

## **HIGH RESOLUTION, HIGH THROUGHPUT X-RAY POWDER DIFFRACTION (HR HT XRPD) EXPERIMENTS AND DATA ANALYSIS**

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Advances in X-ray optics, detector technology and software enabled new application areas that previously were not feasible on a laboratory powder diffractometer. Until recently, e.g. XRPD experiments on small sample amounts were either time consuming or needed to be performed with compromises in resolution, limiting the information content that could be extracted from the data.

New optical modules - like the focusing X-ray mirror - and new stages that can be added to modular systems now allow to optimize the optical configuration for a particular sample – and not vice versa. With these new options in particular high resolution, high throughput X-ray powder diffraction comes within reach of laboratory instrumentation.

Samples coming from high throughput crystallization experiments, typically only available in small amounts, can now be measured with drastically enhanced speed without compromising the resolution. High quality data can be obtained either in transmission or reflection geometry from a variety of samples ranging from APIs to final formulations. Optimal instrument configurations, measurement strategies and data treatment tools will be discussed on pharmaceutical examples.