

## Mechanics and Cooling for the LHCb Upstream Tracker Detector

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The LHCb Detector will undergo an upgrade during the LHC shutdown in 2019. The UT (Upgrade Tracker) is a silicon strip tracking detector being designed and constructed as part of this upgrade. The UT will provide a fast momentum measurement for the trigger as well as function as part of the overall tracking system where it will severely reduce the presence of “ghost” tracks.

The UT Tracker consists of  $\sim 10 \times 10$  cm<sup>2</sup> silicon strip sensors, with custom ASIC readout chips (SALT) arranged as modules containing flex circuits and ceramic substrates. These modules are to be mounted on staves, lightweight CFRP and foam sandwich structure supports with integrated CO<sub>2</sub> cooling. The cooling tube follows a snake-shaped routing which allows the tube to run under all the ASICs and provide efficient cooling. Construction is planned to start this year. The design details of the UT Tracker staves and modules will be presented, including prototype results, mechanical component tests, thermo-mechanical simulations, and other R&D activities.

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