

Early performance of the tracking detector for the FASER experiment

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FASER is a new experiment designed to search for new light weakly-interacting long-lived particles (LLPs) and study high-energy neutrino interactions in the very forward region of the LHC collisions at CERN. The experimental apparatus is situated 480 m downstream of the ATLAS interaction-point aligned with the beam collision axis. The FASER detector includes four identical tracker stations constructed from silicon microstrip detectors. Three of the tracker stations form a tracking spectrometer, and enable FASER to detect the decay products of LLPs decaying inside the apparatus, whereas the fourth station is used for the neutrino analysis. All tracker stations have been installed in the LHC complex in 2021. After the commissioning, FASER has been taking physics data since the start of LHC Run 3 in July 2022. In the first year of run3, we have already collected data delivered from 40 fb^{-1} (inverse femtobarns) of proton-proton collisions with a center-of-mass energy of 13.6 TeV, which allows us to achieve the first neutrino observation with a collider and constraints unexplored parameter space of dark photons. This talk describes the design, construction and performance with early data of the silicon tracker stations

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