Contribution ID: **108** Type: **Poster**

Design and simulation of an iris-loaded RF deflecting cavity for the PAL-eLABs

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Accurate temporal resolution in beam diagnostics is crucial for obtaining a precise longitudinal beam profile. A transverse deflecting cavity, used as a longitudinal beam profile monitor, is a suitable instrument for achieving this requirement by inducing a transverse kick to a bunch. The induced transverse field deflects the bunch in the transverse direction, allowing the time profile to be captured on an observation screen. Notably, the deflecting cavity can achieve femtosecond temporal resolution, while a streak camera typically provides only picosecond resolution. We have designed a transverse deflecting cavity consisting of an iris-loaded RF waveguide structure for the electron Linear Accelerator for Basic science (eLABs) facility at the Pohang Accelerator Laboratory (PAL). Detailed electromagnetic simulations were performed to analyze the cavity's performance and confirm its parameters. Here, we describe the designed cavity's features and present the simulation results.

Paper submission Plan

No

Best Presentation

Yes

Contribution track

ICABU WG2. Beam Physics, Diagnostics & Novel Techniques

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