

Optical Metrology for the PS module production

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The high luminosity LHC upgrade aims at increasing the instantaneous luminosity leading to various challenges for the detectors. The CMS detector will undergo an upgrade to cope with larger pileup, higher data rates and higher radiation damage. As the new Outer Tracker will contribute to the first trigger stage at 40MHz bunch crossing rate, on module p_T -discrimination is needed for data reduction. This is achieved by building dual sensor modules, where the efficiency of the momentum discrimination depends on the alignment precision of the sensors which needs to be checked thoroughly during module assembly. Metrology systems are used by the assembly centers to monitor that the modules used in the final detector meet the required alignment precision. In this talk the optical metrology setup at DESY is introduced and measurement procedures are described. Measurement results of various prototype PS modules built and tested at DESY are summarized and the stability of the system is assessed.