Modern microfocus X-ray sources define the state-of-the-art for most applications in X-ray diffraction. These sources are usually combined with multilayer X-ray mirrors which are excellent X-ray optical devices for beam shaping and preserving the brightness of the source.

Microfocus rotating anode generators and liquid metal jet systems deliver flux densities in the range of $10^{11}$ photons/s/mm^2. However, these sources are expensive and need regular and sometimes time-consuming maintenance for keeping up the high photon flux. Low power microfocus sealed tube sources, such as the Incoatec Microfocus source IμS, represent an interesting low-maintenance alternative to rotating anode generators. Power loads of several kW/mm^2 in anode spot sizes of < 50 μm deliver a small and bright beam. Flux densities of up to several $10^{10}$ photons/s/mm^2 can be achieved in a focused beam suitable for most protein crystals and poorly diffracting small molecule samples.

In this presentation, we will be reviewing the current performance levels of different low power microfocus X-ray sources. Further, we will be discussing the main features of the newest generation of the IμS. We will be presenting selected results to demonstrate the impact of these modern microfocus X-ray sources on the data quality for applications in chemical and biological crystallography, such as charge density and absolute structure determination or protein screening.

**Keywords:** Instrumentation, Chemical Crystallography, Biological Crystallography