CEITEC NANO

Research Infrastructure
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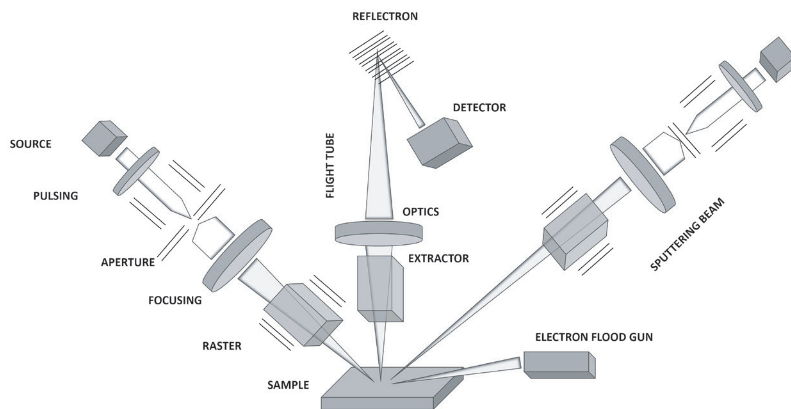
Secondary Ion Mass Spectrometry

Ion TOF.SIMS5

PRINCIPLE

Time-of-Flight Secondary Ion Mass Spectrometry (TOF-SIMS) is a very sensitive surface analytical technique which provides detailed elemental information about the surface, thin layers, interfaces of the sample, and gives a full three-dimensional analysis. Finely focused ion beam sputters sample surface and the exact mass of emitted ions and ion clusters is measured by time-of-flight analyzer. From the exact mass and intensity of the SIMS peak, the identity of an element or molecular fragments can be determined.

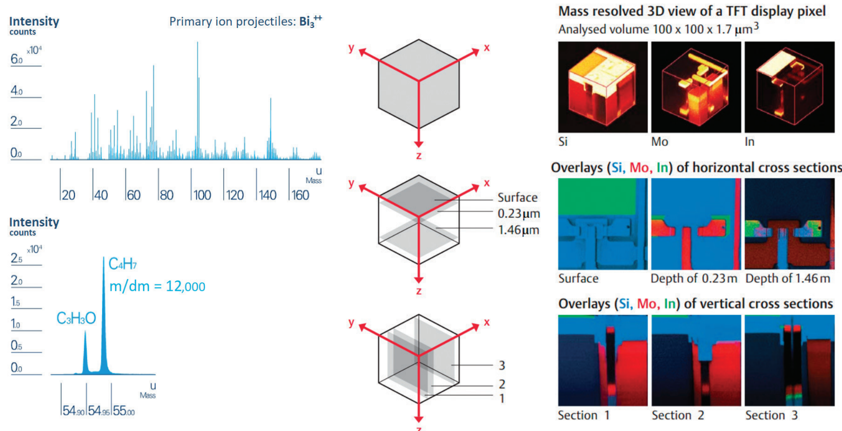
SCHEMA



SPECIFICATION

Primary Ions	$Bi1^+$, $Bi1^{++}$, $Bi2^+$ .. Bi_7^+, Mn^+ Energy: 30 keV
Sputtering Ions	Cs^+,O_2^+ Energy: 0.5 – 2.0 keV
Electron Flood gun	Energy: <20 eV
Sample holders	Back side mounting stage: Sample size: 15 mm × 10 mm Top side mounting stage: Sample size up to 100 mm × 50 mm Heating/Cooling stage: Sample size: 10 mm × 10 mm Temp. range -130°C – 600°C Rotating stage: Sample size: ø10 mm
Surface spectrometr	High sensitivity (1–2 ML)
Surface imaging	High lateral resolution (<60 nm)
Depth profiling	Depth resolution better than 1 nm
	High mass resolution > 11 000 @ 29 u
	Sputter speed of up to 10 µm/h
3D Analysis	Parallel mass detection

RESULTS



left – High resolution mass spectrum of a PET sample.
right – Mass resolved 3D analysis of TFT display pixel.

MORE INFO

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