Periodic Table of Elements for EDS Analysis

Legend:

Element symbol → Fe; Atomic number → 26; *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.

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

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

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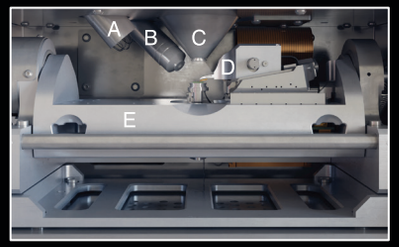
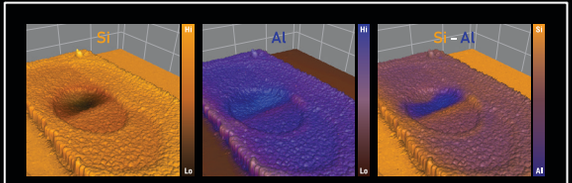
References:

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.

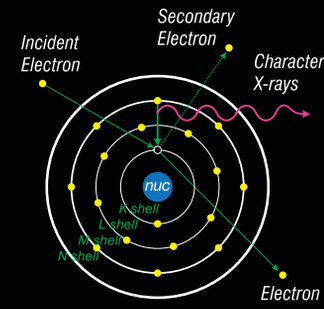


FusionScope chamber: (a) E-T detector, (b) EDS, (c) SEM Column, (d) AFM, (e) Trunnion tilt stage.

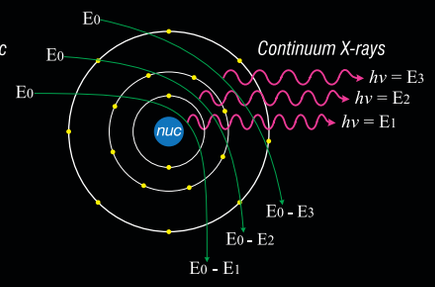


Correlation of AFM 3D topography view with EDS elemental data showing that the Al portion of the VIA circuit is in a thinned area leading to poor or faulty performance.

Characteristic X-rays



Continuum X-rays



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