Cross-section Imaging of the semiconductor memory by NanoSIMS 50L

By using NanoSIMS 50L, cross-section imaging measurements of SRAM were performed.
The microstructure of 50-100nm size observed in cross-section TEM was detected by NanoSIMS 50L with high lateral resolution. The detection of the dopant is expected by optimizing measurement conditions in the future.

High **sensitivity**
lateral resolution
mass resolution

NanoSIMS 50L

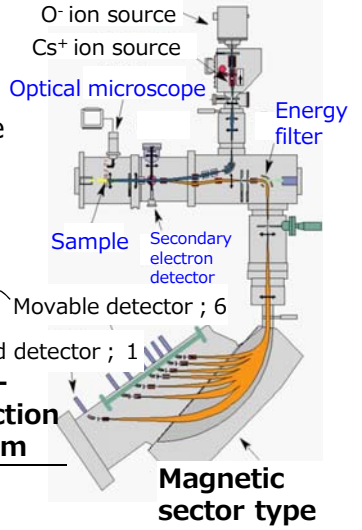
- Primary ion : Cs^+, O^-
- Minimum beam size : 50 nm
- Detection limit : ppb ~ ppm
- Mass analyzer : Double-focusing type
- Number of detected elements : 7
- Analytical depth : 10 nm ~ 1 μm

Imaging & Depth Profile

- The highest lateral resolution in SIMS
- Higher sensitivity than Atom Probe Tomography
- Isotopic ratio measurement is enabled.

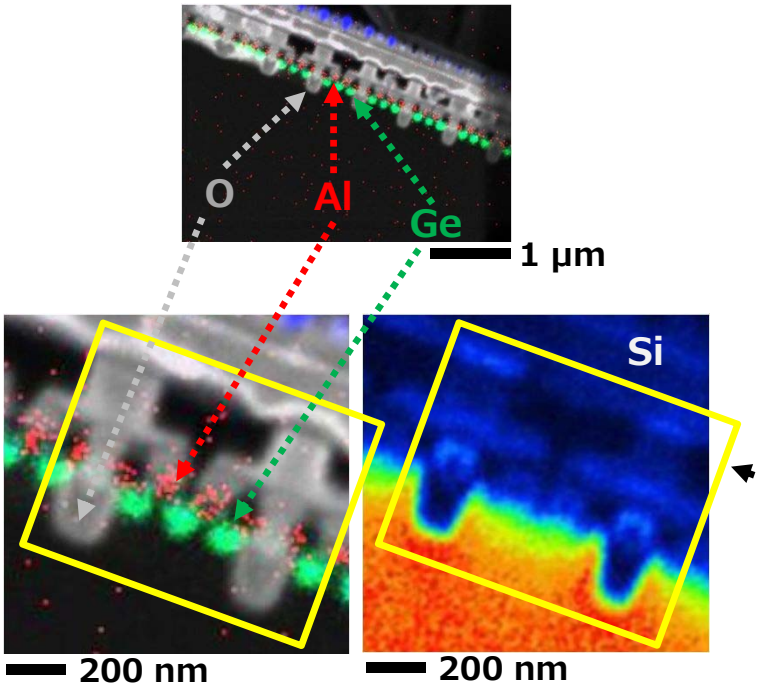
AMETEK

Primary ion source

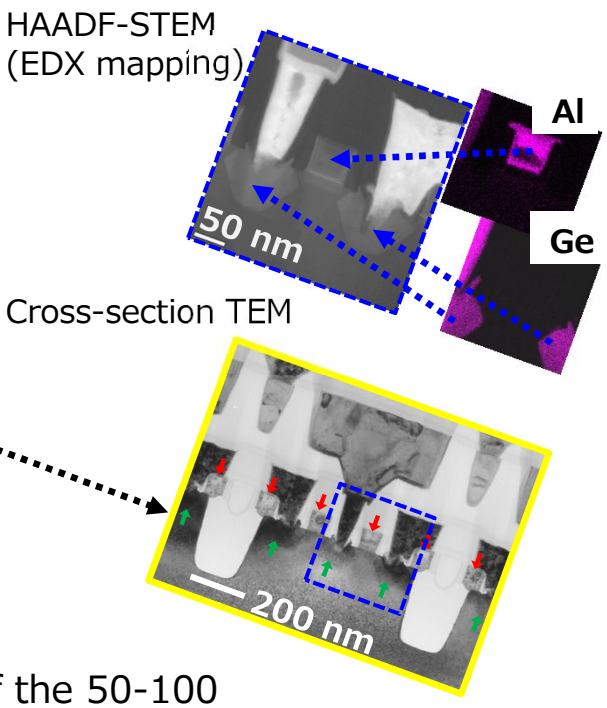


Cross-section imaging of SRAM (45nm node)

NanoSIMS 50L



TEM & HAADF-STEM



- The detection of the trench structure of the 50-100 nm size, Al electrode and SiGe is detectable.