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Lycoris: A Silicon Beam Telescope based on the SiD Strip Tracker

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Beam telescopes at test beam facilities are a key technology driver for the design of high precision silicon trackers, both as a test bed for new technologies and to verify their performance. The Lycoris strip telescope is a new large active area beam telescope designed, as part of the AIDA 2020 project, as a general infrastructure upgrade for the DESY II Test Beam Facility. The main component at the heart of the Lycoris telescope is the Silicon Detector (SiD) main tracker sensor.

The sensor has a large active area of $9.2 \times 9.2 \text{ cm}^2$ and is designed to achieve a micron level single point resolution. This is accomplished through a very high strip density resulting in a pitch of $25 \mu\text{m}$ achieved via a novel signal routing method using extra metalization layers to a top bump-bonded readout ASIC.

Extensive tests were conducted in 2020 with the full system in multiple test beam campaigns at the DESY II Test Beam Facility in order to determine the performance of the SiD tracker sensor and the Lycoris telescope as a whole.

In this talk, some of the current results such as, achieved single point resolution, charge response and single plane efficiency of the sensors will be presented.

Time Zone

Europe/Africa/Middle East

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