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High-resolution Nano-imaging with Transmission Nanofocus X-ray Source

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Over the last years, the liquid-metal-jet technology has developed from prototypes into fully operational and stable X-ray tubes running in many labs over the world. Key applications include X-ray diffraction and scattering, but recently several publications have also shown very impressive X-ray computed tomography results using the liquid-metal-jet anode technology, especially in phase contrast imaging. Key applications include X-ray diffraction and scattering, but recently several publications have also shown very impressive X-ray computed tomography results using the liquid-metal-jet anode technology.

To be able to benefit from the higher power-loading capability of the liquid-metal-jet anode, advanced electron optics had to be developed. Based on this advanced electron optics, a new nanofocus x-ray tube is developed. The foundation of the new nanofocus x-ray tube is the advanced electron optics, combined with a tungsten coated diamond transmission target. The new nanofocus x-ray tube is designed to reach line-spacing resolution of 150 nm.

The foundation of the new nanofocus x-ray tube is the advanced electron optics, combined with a tungsten coated diamond transmission target. The new nanofocus x-ray tube is designed to reach line-spacing resolution of 150 nm. The new nanofocus x-ray tube furthermore has the unique feature that it internally measures and reports the current spot size before each scan is stared – which is of course of great importance to understand the best achievable resolution. It will also be shown how the true round spot is achieved from the optics. The presentation will include unique work done by various users using Excillum's Nanotube for nano CT and imaging of variety of organic and inorganic materials. The applications include imaging of computer chips for counterfeit, nanoCT of worms to study their locomotive mechanisms and nano CT of first Diatom and study of its shell and core. We will also show the use of the source for 3D histology research and how it can provide useful information.

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