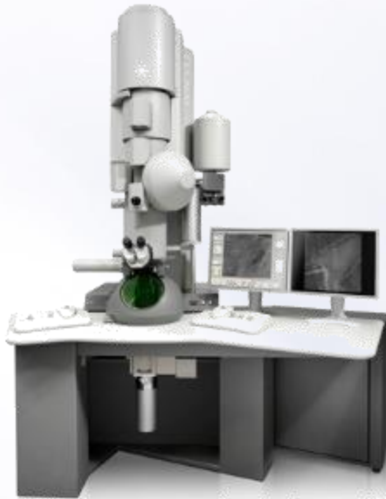
TEM sample analysis

TEM sample analysis can be very powerful during competitor analysis, construction analysis or at the end of a failure analysis. The TEM is used when magnifications up to the sub-nm range are necessary, typically for <40 nm processes. Samples used for TEM analysis have to be thinned down to <100 nm using the dual beam system.

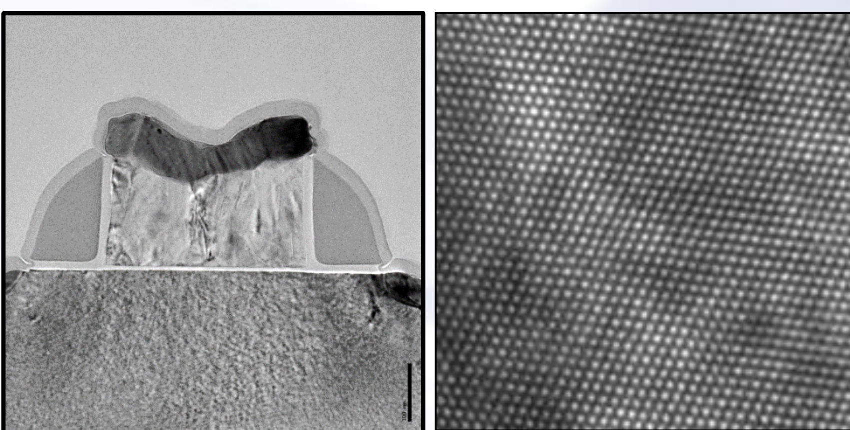


TECNAI G² F20 XTWIN:

- Up to 200 kV emission current
- HR-TEM mode capable of resolutions up to 160 pm
- STEM-HAADF mode capable of resolution up to 180 pm
- EDAX r-TEM high performance liquid nitrogen cooled EDX detector.

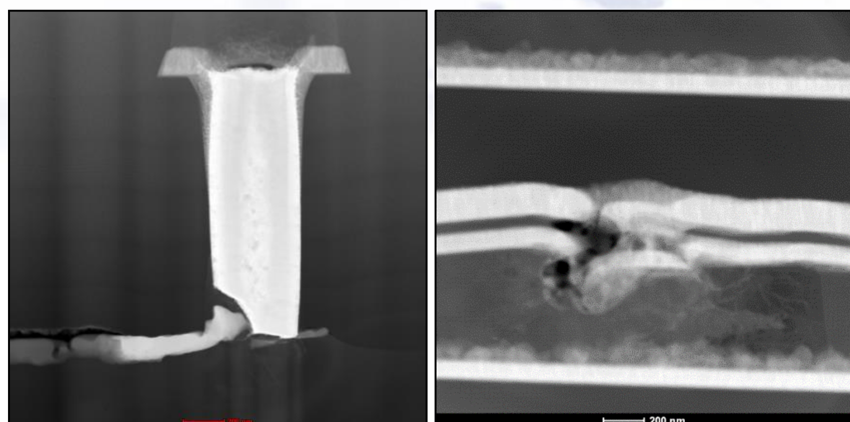
PLASMA CLEANING:

- Removes organic contamination
- Oil-free vacuum system
- Storage of specimen holders in a clean vacuum
- Structural characteristics are not changed during the cleaning process



TEM PHASE CONTRAST IMAGING:

- Inspection of crystal structures
- 4 Mega Pixel CCD GATAN Camera
- Identifying lattice and crystal constants
- Visualization of dislocations and stacking faults



STEM-HAADF IMAGING:

- HAADF detector from Fischione
- Investigation of Quantum well structures
- Ideal for Z-contrast imaging
- Simultaneous BF or ADF imaging with GATAN detectors
- EDX element analysis

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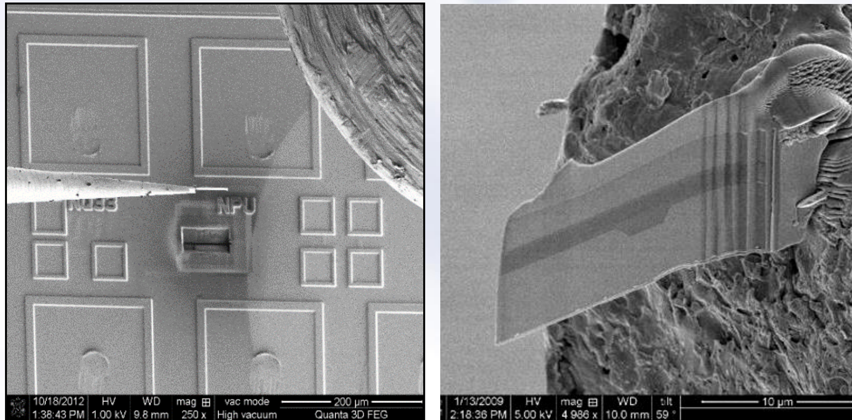
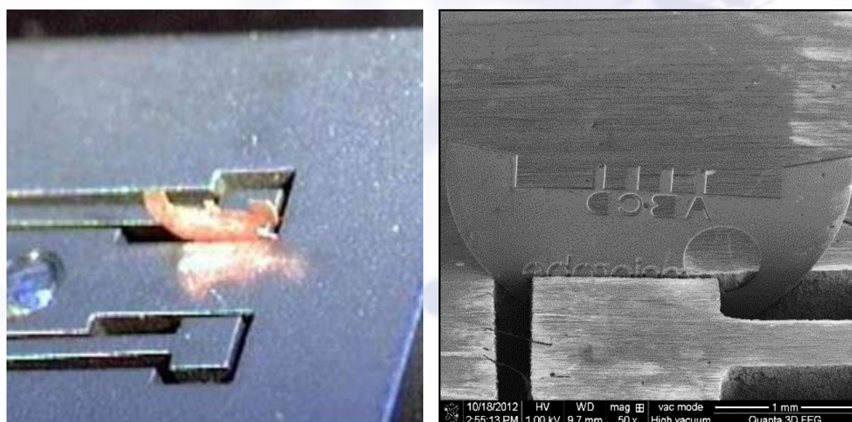
TEM sample preparation

QUANTA 3D DUAL BEAM FIB:
- Simultaneous Ga+ ion milling and SEM imaging
- Motor controlled Omniprobe 100.7 for in-situ sample lift out
- Grid attachment of sample with 100 nm accuracy
- Dual beam system 30 kV FIB in combination with 30 kV SEM.



TEM PREPARATION:
- Platinum deposition to protect the lamella during milling
- 30 kV Ga+ ion milling down to 100 nm thin lamella
- Eventually 5 and 2 kV milling to further thin the sample down to 60 nm.
- Thinned with only 3 nm amorphous layer



TEM SAMPLE TRANSPORT:
- A dedicated Cu TEM grid is developed
- Special holder available for Cu TEM grid
- The grid holder can be stored under high vacuum
- The sample can be shipped using a special shipment box
- Re-thinning of the lamella is possible after (S)TEM inspection

For more info please visit www.maser.nl
For inquiries please contact : info@maser.nl or call +31 53 480 26 80

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