

Owari Laboratory

[Design of Three Dimensional Atom Probe(3DAP)] [Three-dimensional microanalysis using micro-beam and nano-beam SIMS]

Institute of Industrial Science, Department of Material and Environmental Science
http://www.owari.esc.u-tokyo.ac.jp/

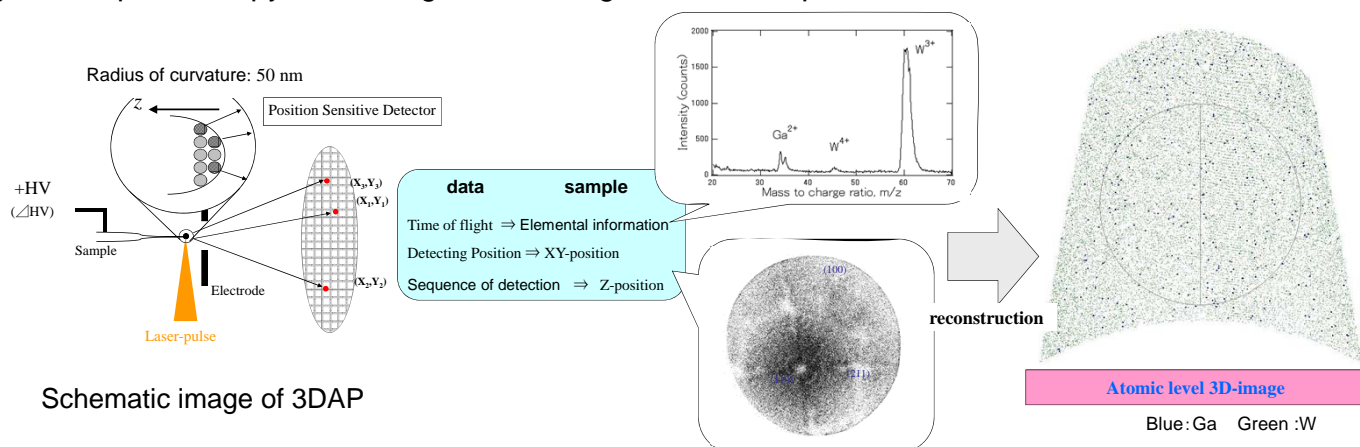
Research topic ● micro and nano material analytical chemistry

Department of Applied Chemistry

Design of Three Dimensional Atom Probe(3DAP)

Be-B05

Atom probe tomography enables the quantitative chemical analysis of nanostructured materials with a nearly atomic scale. By carefully controlled field evaporation, individual atom is removed from a tip-shaped sample and their time of flight and detected positions are determined. The atoms are identified by mass spectroscopy and their geometric origin within the specimen is also reconstructed.



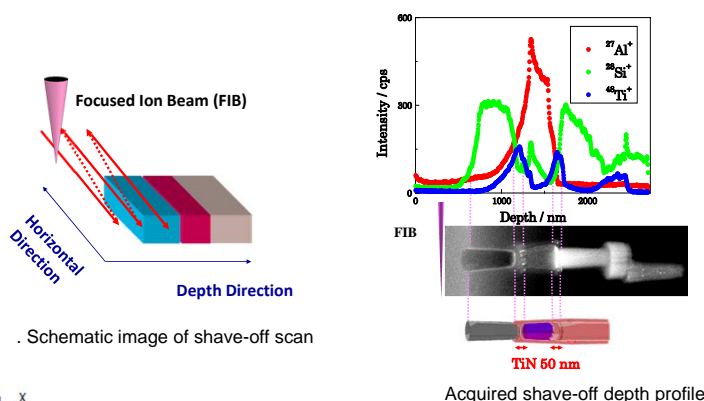
Three-dimensional microanalysis using micro-beam and nano-beam SIMS

Fe-408

Secondary Ion Mass Spectrometry(SIMS) is analysis method that analyze secondary ions yielded from samples by irradiating accelerated primary ion beam.

◆ nano-beam SIMS

Shave-off depth profile can be acquired directly by the fast horizontal sweep of FIB combined with the very slow vertical sweep.



◆ Dual FIB ToF-SIMS

Three-dimensional image can be obtained by operating two FIB alternately. One FIB is for section processing by shave-off scan, the other is for ToF-SIMS mapping.

