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Modelling a Hybrid Pixel Detector for Coherent X-ray Diffractive Imaging

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The emerging interest in coherent x-ray diffractive imaging (CXDI) is placing particular demands on position sensitive x-ray detectors. The technique typically requires a high efficiency, highly pixellated detector with a large dynamic range. CXDI is a good example of where hybrid pixel detectors will be a very competitive technology. The detector development group at the Monash Centre for Synchrotron Science are developing a hybrid pixel detector aimed at medical imaging. With some adaptation we believe it will be suitable for a CXDI detector. A Monte Carlo model of a silicon detector layer over an ASIC has been developed to allow exploration of this possibility. We report on the results of modelling low energy x-ray (0.5 to 5 keV) interactions in the proposed device.

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