

## STATE-OF-THE-ART MULTILAYER OPTICS FOR DIFFRACTOMETRY

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In this poster, we give an overview on the state-of-the-art beam-shaping multilayer optics for diffractometry. Nowadays a large variety of 1D and 2D optics are available with optimized properties for the customer's applications. We explain the manufacturing process of these optics, summarize the different type of optics and give some examples of typical applications which benefit from the new possibilities.

The optics consist of bent substrates with shape tolerances below 100 nm, upon which multilayers are deposited with single layer thicknesses in the nanometer range and up to several hundreds of layer pairs. Additionally these multilayers were designed with lateral thickness gradients within  $\pm 1\%$  deviation of the ideal shape. This means that a deposition precision in the picometer range is needed. We use sputtering methods for deposition, optical profilometry in order to characterize the shape and X-ray reflectometry to characterize the multilayers. The microstructure is investigated by transmission electron microscopy. The beam parameters like monochromaticity, flux, brilliance and divergence demonstrate for different lab applications the quality of the multilayer optics.

INFORMATION PAGE for the abstract  
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The abstract is submitted for the DXC-conference.

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Preference: Poster for session “???”

We intend to publish this paper.