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## 8.55 Experimental comparison of spherically bent HAPG and Ge crystal

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The Orion high-resolution X-ray (OHREX) focusing, imaging spherically bent crystal spectrometer, operated with both image plates and CCD cameras, has been providing time-averaged plasma diagnostics through high-resolution spectroscopy with good signal-to-noise at the Orion Laser facility. For the next step towards time-resolved plasma diagnostics to be achieved by using the OHREX in conjunction with a streak camera, even higher signal rates are desirable. Using the OHREX's sister instrument, EBHiX, at the LLNL electron beam ion trap EBIT-I, we therefore compare the efficiency of a high-quality Ge (111) crystal ( $2d = 6.532\text{\AA}$ ) with that of a higher-reflectivity, but lower-resolution HAPG crystal ( $2d = 6.708\text{\AA}$ ) in the energy range 2408 to 2452 eV. We find that the HAPG provides overall more signal across the entire image, but, because of the much better focusing properties of the Ge crystal, the latter provides more signal within the central 100  $\mu\text{m}$  of the spatial profile in cross-dispersion direction and is thus more suitable for the narrow entrance window of the Livermore-built streak camera. This work was performed under the auspices of the U.S. DOE by LLNL under Contract No. DE-AC52-07NA27344.

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