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## Demonstration of time-resolved diagnostic in coherent electron cooling pop experiment

*Wednesday, 22 May 2024 16:00 (2 hours)*

We present a demonstration of time-resolved diagnostics within the Coherent Electron Cooling (CeC) Pop Experiment. This technique utilizes a combination of a focusing lattice, transverse deflecting cavity, and YAG screen, along with unique analytical techniques, to precisely measure and analyze the longitudinal profile information of the CeC electron beams. Additionally, our measurement of slice quantities contains slice emittance, slice current, and slice Twiss parameters. Through comprehensive analysis of these key parameters, we acquire essential information that aids in the detailed control of the beam instability of the CeC electron beams. This ultimately enhances our understanding of beam dynamics and contributes to the optimization of performance within the Coherent Electron Cooling system.

### Footnotes

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