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Development of digital beam position monitor for HEPS

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High Energy Photon Source (HEPS) is a proposed new generation light source with a beam energy of 6 GeV, high brightness, and ultra-low beam emittance. An RF BPM has been designed at IHEP as part of an R&D program to meet the requirements of both the injection system and storage ring. The RF BPM architecture consists of an Analog Front-End (AFE) board and a Digital Front-End board (DFE) based on a custom platform. In this paper, we present the overall architecture of the RF BPM electronics system and the performance evaluation of the BPM processor, including beam current, filling pattern, and position measurement resolution as a function of the beam current.

Footnotes

Funding Agency

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Yes

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