

2D dopant image in cross-section of glass fiber by NanoSIMS

The NanoSIMS 50L can provide the highest lateral resolution among secondary ion mass spectrometry and can simultaneously achieve high sensitivity and high mass resolution. Here, we introduce example of impurities in core and clad layer conducted on cross-section of glass fiber using NanoSIMS.

What is NanoSIMS ?

I maging & Depth Profiling

- High lateral resolution
- High transmission
- High mass resolution using magnetic sector

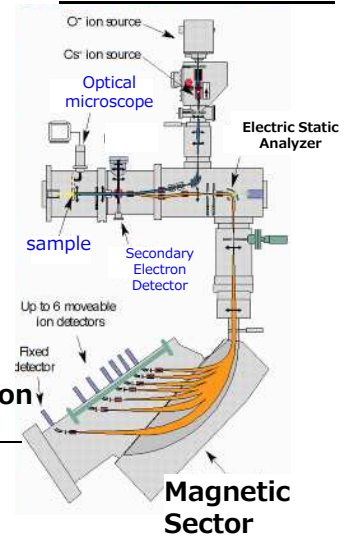


(AMETEK HP)

N anoSIMS 50L

- Primary ion : Cs^+ , O^-
- Minimum beam size : 50 nm
- Detection limit : ppm~
- Mass analyzer : double focusing mass spectrometer
- Number of ions detected : 7
- Analysis depth : 10 nm~ several 100 nm

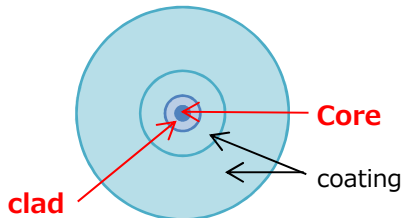
Primary Ion Source



Multicollection system

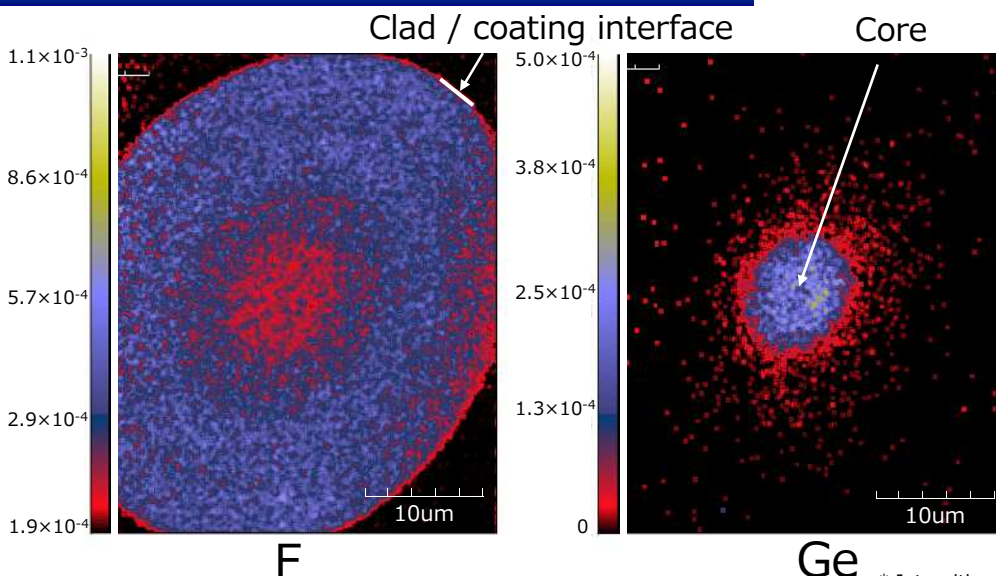
Magnetic Sector

Cross-section of glass fiber



Glass fiber consists of core, clad layer. Dopants are usually doped in each layer to immerse photon of specific wave-length and transfer it by control refractive index of each layer.

2D image of dopants in core and clad layer



2D mapping of dopant in each layer and around the interface can be obtained with high lateral resolution and high sensitivity.

In addition to F in clad and core layer, Ge in core layer and around the interface, the gradual distribution in each layer were visible clearly.

* Intensities were normalized by that of matrix element.