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Measurement of beam phase and energy using BPMs and FCTs at the MEBT section of CSNS H- LINAC

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Accurately measuring the beam phase is critical when determining the ideal RF cavity parameters for beam acceleration. In the past, only Fast Current Transformers (FCTs) were used to measure the beam phase. However, with the upcoming upgrade of the MEBT section for the CSNS-II project, shorted stripline-type BPMs will now be utilized to measure beam position, phase, and energy. LIBERA singlepass electronics are employed to measure the beam position and phase from the BPMs. Pairs of BPMs were used to measure beam phase shift, which can also be used to calculate beam energy. This paper compares beam phase measurement systematically by BPMs and FCT.

Footnotes

Funding Agency

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Yes

Primary author: LI, Fang (Institute of High Energy Physics)

Co-authors: ZENG, Lei (Institute of High Energy Physics); REHMAN, Muhammad Abdul (Institute of High Energy Physics); YANG, Renjun (Institute of High Energy Physics); QIU, Ruiyang (Institute of High Energy Physics); YANG, Tao (Institute of High Energy Physics); HUANG, Weiling (Institute of High Energy Physics); XU, Zhihong (Institute of High Energy Physics)

Presenters: LI, Fang (Institute of High Energy Physics); REHMAN, Muhammad Abdul (Institute of High Energy Physics)

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