



# Bachelor and Master Theses: CMS Inner Tracker Upgrade



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## CMS Inner Tracker @ Uni Hamburg

The Large Hadron Collider (LHC) at CERN will be upgraded to the High Luminosity LHC in the next few years to greatly enhance its physics potential. The increase in luminosity by an order of magnitude requires a substantial Upgrade of the CMS experiment, including an entirely new silicon tracker.

The Uni Hamburg CMS group has a central role in the Upgrade of the CMS Inner Tracker (IT). Responsibilities of the group include

- Development of planar pixel sensors used for the entire IT
- Production and Testing of 500 CMS IT Sensor-Readoutchip modules

The work of the group includes the development and building of test setups and measurement methods for R&D measurements and quality control during module production. For the future we develop fast timing silicon detectors based on LGADs. The group makes frequent use of the opportunity to measure at the DESY-II testbeam facility. We offer opportunities for Bachelor and Master theses on various aspects of the CMS Inner Tracker Upgrade.

You will learn about silicon sensors, radiation damage to silicon, particle tracking, quality control setups, python programming, international team work, and more..

Uni Hamburg Group at DESY testbeam



CMS Pixel Models built in Hamburg



Curious? Contact us:

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