

High-performance 3D X-ray microtomography for non-destructive testing of materials and products in microelectronics

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3D X-ray microtomography (3D X-ray micro-CT) is a method of non-destructive layer-by-layer examination of the internal structure of an object. The method is based on measuring the attenuation of X-ray radiation depending on the density of the material that absorbs it. The object is scanned at different angles and by measuring the intensity of the absorbed X-ray radiation.

Various operating principles of microCT allow you to examine both biological and industrial materials, goods of micro- and nanoelectronics, without distortion. The 3D scanning allows to visualize the surface and internal microstructure of goods, which is effective for further analysis.

A pioneer in compact X-ray micro-CT production is the company Bruker Corp. (USA). Bruker's portfolio of X-ray micro-CTs offers non-destructive 3D imaging solutions for a wide range of industrial and scientific applications. New SKYSCAN 1273 is high performance 3D X-ray micro-CT and one of the latest developments from Bruker Corp. The main features of SKYSCAN 1273 are:

- size of samples up to 500 mm in length, 300 mm in diameter and a maximum weight of 20 kg
- 0-130 kV X-ray source
- 8 position automatic filter changer for automatic energy selection
- GPU accelerated for fast 3D reconstruction
- truncated scanning with automatic stitching of large images

The integrated 3D.SUITE software allows you to reconstruct images and display the reconstructed results as layer-by-layer films or three orthogonal projections. The method of 3D X-ray microtomography is highly recommended for inspection of materials and good od micro- and nanoelectronics.

Topics

Session A. Physics of condensed matter and spectroscopy

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