

Hard x-ray phase-contrast imaging

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Among the useful properties of synchrotron radiation are high coherence with high flux, especially by using appropriate beam conditioners based on perfect crystals. This high coherence leads to the possibility of some interesting new types of experiments using hard x-rays to image weakly absorbing features in samples using phase contrast¹⁻² rather than conventional absorption contrast. In recent experiments at the Photon factory and at the 6 GeV Accumulator Ring at KEK, we have carried out a series of experiments to explore some aspects of these possibilities. This work will be compared and contrasted with related laboratory experiments using much weaker sources.¹⁻⁵ The important question as to the quantitative interpretation of phase-contrast images will also be discussed.

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