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## Beam tomography and emittance measurement at the CERN Linear Electron Accelerator for Research

*Monday, 20 May 2024 16:00 (2 hours)*

The CERN Linear Electron Accelerator for Research (CLEAR) has been operating since 2017 as a user facility providing beams for a large variety of experiments. Its photocathode-based linear accelerator can accelerate electrons up to 220 MeV with a bunch charge of 0.1-1.5 nC, from single bunches up to 150 bunches per train. Its wide range of applications require different beam parameters, requiring the operators to be able to perform a fast measurement of the Twiss parameters at any location of beamline. To this end, we have developed a quadruple scan tool that can compute Twiss parameters at a dedicated location of the CLEAR beamline using single and multiple quadrupoles. In this paper, we present measurement results based on different fitting algorithm and tomographic reconstruction of the phase space with the results in excellent agreement.

### Footnotes

### Funding Agency

### Paper preparation format

### Region represented

Europe

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