

Table of Contents

My Notes On WW Scattering	1
Introduction.....	1
Links Of Tutorials To Do.....	1
Analysis Related.....	1
Some Important Commands.....	1
LHE Analyzer Helper.....	1
Important Variables To Plot.....	1
Various Cuts applied in my Analysis and their significance.....	1
Standard physics objects/ID/algorithm.....	1
Algorithms for something else.....	2
Analysis Progress.....	2
Variables to plot.....	2
Analysis and Validation.....	2
Some Functions For Fit.....	2
Statistical Techniques.....	2
Documents.....	2
Analysis Notes.....	2
Papers on Vector-Boson Scattering.....	2
Important slides.....	2
Important Workshop Links.....	3
Papers on WW Scattering.....	3
Other Important Paper.....	3
Related Topics.....	3
Review status.....	3

My Notes On WW Scattering

Introduction

Links Of Tutorials To Do

1. PAT tutorial
2. Jet Substructure [HATS@LPC](#)
3. b-tagging [HATS@LPC](#)
4. some more tutorial links [@LPC](#)-[HATS](#)

Analysis Related

1. WW Scattering Sample Generation Related links
 - i) Vector Boson Fusion
- 2.

Some Important Commands

1. edmDump

- ◆ edmDumpContent
 - ◇ edmDumpContent abc.root
 - ◇ edmDumpContent --all --regex muon abc.root # This will show only those lines that contains muons
- ◆ edmEventSize
 - ◇ edmEventSize -v abc.root
 - ◇ edmEventSize -o file.txt file.root # This will send output to the file.txt

LHE Analyzer Helper

1. <http://rivet.hepforge.org/svn/contrib/lhef2hepmc/lhef2hepmc.cc>

Important Variables To Plot

- Zeppenfeld Variable
- $\eta' = \eta_i - \langle \eta \rangle_{12}$
- Lepton Projection Variable
- $L_p = (\text{vec}(Pt_{lep}) \cdot \text{vec}(Pt_W)) / \text{sqr}(\text{vec}(Pt_W))$

Various Cuts applied in my Analysis and their significance

#DefSeq

Standard physics objects/ID/algorithm

<!--STARTSTANDARDPHYSICSOBJECT-->

- explain what are the standard objects id and/or algorithm accepted by your group

<!--STARTSTANDARDPHYSICSOBJECT-->

Algorithms for something else

- link to a doc page - short explanation

Analysis Progress

1. Generation of MadGraph Sample
 1. Generation of pp > wwjj : done for all But It contains many feynman Diagram that does not corresponds to the WW scattering diagram
 2. Decay using MadSpin : Done only for:
PDF used nn23lo1
 1. pp_WWJJ_TOT/Default_Cut : both wpHad and WpLep
 2. pp_WWJJ_LL/Default_Cut/ : both wpHad and wpLep
 3. pp_WWJJ_LT/Default_Cut/ : both wpHad and wpLep
 4. pp_WWJJ_TT/Default_Cut/ : both wpHad and WpLep
 5. pp_WWJJ_LL/NoPtEtaCut/ :
2. Read LHE file : Code Ready
3. GEN-SIM Stage running interactively; But Crab3 job is not running.

To extract lhe.gz file use command : gunzip -f filename.lhe.gz

Variables to plot

1. rapidity(p) Vs $f(p) = 1/2 \cosh(p)$
2. zeppenfeld variable
- 3.

Analysis and Validation

Some Functions For Fit

1. Levy Distribution [↗](#)

Statistical Techniques

1. Unfolding Method: Some Links 1) <http://lib.tkk.fi/Dipl/2012/urn100641.pdf> [↗](#) 2) <http://pi.physik.uni-bonn.de/~wienemann/teaching/ss10/slides/lecture13.pdf> [↗](#)
- 2.

Documents

Analysis Notes

Papers on Vector-Boson Scattering

Important slides

1. Slide by Pietro Govoni in Upgrade Week [↗](#)
2. Particle Polarization in LHC Physics

Important Workshop Links

1. Mitigation of pileup effects at the LHC [↗](#)

Papers on WW Scattering

1. High Energy WW Scattering at the LHC with the Matrix Element Method [↗](#)
2. Study of vector boson scattering and search for new physics in events with two same-sign leptons and two jets
3. The Higgs boson and the physics of WW scattering before and after Higgs discovery

Other Important Paper

1. Pile-Up Per Particle Identification

Related Topics

- [Link to my google drive](#) [↗](#)
- CMS Scientific Publications

Review status

<!-- Add your review status in this table structure with 2 columns delineated by three vertical bars -->

Reviewer/Editor and Date (copy from screen)	Comments
-- RamKrishnaSharma - 18 Sep 2014	created this page

<!-- In the following line, be sure to put a blank space AFTER your name; otherwise the Summary doesn't come out right. -->

Responsible: -- RamKrishnaSharma - 18 Sep 2014

Last reviewed by: -- RamKrishnaSharma - 18 Sep 2014

This topic: CMSPublic > MyNotesOnWWScatteirng

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