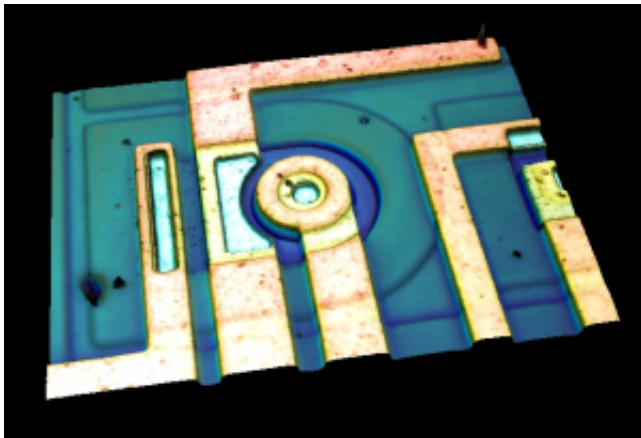


PRO-CON

Product Features

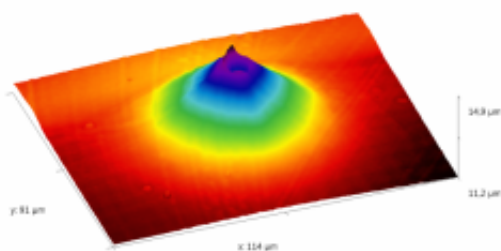


MCS Confocal - software for 3D metrology in the nanometer range with a light microscope:

- White light confocal module for INM microscope series
- Microscope add-on for 3D metrology in the nanometer range (MCS software required)
- Fast measuring of the topography for structures up to a few nanometers

The MCS Confocal Module in combination with the hardware (white light confocal module) extends the microscope by a very fast and high-precision 3D metrology method.

Basics

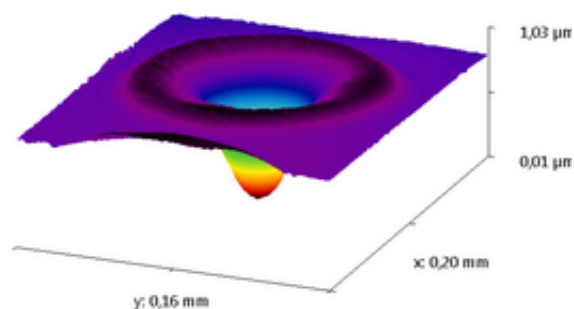


White light confocal microscopy is a very universally applicable and robust method for obtaining lateral and especially longitudinal high-resolution 3D geometry data. The confocal imaging reduces the depth of focus range extremely, especially with high magnification lenses (20x), 50x or 100x. In combination with the evaluation software it results in an enormously powerful 3D surface measuring device. A large number of spirally arranged apertures ensures that only the light coming exactly from the focus level contributes to the image formation. Light from other (blurred) planes is almost completely blocked at the apertures. The fast rotation of the Nipkow disc ensures that the apertures cover every point of the image field. As a result there is a very fast scan of the XY image plane which enables a confocal real time image of an image slice. By a superimposed vertical scan of the sample with equidistant steps, a confocal image stack (i.e. a Z-stack

consisting of nanometer-thin image sections) is drawn in by the camera within seconds. Thereby the complete 3D data set is generated and is available in the image memory of the computer for the geometry evaluation via MCS Confocal software.

Compared to other methods (such as the laser scanning method, where each image is generated by scanning the sample sequentially), the big advantage of the confocal module is its enormous speed. However, due to the need of particularly strong lighting (like Xenon or HBO gas discharge lamp) this must be bought. On highly reflective samples such as silicon wafers, our high-performance LED can also be used if necessary.

Area of Application



In contrast to interferometry, where vertical resolution is independent of the magnification, confocal discrimination increases sharply with the numerical aperture (NA) of the lens used.

Confocal optical metrology is suitable for high magnifications, i.e. for imaging and measuring the smallest structures. Lenses from 20x, better 50x, 100x or 150x/0,95 are used.

The Confocale Module SDC is available for the microscopes of the INM series. Together with the MCS Confocal Software it forms an extension of the microscope to a powerful tool for 3D surface metrology.

Enquiry