1- and 2- dim. X-ray optics are developed and fabricated to provide high brilliance monochromatic X-ray beams for application in XRD/XRR.

The $\alpha$-Twin Mirror Arrangement ($\alpha$-Twins) was developed to increase the resolution of multilayer mirror systems in X-ray reflectometry. The optimized combination of low divergence multilayer optics and reflectometry X-ray tube yields to a divergence of less than 50 arcseconds in the parallel beam. So it is possible to measure total thin film thicknesses up to 600nm without channel cut monochromators in the beam path. $\alpha$-Twins combine first the high intensity of a multilayer mirror system with a high resolution comparable to channel cut systems. Beam characteristics of this upgrade option and measurements will be presented.

Based on a modified Montel geometry ASTIX- optics were developed for application at Cu K\(\alpha\) and Mo K\(\alpha\) wavelength. A higher symmetry of spot profile and a reduced background level were estimated from ray-tracing calculations and will be demonstrated from measurements. In combination with low power X-ray sources spot diameters from 100\(\mu\)m to more than 300\(\mu\)m can be observed. Conventional arrangements will be compared with \(\mu\)-source + ASTIX-f optics combination. It can be shown that the flux density can be twice within 300\(\mu\)m spot for Mo K\(\alpha\) radiation.