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Plasma lens experiments at the CLEAR Test Facility, CERN

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Future plasma-based accelerators will need strong and compact focusing elements to complement the high gradient acceleration, in particular for beam transport between plasma stages. Using discharge capillary (active) plasma lenses is a promising technology, providing axially symmetric (focusing only) large magnetic field gradients at cm-scale. This is achieved by passing a strong discharge current through a long, thin capillary to set up a focusing magnetic field. The newly commissioned CLEAR Test Facility at CERN (previously the CALIFES injector at CTF3) provides an ideal beam to characterize such a discharge capillary plasma lens. We present early experimental results from the 2017 run.

Primary author: Mr LINDSTRØM, Carl Andreas (University of Oslo)

Co-authors: Dr DYSON, Anthony (Oxford University); GAMBA, Davide (CERN; John Adams Institute (JAI)); Dr ADLI, Erik (University of Oslo, Norway); Mr ROECKEMANN, Jan-Hendrik (DESY); Dr OSTERHOFF, Jens (Deutsches Elektronen-Synchrotron DESY); Dr SCHAPER, Lucas (University Hamburg / DESY); CORSINI, Roberto (CERN); Prof. HOOKER, Simon (University of Oxford); Mr FARABOLINI, Wilfrid (CEA/IRFU and CERN)

Presenter: Mr LINDSTRØM, Carl Andreas (University of Oslo)

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