Study of the inclusive beauty production at CMS and construction and commissioning of the CMS pixel barrel detector

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Abstrak

This thesis describes one of the first measurements made at CERN’s Large Hadron Collider, the world's largest and highest-energy particle collider. The method of analysis described in the first part is applied to the first CMS collision data collected after the LHC startup in 2010 and leads to the first experimental result for the inclusive b cross section using semileptonic decays at a center of mass energy of 7 TeV. The second part of the thesis describes the building and testing of the barrel pixel detector.