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中国科学院高能物理研究所

博士后研究工作报告

INDIRECT SEARCH OF NEW PHYSICS USING VECTOR BOSON SCATTERING, DOUBLE HIGGS PRODUCTION AND HIGGS DIFFERENTIAL AND FIDUCIAL CROSS-SECTION MEASUREMENT USING P-P COLLISION AT 13 TEV

Ram Krishna Sharma

工作完成日期 2019 年 12 月 – 2022 年 06 月

报告提交日期 2024 年 12 月

中国科学院高能物理研究所
北京

2024 年 12 月

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在13TeV的质子-质子对撞实验中，利用矢量玻色子散射、双希格斯玻色子产生过程和测量希格斯微分及基准截面来间接搜寻新物理

INDIRECT SEARCH OF NEW PHYSICS USING VECTOR BOSON SCATTERING, DOUBLE HIGGS PRODUCTION AND HIGGS DIFFERENTIAL AND FIDUCIAL CROSS-SECTION MEASUREMENT USING P-P COLLISION AT 13 TEV

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工作完成日期: 2019 年 12 月 – 2022 年 06 月

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Abstract

This report summarises the work done by Ram Krishna Sharma in the CMS group of the Institute of High Energy Physics, with Prof. Mingshui Chen, from September 2022 to December 2024. The main focus was on the double Higgs non-resonant production with fully Hadronic final state of WW$\gamma\gamma$, Higgs to 4 lepton differentical and fiducial cross-section measurement and vector boson scattering measurement with semi-leptonic WW final state. Other secondary project includes the studies with the resonant production of Higgs boson (performed in 2020 with 2017 data, again started with full run-2 data), CPPF, EGamma HLT studies.

Keywords: CMS experiment, VBS, HH, differential, fiducial measurement, CPPF

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Chapter 1

Introduction

Introduce the background and significance of your research. Explain the problem you are addressing, its importance, and your objectives.

The missing transverse energy ($\not{E}_{\mathrm{T}}$) was measured to be 50 GeV , consistent with SM predictions.

References