

Exotic geometries in diffractive X-ray optics

Marcelo Honnicke

UFG - Jataí (mhonnicke@pq.cnpq.br)

With high power third generation synchrotron sources and fourth generation X-ray sources (free-electron laser), experimental set-ups with unprecedented spatial resolution and energy resolution became possible. However, materials with high crystalline perfection, to be used as monochromators, and, at the same time, to support the high heat load of those machines are demanded. Also, effects, such as surface quality and homogeneity in the lattice parameter, not important for the users of conventional X-ray sources and second generation synchrotron sources, must be taken into account. In this talk, diffractive X-ray optics for imaging and high energy resolution inelastic X-ray scattering will be presented. This includes: new geometries, properties of new crystals for X-ray monochromators and study on the lattice homogeneity and surface quality of single crystals.