

MIN. VOXEL SAMPLING 50 NM

In 3D with a magnification of 1500

ENERGY DOWN TO 4 KEV

For low contrast samples

PHOTON COUNTING DETECTOR

Virtually noise free

VARIABLE FIELD OF VIEW

100 μ m – 10mm

AUTOMATIC ALIGNMENT

Easy to use workflow

STATE-OF-THE-ART RECONSTRUCTION

Advanced algorithm

COMPACT DESIGN

Small footprint of 2.2 m \times 1.2 m

FULLY CUSTOMIZABLE

Software and hardware

Development Center
X-Ray Technology EZRT
a division of Fraunhofer Institute for
Integrated Circuits IIS
in cooperation with Fraunhofer IZFP

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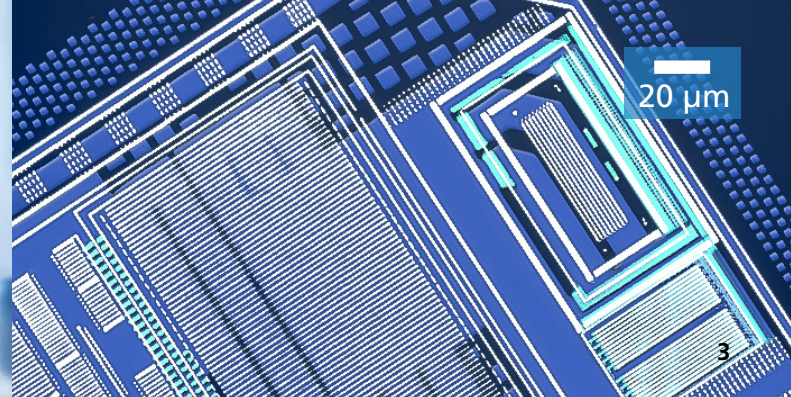
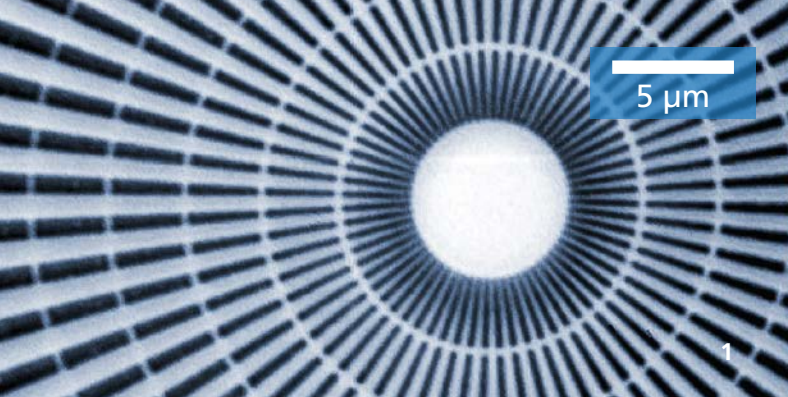
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ntCT
FORWARD-THINKING NANO CT





EASY-TO-HANDLE NANO COMPUTED TOMOGRAPHY SYSTEM FOR RESOLUTIONS DOWN TO 150NM

The Fraunhofer ntCT makes modern laboratory technology available for industrial applications.

The functional features of novel material systems are often based on their complex inner structures, which are not accessible by established non-destructive analysis methods. The fabrication of microelectronics and micromechanics becomes more and more complex, packed and 3D. After decades of successful miniaturization, industry now produce structures too small for established process control, hindering further improvements. Moreover, biological investigations would require more detailed 3D information of hidden inner structures in order to understand the morphology of various organisms, but such samples often provide too low material contrast.

The ntCT provides a unique solution for all these high-resolution measurements far ahead of established industrial micro CT scanners by applying the latest developments from X-ray research.

State-of-the-art components merged into a unique synthesis

Our experience in both hardware and software design enables us to perfectly adapt systems to your individual needs. Besides using only high-precision components, we also develop state-of-the-art reconstruction algorithms.

The Swedish company **Excillum** is a specialized manufacturer of high performance X-ray sources. Excillum's NanoTube N1, a 60kV X-ray tube with latest tungsten-diamond transmission target technology, automatic e-beam focusing and astigmatism correction, ensures that the smallest possible, truly round X-ray spot is achieved.

The Swiss company **DECTRIS** is the most experienced company in photon counting X-ray detectors, which feature several advantages compared to commonly used flat-panel detectors. Most importantly, zero readout noise and zero dark current enable an optimum signal-to-noise ratio. Thus, the dynamic range of our X-ray radiographies is not limited by the detector. Moreover, dual energy discrimination enables digital spectrum adjustment.

High stability: the prerequisite for outstanding resolution

For highest resolution typical measurement times are 5-20h. Such relatively long scan times are only possible due to our high system stability combined with advanced image processing.

Passion for nano systems

The Fraunhofer Nano CT Systems group located in Würzburg is a team of passionate scientists with many years of experience in system design and algorithm development. Our latest ntCT combines novel developments in component technology and advances in system integration, enabled by strong partnerships with other world-leading X-ray experts.

Please see our website for further details

www.iis.fraunhofer.de/ezrt

www.iis.fraunhofer.de/ntct



1 Siemens Star Test Chart. Even the smallest features of 150 nm lines and spaces can be successfully resolved.

2 Cutting edge direct photon counting detector system.

3 CT reconstruction of an integrated circuit. Different layers separated by color.