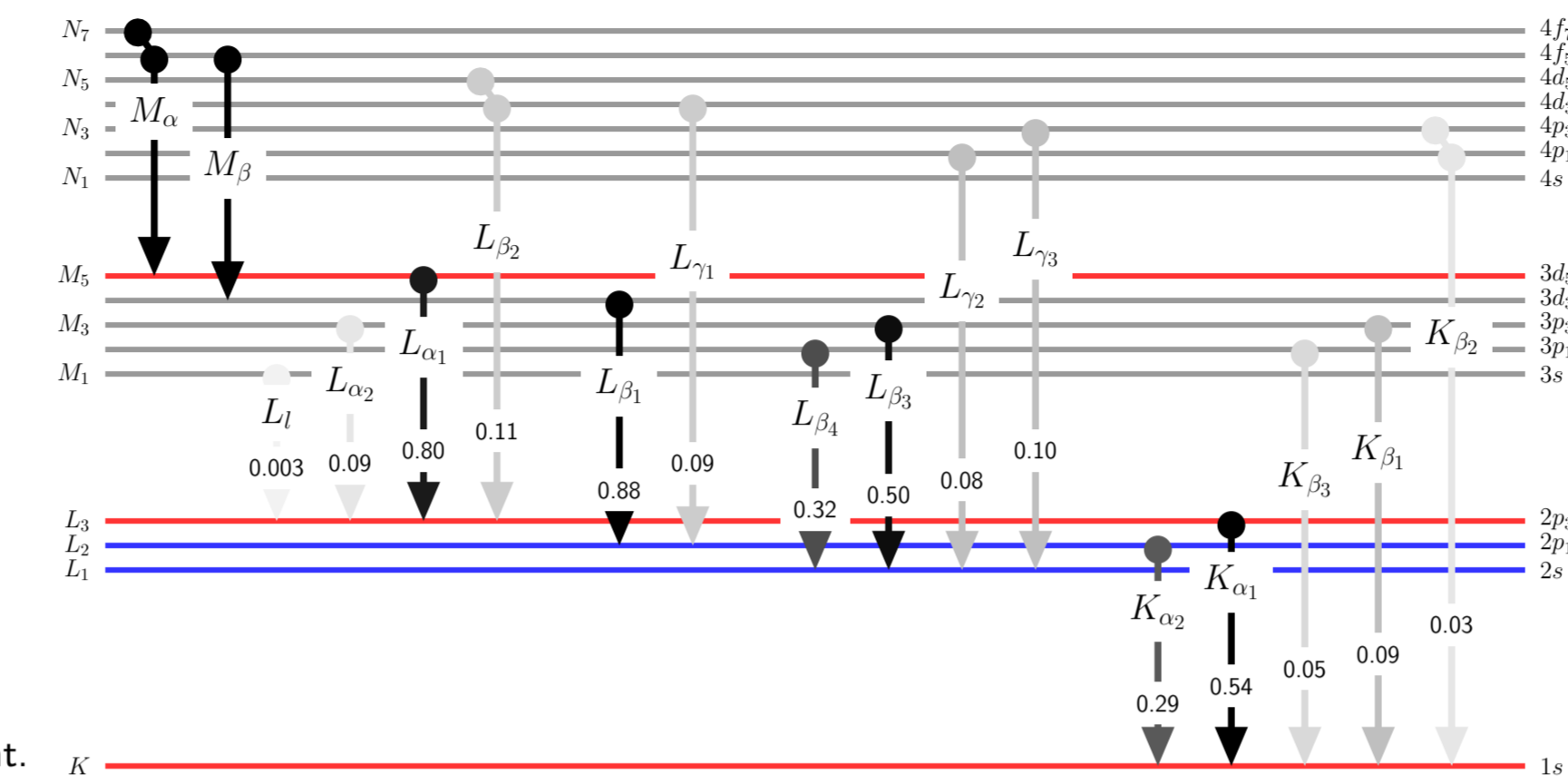


X-ray Absorption and Emission Energies of the Elements

H hydrogen 1 1.0079	He helium 2 4.0026
Li lithium 3 6.941	Be beryllium 4 9.0122
Na sodium 11 22.9898	Mg magnesium 12 24.305
K potassium 19 39.0983	Ca calcium 20 40.08
Rb rubidium 37 85.4678	Sr strontium 38 87.62
Cs cesium 55 132.905	Ba barium 56 137.33
Fr francium 87 223.02	Ra radium 88 226.025

B boron 5 10.81	C carbon 6 12.011	N nitrogen 7 14.0067	O oxygen 8 15.9994	F fluorine 9 18.9984	Ne neon 10 20.179
Al aluminum 13 26.9815	Si silicon 14 28.0855	P phosphorus 15 30.9738	S sulfur 16 32.06	Cl chlorine 17 35.453	Ar argon 18 39.948
Ga gallium 31 69.72	Ge germanium 32 72.59	As arsenic 33 74.9216	Se selenium 34 78.96	Br bromine 35 79.904	Kr krypton 36 83.8
In indium 49 114.82	Sn tin 50 118.69	Sb antimony 51 121.75	Te tellurium 52 127.6	I iodine 53 126.905	Xe xenon 54 131.29
Tl thallium 81 204.383	Pb lead 82 207.2	Bi bismuth 83 208.98	Po polonium 84 209	At astatine 85 209	Rn radon 86 222

Ce cerium 58 140.12	Pr praseodymium 59 140.908	Nd neodymium 60 144.24	Pm promethium 61 144.913	Sm samarium 62 150.36	Eu europium 63 151.96	Gd gadolinium 64 157.25	Tb terbium 65 158.925	Dy dysprosium 66 162.5	Ho holmium 67 164.93	Er erbium 68 167.26	Tm thulium 69 168.934	Yb ytterbium 70 173.04	Lu lutetium 71 174.967
Th thorium 90 232.038	Pa protactinium 91 231.036	U uranium 92 238.051	Np neptunium 93 237.048	Pu plutonium 94 239.052	Am americium 95 243.061	Cm curium 96 247.07	Bk berkelium 97 247.07	Cf californium 98 251.08	Es einsteinium 99 252	Fm fermium 100 257	Md mendelevium 101 288	No nobelium 102 289	Lr lawrencium 103 260



Atomic Data and Energies from
W. T. Elam, B. D. Ravel and J. R. Sieber,
Radiation Physics and Chemistry 63, pp 121-128 (2002)

Common oxidation states from wikipedia.org, after
N. N. Greenwood and A. Earnshaw,
Chemistry of the Elements, 2nd ed. (1997).

All energies in eV.
Emission line strengths are approximate, and vary with element.

Symbol	name	Z
K edge	K _{α1}	K _{β1}
L ₁ edge	L _{β3}	L _{β1}
L ₂ edge	L _{β2}	L _{γ1}
L ₃ edge	L _{α1}	L _{β2}
M ₅ edge	M _α	M _β
Mass	oxidation states	



<https://xrayabsorption.org/xraytable>
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