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Bead Test Result of Cavity Beam Position Monitor for PAL-XFEL

Wednesday 10 September 2025 16:00 (2 hours)

A bead test was conducted to measure the shunt impedance (R/Q) of the cavity beam position monitor (BPM) for PAL-XFEL. R/Q is an important parameter of a cavity BPM because it relates to the signal strength, which determines the resolution of the beam position measurement. In the bead test, a dielectric and metal bead were used to assess the frequency change at various bead positions. The measurement results of the two beads from the monopole cavity were similar, but the results from the dipole cavity differed significantly. This discrepancy can be explained by considering the distribution of the electric and magnetic fields in the cavity structure and the materials of the two beads.

Footnotes

Funding Agency

I have read and accept the Conference Policies

Yes

Author: KIM, Changbum (Pohang Accelerator Laboratory)

Presenter: KIM, Changbum (Pohang Accelerator Laboratory)

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