

## **NEW DETECTOR TECHNOLOGY FOR SUPER SPEED X-RAY DIFFRACTION**

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A new one-dimensional detector generation for X-ray diffraction based on the so-called "Mikrogap" technology will be introduced. This new technology is characterized by near-ideal quantum efficiency, high energy resolution, zero intrinsic noise and the highest local and global count rates currently available on the market.

The detector is radiation-hard, maintenance-free, does not require gas purge and can be operated with all common laboratory X-ray sources including but not limited to Mo-, Cu-, Co-, and Cr-tubes. Its remarkable energy resolution makes this detector even suited for retained austenite measurements using Cu-radiation!

Due to its large active window of 50x16mm featuring more than 1000 fail-safe diffraction channels it is perfectly suited for operation in both scanning and fixed mode. Typical measurement times in scanning mode are  $\ll$  5 minutes for an angular range from  $\sim 0^\circ$  up to  $160^\circ$   $2\theta$ . In fixed mode measurement times down to 100ms per  $\sim 12^\circ$   $2\theta$  provide for e.g. non-ambient studies in real time.

This presentation will discuss the "Mikrogap" technology and resulting detector specifications. The performance of the new detector will be demonstrated using several pharmaceutical examples with datasets acquired under ambient and non-ambient (temperature, temperature/relative humidity) conditions for structure analysis.