7th European Advanced Accelerator Conference



Contribution ID: 470

Type: Poster (participant)

## Driver distribution in a multistaged plasma-based accelerator facility

Monday, 22 September 2025 19:00 (1h 30m)

Plasma-wakefield accelerators have the potential to reduce cost and size for future accelerator-based projects. The recently initiated SPARTA project aims to design a multistage plasma-wakefield accelerator to accelerate electron bunches to high energy (~50 GeV), for use in strong-field quantum-electrodynamic experiments. We propose to use several beam-driven plasma stages which will require a delivery system of these beams that will drive the plasma wakes. For a train of drivers, all drivers need to be delayed by an appropriate amount of time in order to enter the plasma stage at the right time. The required delay is on the order of nano-seconds for each stage, which is quite challenging for high energy beams. By using a combination of RF-deflectors, dipoles, fast kickers and septum magnets, we show how an oscillating chicane can maximize the delay while keeping the required width of a beamline tunnel low.

Primary author: KALVIK, Daniel (University of Oslo)

Co-authors: Dr LINDSTRØM, Carl A. (University of Oslo); ADLI, Erik (University of Oslo, Norway)

**Presenter:** KALVIK, Daniel (University of Oslo)

Session Classification: Poster Session

Track Classification: PS1: Plasma-based accelerators and ancillary components