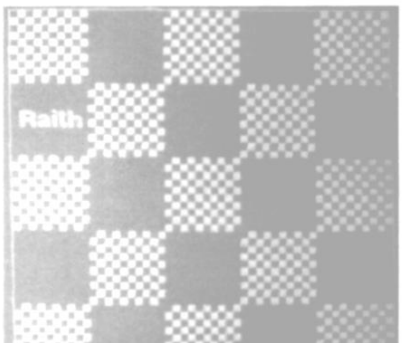
Chessy SEM Calibration Specimen



Applications

Imaging

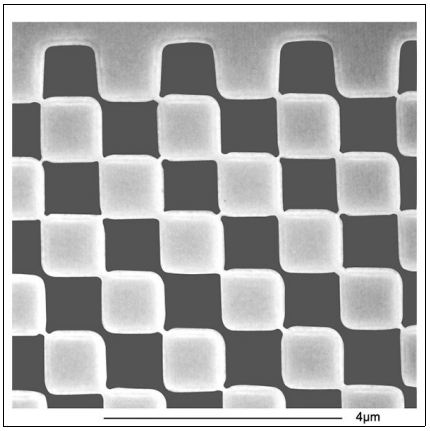
- Calibration of SEM magnification in all ranges between 20x and 50,000x
- Check of equal scaling in X and Y
- Check of orthogonality and distortion
- Resolution test at high magnification on the edges of the gold squares

Motorised stages

- Measurement of reproducibility using stored positions
- Calibration of readings in X and Y
- Calibration of stage orthogonality
- Measurement of absolute positioning accuracy

Experimental Electron Lithography

- Generation of metric writing fields between 10µm and 5mm square via mark recognition and alignment
- Measurement of SEM distortion at any magnification via mark recognition on different places
- Check of defocusing in outer areas



Structure

There are more than 1.6 million gold squares on 1µm size of silicon forming a 4-fold checkerboard pattern in an area 5mm square. The smallest metric checkerboard has a size of 10 x 10µm. Such checkerboards form large metric checkerboards of 100 x 100µm and these again form checkerboards of 1mm square. Finally such 1mm squares are arranged in the same manner covering a field of 5mm square.

The edges of the empty corners in 100µm checkerboards are additionally marked. The surrounding frame is 10µm wide and has an outer side length of 5.04mm.

C340 Chessy Calibration Specimen