

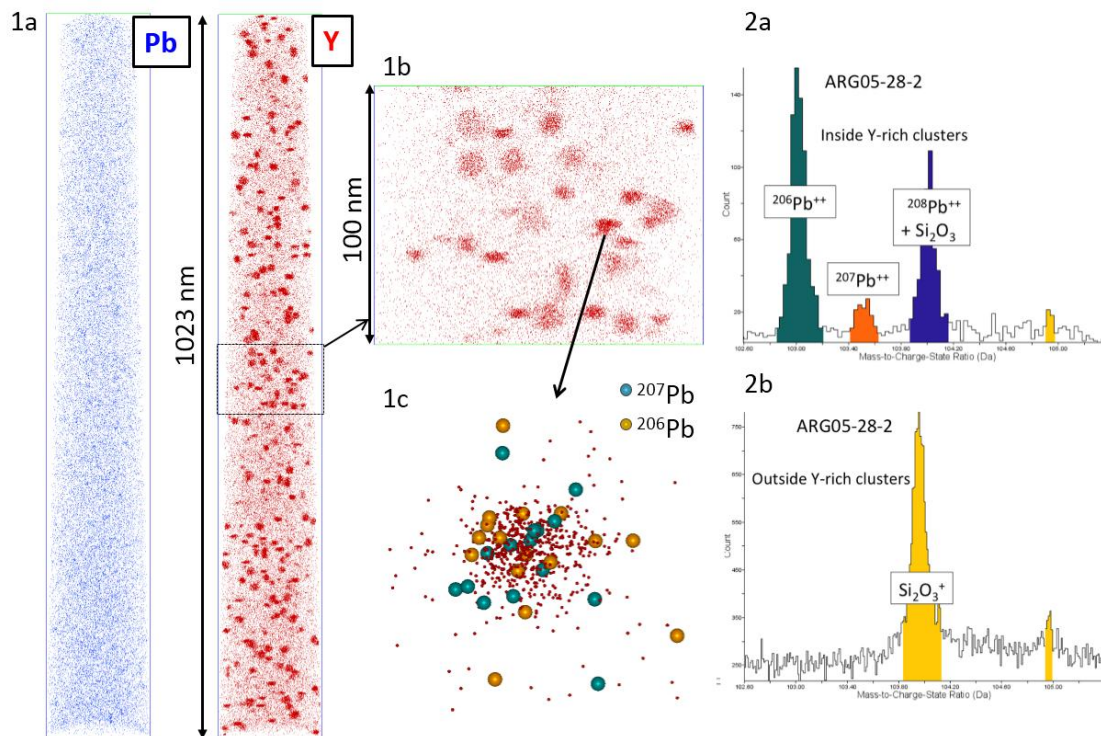
# Applications of Atom Probe Tomography Across the Materials Spectrum

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Atom probe tomography (APT) provides three-dimensional structural and compositional analysis of materials at the atomic scale. Metals and alloys have been studied extensively by this technique for several decades. Recent specimen fabrication techniques, particularly those using focused-ion beam instruments with in-situ manipulation, have made it routine now to extract and analyze specimens from a wide variety of nanoscale structures.

The aim of this presentation is firstly to review developments in instrumentation that have enabled major progress and secondly to explore the rich spectrum of applications for a wide variety of materials including advanced alloys, complex electronic devices, dielectric components, and even biological materials.



Zircon geochronology where U/Pb isotope dating has been shown to agree very well with SIMS data and nanoscale microstructural features have greatly enhanced the understanding of the material's history [3] which allowed corroboration of SIMS dating for 4.4 Ga zircons.

From J. W. Valley et al., *Nature Geoscience* (2014) 7, 219-223 doi:10.1038/ngeo2075.