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## The LHCb Upstream Tracker Project

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The LHCb detector performs searches for New Physics in CP-violating observables and rare heavy-quark decays at the LHC. A comprehensive upgrade is planned for the long shutdown of the LHC in 2018/19. A goal of this upgrade is to abolish hardware triggers and read out the full detector at 40 MHz. This requires to replace the existing TT station upstream of the LHCb magnet by a new silicon micro-strip detector, the Upstream Tracker (UT).

The UT will have a new front-end chip compatible with 40 MHz readout, silicon sensors with improved radiation hardness, finer readout granularity, and improved acceptance coverage at small polar angles. The outer region of each detection layer will be covered by p-in-n sensors with 10 cm long strips and a pitch of about 180  $\mu\text{m}$ , while n-in-p sensors with half the pitch and strip length will be employed in the regions of highest particle density close to the beam pipe. The innermost sensors will have a circular cutout to optimize the forward acceptance.

The front-end chip is being developed in 130 nm TSCM technology and embeds front-end amplifiers, shapers and ADCs as well as pedestal subtraction, common-mode suppression and sparsification.

Cooling of the silicon sensors and front-end chips and is provided by bi-phase  $\text{CO}_2$ .

I will motivate the main UT design choices and show first results from tests of prototype readout chips and silicon sensors and from mechanical and cooling tests.

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