

SEARCH FOR PRODUCTION OF A HIGGS BOSON AND A SINGLE
TOP QUARK IN MULTILEPTON FINAL STATES IN pp COLLISIONS AT

$$\sqrt{s} = 13 \text{ TeV}$$

by

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my abstract

“... Josefa.

“...laca.”

yo y tu.

“...come lady come.”

pa darte.

to Menas and nenita

ACKNOWLEDGMENTS

Many people has contributed to make this work possible that it is impossible to name them all.

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CHAPTER 1

Introduction

Talk about particle physics in general and the organization of the documents

CHAPTER 2

The LHC Experiment and the CMS Detector

Small intro

2.1 The LHC

With 27 km in circumference and located in the Swiss-french border [1]

2.1.1 LHCb

2.1.2 Atlas

2.1.3 ALICE

2.2 CMS

2.2.1 The Muon Detector

2.2.2 Ecal

2.2.3 HCal

2.2.4 Pixel Detector

CHAPTER 3

The SM and BSM Theories

Proposed in the 1960s the standard model of particles physics has been succesful in describing many phenomena of the particle world

CHAPTER 4

Event generation, simulation and reconstruction

Description of event generation and simulation

CHAPTER 6

Search for the particle

Data analysis details

CHAPTER 7

More on the Analysis?

7.1 Introduction

More?

CHAPTER 8

Module Production for the Phase 1 CMS Pixel Detector Upgrade

As discussed in chapter 2 the CMS pixel detector will suffer from radiation damage throughout its lifetime hence the need for periodical updates. The first version of the detector was known as phase 0, in 2017 the pixel detector was replaced during the so-called phase 1 upgrade and phase 2 upgrade is projected to be in 2025 [?] when the current detector will be close to the end of its lifetime. From 2013 to 2016 the University of Nebraska, high energy group UNL-HEP collaborated with several U.S. institution to deliver almost 600 modules to placed in the forward region of the pixel detector, (FPix). This chapter will describe [2]

8.1 IV-Curve

8.2 visual inspections

8.3 Module assembly

8.4 Quality Control

CHAPTER 9

Beam Test of the RD53 chip for CMS Pixel Detector Upgrade Phase 2

9.1 Introduction

9.2 The RD53 Chip

9.3 Purpose of Test Beam

9.4 Test Beam Set Up

9.5 Results

CHAPTER 10

Conclusions

10.1 Analysis

10.2 Phase 1

10.3 Beam Test

References

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- [2] CMS Tracker Group. “The Performance plots for Phase 1 Pixel Detector 2017” https://twiki.cern.ch/twiki/bin/view/CMSPublic/PixelOfflinePlotsAugust2017#Alignment_of_the_forward_pixels, last accessed on 01.05.2018