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The tracking detector of 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. The spectrometer has been installed in the LHC complex since March 2021, while the fourth station was also installed since November 2021. FASER will start physics data taking when the LHC resumes operation in early 2022. This talk describes the design, construction and testing of the tracking spectrometer, including the associated components such as the mechanics, readout electronics, power supplies and cooling system.

Collaboration

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