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## Beam emittance growth caused by longitudinal mismatch in the CSNS linac

*Thursday, 23 May 2024 16:00 (2 hours)*

The beam emittance growth at the end of the CSNS linac was measured to be larger than the simulation, though transverse matching was performed. We find that the longitudinal mismatch is responsible for the emittance growth because of the lack of longitudinal diagnostics. A matching technique based on the emittance measurement at the end of the linac was performed on the CSNS linac. Modifying the quadrupole gradients and RF fields of two bunchers in the MEBT improves the matching, and the beam loss along the linac is also reduced.

### Footnotes

### Funding Agency

### Paper preparation format

Word

### Region represented

Asia

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