

## CLEVER DIFFRACTOMETERS WITH THE INCOATEC MICROFOCUS SOURCE

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Several new developments for diffractometry equipment took place in the recent years. All the three key components X-ray source, optics and detector were strongly improved. The miniaturization in the semiconducting industry, new developments of nanosized materials and last but not least the growing field of life science push the needs for high-flux X-rays within a small spot. On the one hand a lot of novel, extremely high-brilliant synchrotrons were built or are still in construction. On the other hand smart small X-ray sources are now available for lab diffractometry.

In this talk we will be presenting the cutting-edge of diffractometry with highly brilliant aircooled microfocus sources. Our Incoatec Microfocus Source, the I $\mu$ S, gives a remarkable flux density of  $> 5 \cdot 10^9$  cts/s/mm<sup>2</sup> for Cu and  $> 2 \cdot 10^9$  cts/s/mm<sup>2</sup> for Ag, both at only 30 W. This is comparable to a lot of traditional rotating anode systems in the 4 to 5 kW range. The I $\mu$ S was installed both, as an upgrade for existing diffractometers and as the key component in completely new diffractometers. It is combined with all kind of detectors like CCDs, image plates or pixel detectors. We will be explaining the issues during installation of these systems like safety, electronic and mechanical integration.

Last but not least, we will be showing selected examples of applications, which strongly benefit from these new high-brilliance low-power sources. GISAXS, high-pressure crystallography, stress analysis and single-crystal diffraction can be made now with very high quality and without the former issues of maintenance and missing beam stability.

INFORMATION PAGE for the abstract  
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SOURCE”

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Preference: Talk at the session “**New Developments in XRD & XRF Instrumentation**”

We don't intend to publish this paper. As a company we have no real exciting news for the participants from the scientific viewpoint. This contribution is mainly on instrumentation and has more an overview character. And we would not like to publish similar results in several journals.