

MikroGap Detector Technology Applied to Small Angle X-ray Scattering

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2D true photon counting detectors have become the dominant detection systems for laboratory Small Angle X-ray Scattering experiments. Multiwire photon counters (MWPC) are ideally suited for SAXS experiments because of their virtually noiseless background in combination with a large active area, high count rate capability and good spatial resolution.

The new MikroGap area detector technology drastically increases the count rate capabilities, extremely enhances the spatial resolution and allows even a larger active area. These features are combined with the same low intrinsic background behavior compared to MWPC. On top of that, this detector technology is radiation hard, which means, it is resistant to the direct beam of both, laboratory sources and synchrotron (!) facilities. Additionally, the time resolution of this detector is in the microsecond region, allowing time resolved experiments needed for kinetic studies.

We present results on innovative applications of SAXS that leads to advances in characterization capabilities on various nanostructured materials like liquid crystal systems or collagen based materials.