TOF-SIMS (Time-of-Flight Secondary Ion Mass Spectrometry)

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Time-of-flight Secondary Ion Mass Spectrometry (TOF-SIMS) is the mass spectrometry of ionized particles which emitted when a surface is bombarded by energetic primary particles, usually ions (for example, Bi^+, C_{60}^+, Cs^+). It provides detailed elemental and molecular information about surfaces, thin layer, interfaces, and full three-dimensional analysis of the samples. TOF-SIMS is capable of four basic modes of operation; Surface Spectroscopy, Surface Imaging, Depth Profiling and 3D Analysis.

Location L5113D Tel.02-958-5977

Model

TOF-SIMS5 (ION-TOF, Germany)

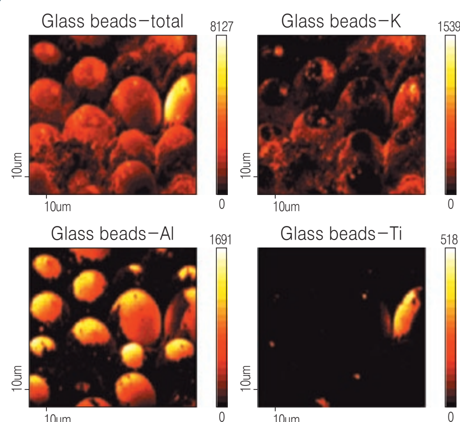
Specifications

- Mass resolution : > 11,000 (at m/z = 29)
- Mass range : > 10,000 amu
- Sensitivity : 4.5×10^8 Al^+/nC @ 7,000 (FWHM)
- Lateral resolution : < 130nm (with Bi^+)
- Ion beam : Bi^+, C_{60}^+, Cs^+
- Ion energy range : 1~10 keV
- Noise level : < 54 dB

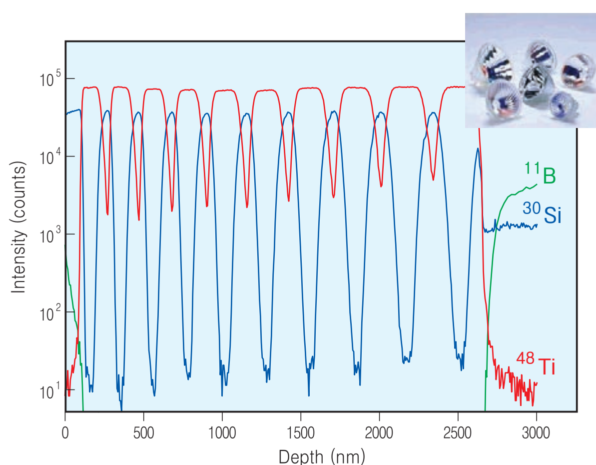
Applications

- Molecular structural analysis
- Trace elemental analysis (including H, He)
- Chemical mapping (SEM, SIMS imaging)
- Depth profiling
- 3-D analysis

Ion images for total ion, K, Al, and Ti ion of the glass beads



Depth profile of multilayer system on glass



Mass spectra of FMP derivatized estrone and poly (vinyl phenol)