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14.23 Local diffraction in spherically curved crystals characterized with synchroton radiation

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Bent crystals are central to 1-D resolved x-ray spectroscopy and two-dimensional x-ray imaging of plasmas. Nominally identical crystals may differ in their performance with x-rays even though their visible-light images are close to identical. The detailed information needed to understand those differences, viz., the crystal's local diffraction properties over the area that contributes to the image, is averaged out in the imaging tests that ideally precede the actual crystal's use. Here the local diffraction of spherically bent crystals made from quartz is examined in the x-ray topography setup at the x-ray optics testingbeamline 1-BM at the Advanced Photon Source, with radiation obtained from a flat quartz conditioning crystal made for the purpose.

Primary author(s) : PEREIRA, N. R. (Ecopulse, Inc)

Co-author(s) : MACRANDER,, A. T. (Argonne National Laboratory); STOECKL, C. (University of Rochester); BARONOVA, E.O. (Kurchatov Institute)

Presenter(s) : PEREIRA, N. R. (Ecopulse, Inc); MACRANDER,, A. T. (Argonne National Laboratory); STOECKL, C. (University of Rochester); BARONOVA, E.O. (Kurchatov Institute)

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