Contribution ID: **355** Contribution code: **WEPMO28** Type: **Poster Presentation**

Characterisation of a Dielectric Streaker Structure for Longitudinal Diagnostics at CLARA

Wednesday 10 September 2025 16:00 (2 hours)

Accurate measurements of bunch length and shape are crucial for the proper operation and optimisation of accelerator facilities. This work presents a simulation study of a dielectric-lined waveguide (DLW) streaker structure designed to measure both the bunch length and longitudinal profile for the CLARA facility at Daresbury Laboratory*. The structure consists of two orthogonally oriented DLWs, with the second placed specifically to minimise the effect of quadrupole fields that can compromise the performance of the streaker. Various combinations of beam offsets in the first DLW and different dielectric gaps in the second have been explored to identify the optimal configuration for accurate bunch length reconstructions across a range of bunch lengths. The results of this study will help guide the commissioning and future operation of the DLW streaker at CLARA.

Footnotes

- E. W. Snedden et al., "Specification and design for full energy beam exploitation of the compact linear accelerator for research and applications". Phys. Rev. Accel. Beams, vol. 27, no. 4, p. 41602, Apr. 2024. doi:10.1103/PhysRevAccelBeams.27.041602

Funding Agency

The Cockcroft Institute and the STFC

I have read and accept the Conference Policies

Yes

Author: HIGUERA GONZALEZ, Beatriz (Cockcroft Institute)

Co-authors: Dr OVERTON, Toby (Cockcroft Institute); Dr PACEY, Thomas (Cockcroft Institute); Dr SAVELIEV, Yuri (Cockcroft Institute); Dr XIA, Guoxing (University of Manchester; Cockcroft Institute)

Presenter: HIGUERA GONZALEZ, Beatriz (Cockcroft Institute)

Session Classification: WEP

Track Classification: MC05: Longitudinal Diagnostics and Synchronization