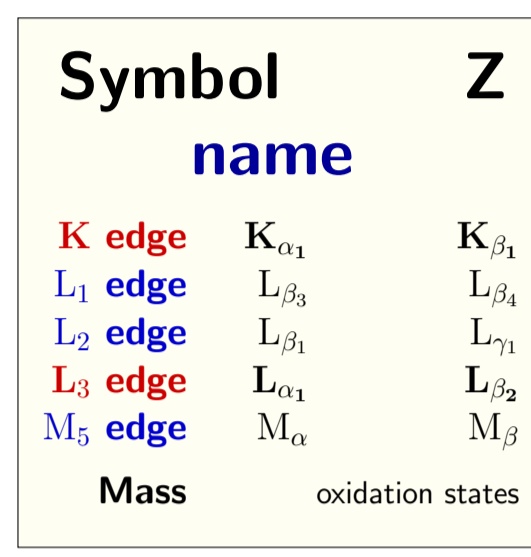


X-ray Absorption and Emission Energies of the Elements

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

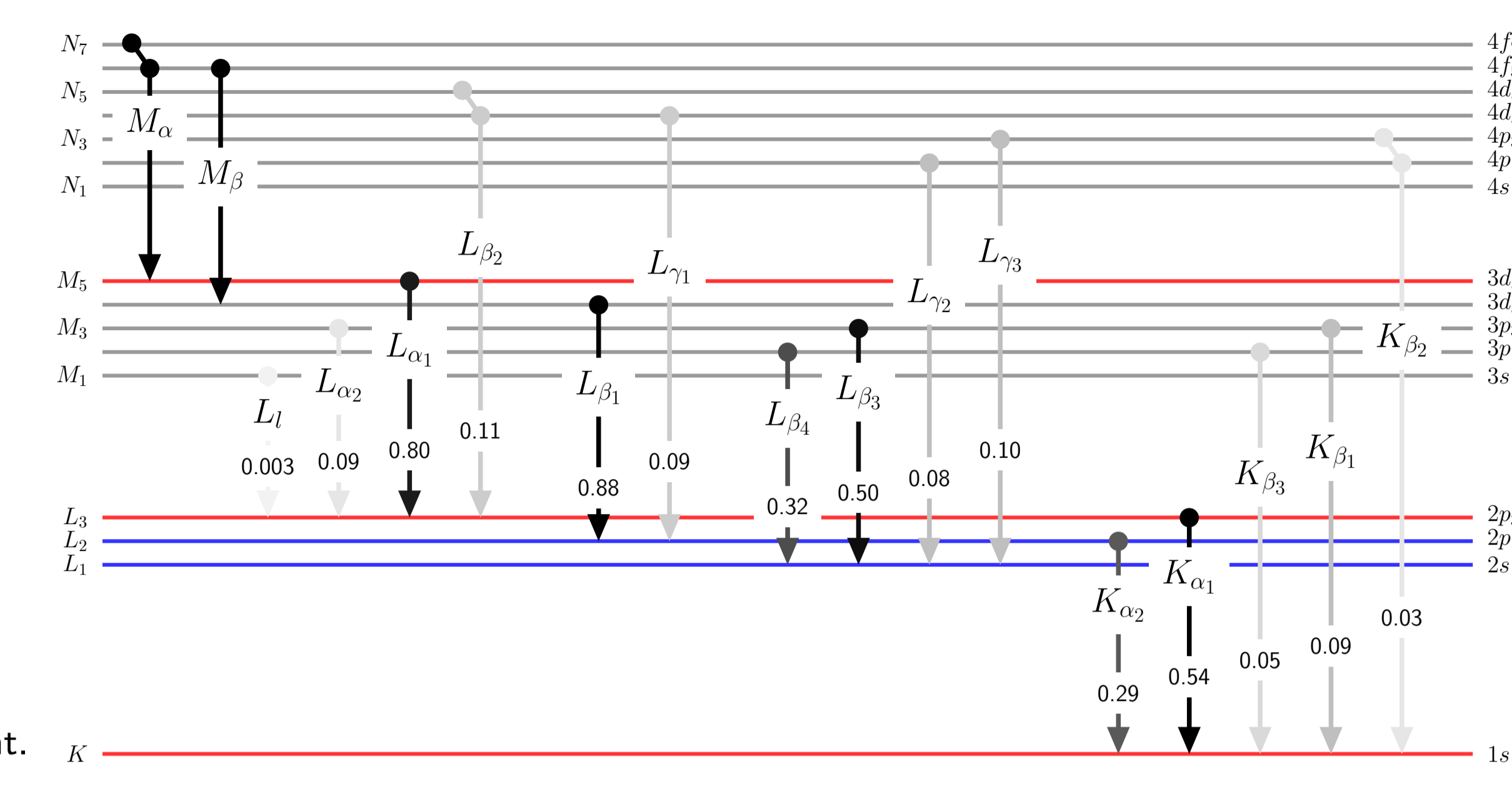
He helium 2 4.0026	Ne neon 10 20.179	Ar argon 18 39.948	Kr krypton 36 83.8	Xe xenon 54 131.29	Rn radon 86 222.018
B boron 5 10.81	Al aluminum 13 26.9815	Ga gallium 31 69.72	In indium 49 114.82	Tl thallium 81 204.383	
C carbon 6 12.011	Si silicon 14 28.0855	Ge germanium 32 72.59	Sn tin 50 118.69	Pb lead 82 207.2	
N nitrogen 7 14.0067	P phosphorus 15 30.9738	As arsenic 33 74.9216	Sb antimony 51 121.75	Bi bismuth 83 208.98	
O oxygen 8 15.9994	S sulfur 16 32.06	Se selenium 34 78.96	Te tellurium 52 127.6	Po polonium 84 209	
F fluorine 9 18.9984	Cl chlorine 17 35.453	Br bromine 35 79.904	I iodine 53 126.905	At astatine 85 209	



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.



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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



Charles G. Barkla

<https://xrayabsorption.org/xraytable>
Version 4, 2020-April-19

