PAUL SCHERRER INSTITUT

PICO

Zeiss Supra 55VP

Responsible

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Details of the Instrument

- Column based on GEMINI electron optics with 8kV beam booster for high resolution at low acceleration voltages.
- Cathode: hot thermal field emission tip (Schottky-emitter ZrO/W)
- ~1nm beam size at an acceleration voltage of 15kV.
- Kleindiek Micromanipulators for in situ electrical and mechanical experiments

Detectors

1. **In Lens** - SE detector for top surface information using low Acceleration Voltage EHT ~1-3 kV and Working Distance WD~5 mm.
2. **SE2** - Everhardt Thornley Detector for high resolution images with WD ~10mm and ETH ~3-15kV; grid for deacceleration – used for imaging in tilt with improved depth of field in combination High current.
3. **BSE** - Backscattered electron detector Centaurus, manual sidewise movement, useful for enhanced material contrast.
4. **VP** - Variable Pressure detector for imaging e.g. electrically nonconductive, degassing materials without the need for metal coating. This works by charge compensation (positively ionized gas molecules stabilize local charging). Spatial resolution: approx. 3nm @ 15kV

Sample size

4-inch wafer area can be fully inspected, Wafers up to 8inch can be loaded, but not completely inspected due to chamber size.

Important:

Samples must be clean and dry (High vacuum- compatible). No powders, no loose particles that can get ionized and accelerated inside the Gemini column.