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Press Release

Rigaku Launches New X-Ray Microscope at ACMM23/ICONN2014

February 17, 2014 – The Woodlands, TX. Rigaku is pleased to announce the release of the nano3DX X-ray microscope, which debuted at ACMM23 & ICONN2014 (the 23rd Australian Conference on Microscopy and Microanalysis and the International Conference on Nanoscience and Nanotechnology).

The nano3DX is a new product for Rigaku, which has a long history and significant expertise in analytical X-ray related technologies such as X-ray diffraction (XRD), X-ray fluorescence (XRF) and non-destructive testing (NDT). It is a true X-ray microscope (XRM) with the ability to measure relatively large samples at high resolution.

As an X-ray microscope, the nano3DX images the entire sample from multiple angles. In doing so, it can reconstruct a 3D image at 0.27 µm resolution. The computer model allows the user to view sections at any point on any plane, providing valuable insights into the structure of the sample.

The Rigaku nano3DX X-ray microscope

The secret behind the Rigaku nano3DX is the high-power rotating anode and high-resolution optics coupled with sub-micron CCD technology. This combination is capable of fast data collection and has the ability to switch anode materials rapidly to optimize data acquisition. Furthermore, the magnification occurs in the detector using true microscope elements.

The geometry of the system allows the sample to be located very close to the high-resolution detector, which provides near-parallel beam optics. This design results in improved instrument stability, which prevents smearing, allows for faster data collection times and ultimately yields the highest resolution X-ray microscope in its class.

One of the other advantages of the nano3DX over other instruments is its ultra-wide field of view. The nano3DX is able to measure volumes up to 25 times larger in a single scan compared to other systems at similar resolutions in comparable time frames.

Primary anode materials used in the nano3DX are copper, chromium and molybdenum. The choice of these anode materials gives the system the flexibility to optimize the X-rays for penetration and contrast based on the atomic weights of materials present in the sample.

X-ray microscopy is suited to all kinds of materials, from low density materials such as biological samples to high density materials such as ceramics and steels. XRM is even suitable for materials with low absorption contrast, like CFRPs and pharmaceuticals.

Applications for the nano3DX are many and varied, from materials science to electronics and semiconductors to mining and minerals exploration to life sciences and pharmaceuticals.

About Rigaku

Since its inception in Japan in 1951, Rigaku has been at the forefront of analytical and industrial instrumentation technology. Rigaku and its subsidiaries form a global group focused on life sciences and general purpose analytical instrumentation. With hundreds of major innovations to its credit, Rigaku and its subsidiary companies are world leaders in the fields of small molecule and protein crystallography, X-ray spectrometry and diffraction, X-ray optics, as well as semiconductor metrology. Rigaku employs over 1,100 people in the manufacture and support of its analytical equipment. Its products are in use in more than 70 countries – supporting research, development, and quality assurance activities. Throughout the world, Rigaku continuously promotes partnerships, dialog, and innovation within the global scientific and industrial community.

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