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A comparative sensor testbeam using micro-focused X-rays

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A micro-focused (2.5um spot size) 15keV X ray beam has been used to study silicon micro-strip and pixelated detectors that utilise reduced edge or edgeless designs.

Scans were taken across the physical edges of devices to measure the charge collection as well as study the electric field line behaviour.

We will show the methods used for alignment, DAQ integration, triggering and data analysis.

Results will also be shown involving pixel sensors with a range of bulk type (n-on-n & n-on-p) and detector thickness's (100, 150 & 300um), as well as proton irradiated strip sensors (up to $5 \times 10^{15} \text{ncm}^{-2}$).

These results indicate the use of micro focused X-rays is a valid complimentary beam test for particle detector characterisation

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