

Parabolic Refractive X-ray Lenses

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Parabolic refractive x-ray lenses are novel optical components for the hard x-ray range from about 5 keV to about 120 keV. They are compact, robust, and easy to align and to operate. They can be used like glass lenses are used for visible light, the main difference being that the numerical aperture is much smaller than one (of order 10^{-3} to 10^{-4}) [1-3]. They have been developed at Aachen University and are made of aluminium and beryllium. Their main applications are in micro- and nanofocusing, in imaging in absorption and phase contrast. They are excellently suited in crystallography to match the beam size to the size of the sample and to control the divergence of the beam.

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[2] Lengeler B., et al., *Journal of Synchrotron Radiation*, 2002, **9**, 119-124.

[3] Lengeler B., et al., *Journal of Physics D*, accepted for publication in 2005.

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