

Compact Kinematic Holders for Synchrotron Radiation Experimental Applications

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Abstract

Kinematic mounting principles are extensively applied to the mechanical structure design for high-precision instruments. The kinematic design is deterministic and does not rely on probabilistic approach. Kinematic mounting can provide repeatable relocation capability with high accuracy, which is very important for many synchrotron radiation experimental applications, such as x-ray crystallography and x-ray microscopy.

In this paper, we present a series of compact magnetic-based kinematic mounting structures developed for sample holders, optics holders and tools for x-ray beam diagnostics at the Advanced Photon Source. Test results of positioning repeatability few microns performance for these kinematic mounting structures are also discussed in this paper.

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