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Application of PXR-based X-ray source using a Si(400) radiator in the 40-keV region

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The X-ray source based on parametric X-ray radiation (PXR) has been developed and employed for users studies at the Laboratory for Electron Beam Research and Application (LEBRA), Nihon University. The X-ray energy of the LEBRA-PXR source is limited to 34keV in the case of using Si(220) as a radiator. Samples containing elements heavier than cesium such as lanthanoid are difficult to treat for imaging because of the upper limit of the X-ray energy. Therefore, we decided to introduce Si(400) crystals into the LEBRA-PXR source in order to provide a PXR beam above 40keV for the investigation into fuel battery cells.

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