

X-Ray Toroids

The combination of high quality single crystals and modern optical manufacturing methods has breathed new life into imaging x-ray optics.

Toroidally curved x-ray optics are capable of imaging an x-ray point source onto an image plane.

Quartz, silicon, and germanium provide a wealth of 2d inter-planar spacings through suitable selection of crystallographic orientation.

Applications include the use of toroidally curved X-ray crystal optics in analytical chemistry micro-probes, in monochromatic imaging of hot plasmas, and in ultra-fast probing of structural changes in materials.

Large-area elements can be prepared using a mosaic of individual crystals. By using special processing techniques, the orientation of individual elements are maintained to high accuracy.

