

Button BPMs for the cSTART project: design and challenges

The KIT cSTART project (compact storage ring for accelerator research and technology) aims to demonstrate injection and storage of a high intensity ultra-short bunch using the FLUTE LINAC, as well as a laser-plasma accelerator (LPA).

cSTART is planned to operate with a wide range of demanding parameters, such as bunch charge, bunch length and energy spread (from the LPA); making it extremely challenging for the choice of beam diagnostics with large dynamic ranges that are capable of operating within specifications.

Moreover, turn-by-turn measurements are of great interest since for some ring lattices the bunch characteristics are expected to dramatically change within a single turn.

In this talk, we will address the challenges encountered while choosing among available Button BPM designs, how we envisage these choices will affect the measurement resolution and the effects these choices may have on the measurable beam dynamics.

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