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Evaluating bent x-ray crystal optics with synchrotron radiation¹ NINO PEREIRA, Ecopulse, Inc, ALBERT MACRANDER, Advanced Photon Source, Argonne National Laboratory, Argonne, IL — To attain optimum performance in applications such as x-ray maging and spectroscopy, a spherically bent crystal must diffract well across its entire surface. X-ray topography of sample crystals shows isolated regions where diffraction is problematic, even for a crystal where inspection with visible light does not suggest problems. Covering problem spots may improve the crystal's focus, and decrease the background. We explore the special properties of synchrotron radiation to examine typical spherical crystals from alpha-quartz, at the 90 deg scattering angle that is especially convenient for sagittal focusing for a spherical optic.

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