Periodic Table of Elements for EDS Analysis

1 H																	2 He
Hydrogen																	Helium
3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne
Kα 0.054	Kα 0.108											Kα 0.183	Kα 0.277	Kα 0.392	Kα 0.525	Kα 0.677	Kα 0.849
Lithium	Beryllium											Boron	Carbon	Nitrogen	Oxygen	Fluorine	Neon
11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
Kα 1.041	Kα 1.254											Kα 1.486	Kα 1.74	Kα 2.014	Kα 2.308	Kα 2.622	Kα 2.958
Sodium	Magnesium											Aluminium	Silicon	Phosphorus	Sulfur	Chlorine	Argon
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
Kα 3.314	Kα 3.692 Lα 0.341	Kα 4.091 Lα 0.395	Kα 4.511 Lα 0.452	Kα 4.952 Lα 0.511	Kα 5.415 Lα 0.573	Kα 5.899 Lα 0.637	Kα 6.404 Lα 0.705	Kα 6.93 Lα 0.776	Kα 7.478 Lα 0.852	Kα 8.04 Lα 0.93	Kα 8.639 Lα 1.012	Kα 9.252 Lα 1.098	Kα 9.886 Lα 1.188	Kα 10.544 Lα 1.282	Kα 11.222 Lα 1.379	Kα 11.924 Lα 1.48	Kα 12.649 Lα 1.586
Potassium	Calcium	Scandium	Titanium	Vanadium	Chromium	Manganese	Iron	Cobalt	Nickel	Copper	Zinc	Gallium	Germanium	Arsenic	Selenium	Bromine	Krypton
37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
Lα 1.692 Ll 1.477	Lα 1.806 Ll 1.577	Lα 1.923 Ll 1.682	Lα 2.042 Ll 1.791	Lα 2.166 Ll 1.896	Lα 2.293 Ll 2.016	Lα 2.424 Mα 0.214	Lα 2.558 Mα 0.237	Lα 2.697 Mα 0.26	Lα 2.839 Mα 0.282	Lα 2.984 Mα 0.31	Lα 3.134 Mα 0.341	Lα 3.287 Mα 0.37	Lα 3.444 Mα 0.401	Lα 3.605 Mα 0.433	Lα 3.769 Mα 0.47	Lα 3.938 Mα 0.497	Lα 4.11 Mα 0.531
Rubidium	Strontium	Yttrium	Zirconium	Niobium	Molybdenum	Technetium	Ruthenium	Rhodium	Palladium	Silver	Cadmium	Indium	Tin	Antimony	Tellurium	Iodine	Xenon
55 Cs	56 Ba		72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
Lα 4.286 Mα 0.601	Lα 4.466 Mα 0.779		Lα 7.899 Mα 1.645	Lα 8.146 Mα 1.71	Lα 8.398 Mα 1.775	Lα 8.652 Mα 1.842	Lα 8.912 Mα 1.91	Lα 9.175 Mα 1.98	Lα 9.442 Mα 2.05	Lα 9.713 Mα 2.123	Lα 9.989 Mα 2.195	Lα 10.268 Mα 2.271	Lα 10.551 Mα 2.346	Lα 10.839 Mα 2.423	Lα 11.131 Mα 2.514	Lα 11.427 Mα 2.596	Lα 11.727 Mα 2.68
Cesium	Barium		Hafnium	Tantalum	Tungsten	Rhenium	Osmium	Iridium	Platinum	Gold	Mercury	Thallium	Lead	Bismuth	Polonium	Astatine	Radon
87 Fr	88 Ra																
Mα 2.761 Mβ 2.89	Mα 2.806 Mβ 2.953																
Francium	Radium																

57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu
Lα 4.651 Mα 0.833	Lα 4.84 Mα 0.883	Lα 5.034 Mα 0.929	Lα 5.23 Mα 0.978	Lα 5.432 Mα 1.023	Lα 5.636 Mα 1.081	Lα 5.846 Mα 1.131	Lα 6.057 Mα 1.185	Lα 6.273 Mα 1.24	Lα 6.495 Mα 1.293	Lα 6.72 Mα 1.348	Lα 6.949 Mα 1.406	Lα 7.18 Mα 1.462	Lα 7.416 Mα 1.521	Lα 7.656 Mα 1.581
Lanthanum	Cerium	Praseodymium	Neodymium	Promethium	Samarium	Europium	Gadolinium	Terbium	Dysprosium	Holmium	Erbium	Thulium	Ytterbium	Lutetium
89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr
Mα 2.924 Mβ 3.064	Mα 2.996 Mβ 3.145	Mα 3.082 Mβ 3.243	Mα 3.171 Mβ 3.333											
Actinium	Thorium	Protactinium	Uranium	Neptunium	Plutonium	Americium	Curium	Berkelium	Californium	Einsteinium	Fermium	Mendelevium	Nobelium	Lawrencium

Legend:

Element symbol → 26 Fe ← Atomic number

*Spectral line: Kα 6.405, Lα 0.705 ← Energy (keV)

Element name: Iron

*All spectral lines refer to α_1 unless otherwise specified. Copper refers to α_{1+2}

Minimum Accelerating Voltage:

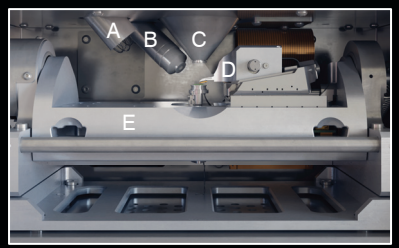
5kV or higher	10kV or higher	15kV or higher

Colors represent roughly the minimum beam energy needed to detect characteristic X-ray lines.

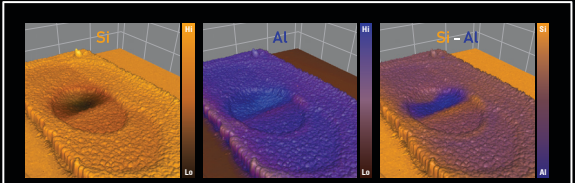
Compilation date: January 2025 (rev.01)

References:

Center for X-Ray Optics and Advanced Light Source. X-Ray Data Booklet. Lawrence Berkeley National Laboratory, Oct. 2009, https://xdb.lbl.gov/xdb-new.pdf. Accessed 28 Jan. 2025.

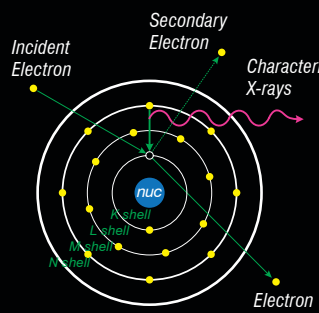


FusionScope chamber: (a) E-T detector, (b) EDS, (c) SEM Column, (d) AFM, (e) Trunnion tilt stage.



Correlation of AFM 3D topography view with EDS elemental data showing that the Al portion of the VIA circuit is in a thinned area leading to poor or faulty performance.

Characteristic X-rays



Continuum X-rays