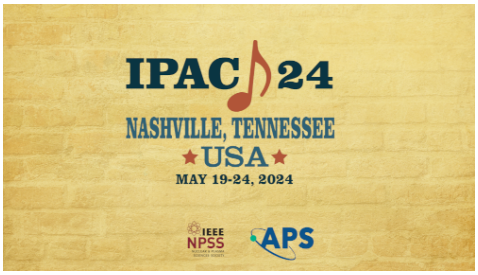


Contribution ID: **928** Contribution code: **WEPG49** Type: **Poster Presentation**

# Beam studies using a Cherenkov diffraction based beam position monitor for AWAKE

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

A beam position monitor based on Cherenkov diffraction radiation (ChDR) is being investigated as a way to disentangle the signals generated by the electromagnetic fields of a short-pulse electron bunch from a long proton bunch co-propagating in the AWAKE plasma acceleration experiment at CERN. These ChDR BPMs have undergone renewed testing under a variety of beam conditions with proton and electron bunches in the AWAKE common beamline, at 3 different frequency ranges between 20-110 GHz to quantify the effectiveness of discriminating the electron beam position with and without proton bunches present. These results indicate an increased sensitivity to the electron beam position in the highest frequency bands. Furthermore, high frequency studies investigating the proton bunch spectrum show that a much higher frequency regime is needed to exclude the proton signal than previously expected.

## Footnotes

## Funding Agency

## Paper preparation format

LaTeX

## Region represented

Europe

**Primary author:** SPEAR, Bethany (John Adams Institute)

**Co-authors:** PAKUZA, Collette (Oxford University); SENES, Eugenio (European Organization for Nuclear Research); WENDT, Manfred (European Organization for Nuclear Research); KRUPA, Michal (European Organization for Nuclear Research); BURROWS, Philip (John Adams Institute); MAZZONI, Stefano (European Organization for Nuclear Research); LEFEVRE, Thibaut (European Organization for Nuclear Research)

**Presenter:** SPEAR, Bethany (John Adams Institute)

**Session Classification:** Wednesday Poster Session

**Track Classification:** MC6: Beam Instrumentation, Controls, Feedback, and Operational Aspects: MC6.T03 Beam Diagnostics and Instrumentation