

Auger Electron Spectroscopy(AES)

Equipment:

- JAMP-9500F Field Emission Auger Microprobe (JEOL, Tokyo)
- Curlew™ SPM (SPECS Surface Nano Analysis, Berlin)

Category:

C. Particle Characterisation in and ex-situ and/or

Institute:

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Short technology description/Overview:

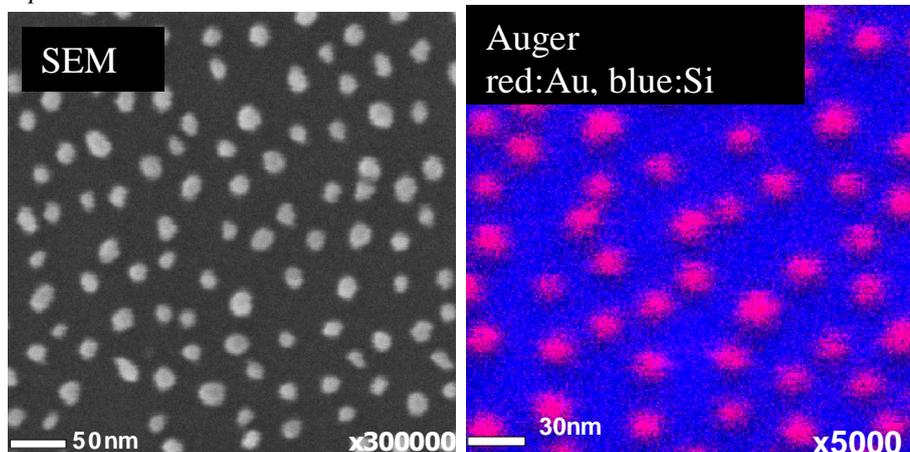
Auger electron spectroscopy (AES) is an analytical technique for obtaining the chemical composition of the top few layers of a surface. It cannot detect hydrogen or helium, but is sensitive to all other elements. The surface is irradiated in a high vacuum chamber using an electron beam and as a result Auger electrons are emitted from the elements within the surface. The energy analysis of these escaped electrons provides elemental composition and chemical information of the near surface of the sample. The Wageningen Auger is combined with a Scanning Probe Microscope (AFM/STM). SPM hardly needs introduction, it forms topographical images of surfaces using an atomically sharp tip that scans the surface of the material. The Auger-SPM enables both types of observation conveniently on the same region. In this way SPM and Auger measurements can be done on the very same spot on the sample.

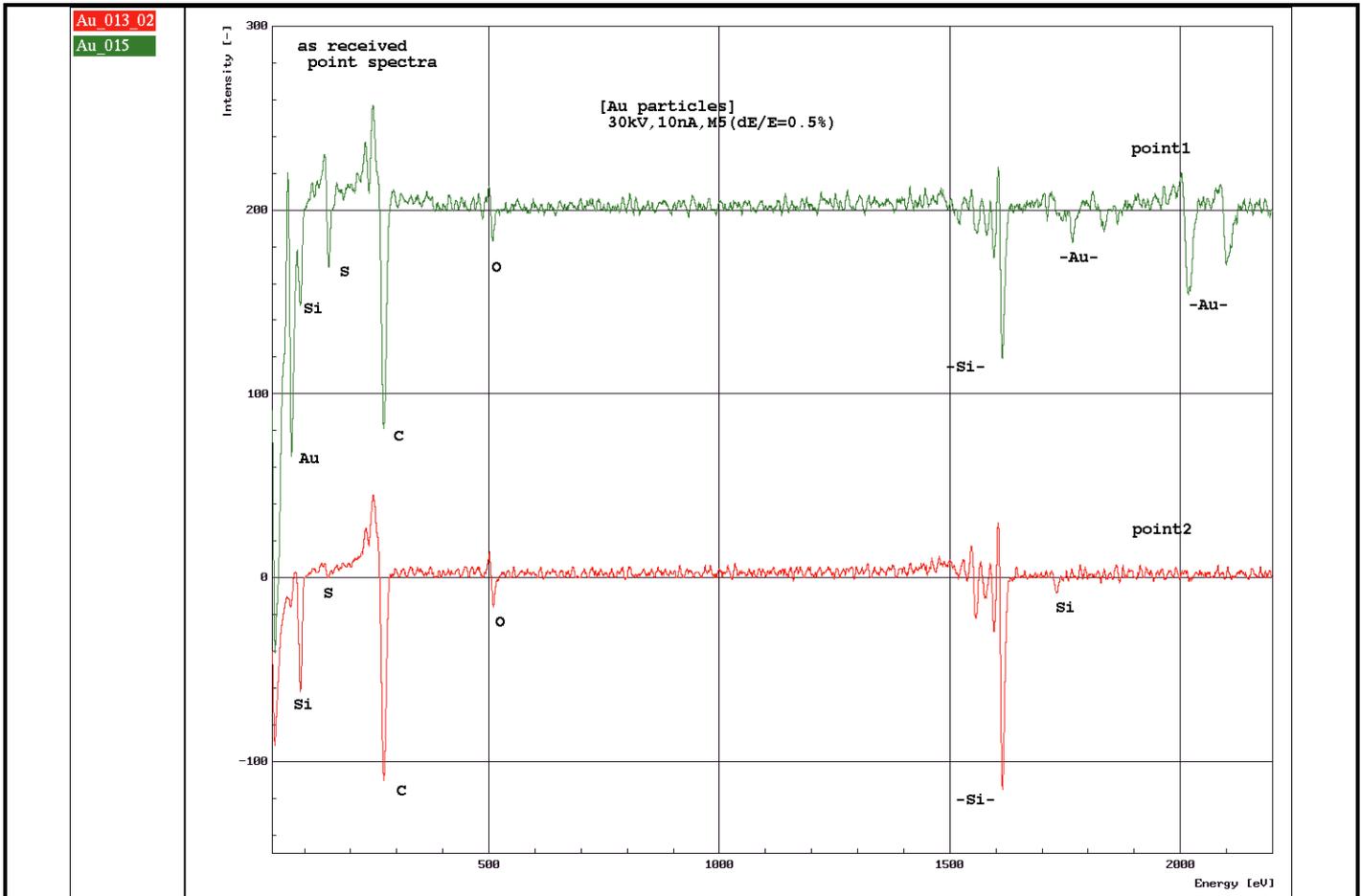
Main Features (Equipment Capabilities):

- SEI resolution approx. 5-10nm. Probe diameter for Auger analysis 10-20nm.
- Field emission electron gun
- Practical detection limit ~1 at-%
- Point spectra, Area spectra, Elemental maps.

Typical Samples & Images:

Example Gold particles:





Auger technique: Spectra and high resolution images of surfaces provide information of the elements in the surface (sampling depth up to ~ 10 nm).

Any further Information:

Auger is pronounced in French, as the Auger effect is named after the French physicist Pierre Victor Auger (May 14, 1899 – December 25, 1993).