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Testing of SiC Blade X-ray Beam Position Monitors for Synchrotron Front Ends

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X-ray beam position monitors (XBPMs) play a crucial role in accurately measuring the position of the white beam in synchrotron front ends. Traditional XBPM designs typically feature four tungsten blades arranged at the full width at half maximum (FWHM) of the white beam. However, the high absorption and lower thermal resistance of tungsten limit the proximity of the blades to the X-ray source, which may negatively impact measurement precision. This study investigates the performance of an innovative XBPM design that utilises silicon carbide (SiC) blades, which provide enhanced thermal conductivity and reduced absorption. This advancement may allow for closer placement of the blades to the beam, potentially improving measurement accuracy. This experimental setup aims to assess the impact of SiC blades on measurement accuracy, signal-to-noise ratio, and linearity compared to conventional tungsten XBPMs. The results will offer valuable insights into the benefits and limitations of SiC-based XBPMs compared to their tungsten counterparts.

Footnotes

Funding Agency

I have read and accept the Conference Policies

Yes

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