

Coordinated Development of Tubes and Optics: New possibilities for X-ray Analytics

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At Incoatec, we have a long history of offering solutions driven by the needs of the customers. As a specialist for multilayer optics we penetrated the crystallography market with our complete I μ S Microfocus Solutions in 2006. Optics can only evolve their whole strength when the source is also matched to it. Due to this fact, we started in 2011 with the in-house development of X-ray sources. The aim was to offer the best combination of optics and sources for certain applications in small and macromolecular structure analysis. We were able to launch new solutions like the I μ S3.0 and the I μ S DIAMOND that offers a flux density of more than $5 \cdot 10^{10}$ ph/s/mm² within a spot of less than 100 μ m. This very high flux density was achieved with a low power air-cooled source that did not need any maintenance during the typical life time of more than 6 years. In the meantime, we developed several new metal ceramic tubes for different applications.

In our talk we will summarize the main parameters for the combination of multilayer optics and microfocus sources to achieve collimated or focused high-brilliance X-ray beams. The main part of the talk will explain the application dependent design and possibilities of our newly developed tailor-made metal ceramic tubes. Applications are for example in crystallography, detector calibration or as a tool at synchrotrons during downtime or construction periods.