

# 10th Beam Telescopes and Test Beams Workshop



Contribution ID: 20

Type: Talk

## Performance of the FASER tracker using testbeam data

Thursday 23 June 2022 12:40 (20 minutes)

FASER, or the Forward Search Experiment, is a new experiment at CERN designed to complement the LHC's ongoing physics programme, extending its discovery potential to light and weakly-interacting particles that may be produced copiously at the LHC in the far-forward region. New particles targeted by FASER, such as long-lived dark photons or dark scalars, are characterised by a signature with two oppositely-charged tracks or two photons in the multi-TeV range that emanate from a common vertex inside the detector. The experiment is composed of a silicon-strip tracking-based spectrometer using three dipole magnets with a 20-cm aperture, supplemented by four scintillator stations and an electromagnetic calorimeter to allow for energy measurements. The full detector was successfully installed in March 2021 in an LHC side-tunnel 480 meters downstream from the interaction point in the ATLAS detector. FASER is planned to be operational for the upcoming LHC Run 3.

In 2021 a test beam campaign was carried out using one of the CERN SPS beam lines, utilizing one of the tracking stations (24x24cm), scintillators, and the calorimeter of the experiment. During the test beam, a large statistical sample of electron and muon tracks ranging from 10 to 300 GeV have been recorded while scanning over the experimental setup. We will present the performance and alignment of the tracking station during the test beam campaign.

**Author:** PRIM, Markus Tobias (University of Bonn (DE))

**Presenter:** PRIM, Markus Tobias (University of Bonn (DE))

**Session Classification:** Experiments