Vector Boson Fusion At High Mass
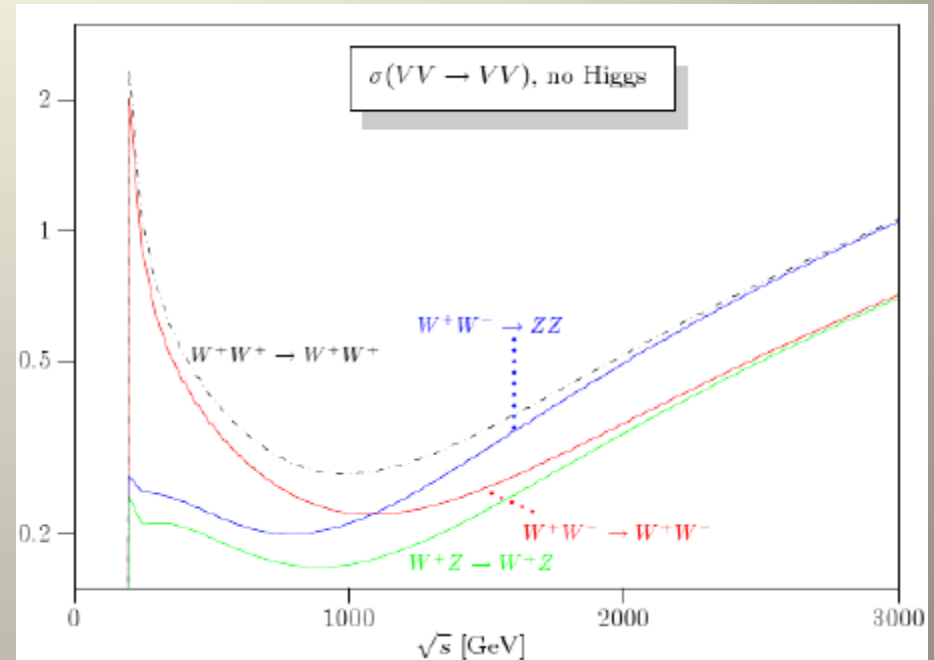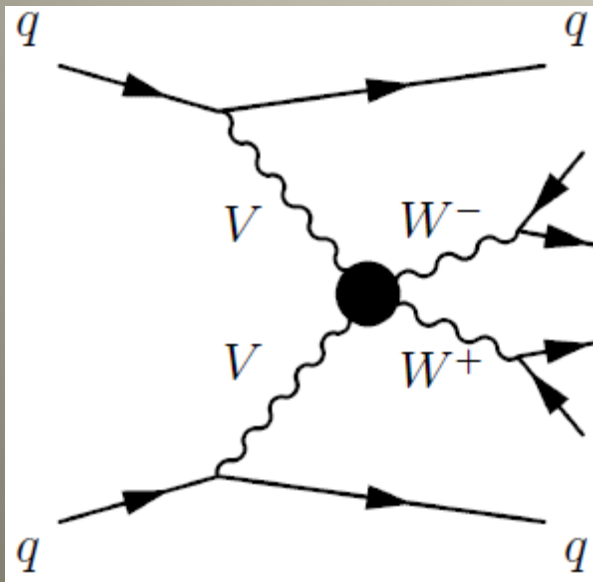
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Advisor: Junjie Zhu

Jianbei Liu

Overview

- What is VBS

- Why VBS is important

# What I actually do…

- 1.Monte Carlo event generator: Pythia
- 2.Coding: calculate mass distribution, pseudorapidity of 2 jets,

  Pt of 2 massive leptons……
- 3.Analyze the WW mass distribution with different models
- 4.Check inclusive cross section and event kinematics

The mass distribution

- Different models available:
- 1. exchange a SM Higgs boson
- 2. 1 TeV scalar
- 3. 1.4TeV vector
- 4. 1.9TeV vector
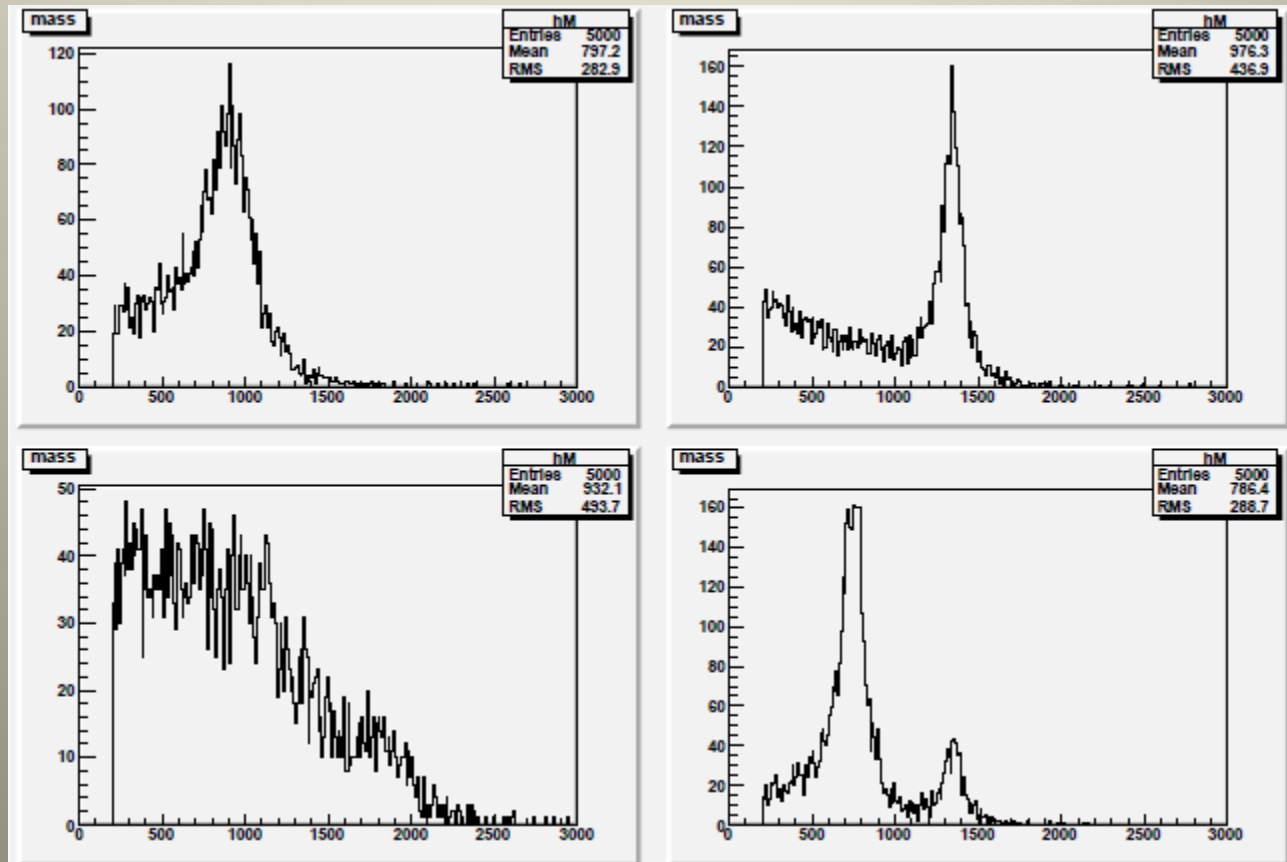- 5. a 800 GeV scalar and a 1.4 TeV vector

M$_{WW}$ distribution with a SM Higgs boson

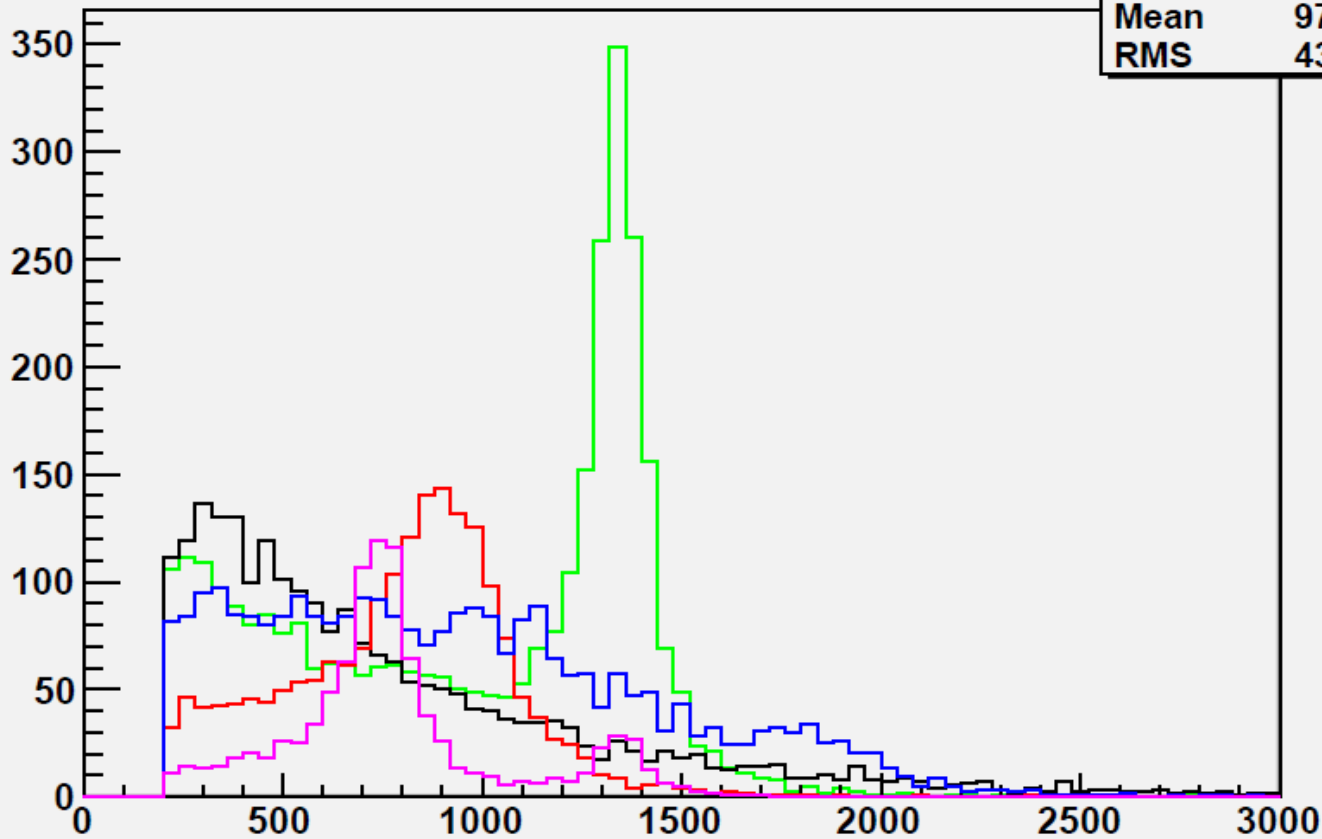- Exchange a SM Higgs boson

  minimum WW invariant mass -> 200GeV
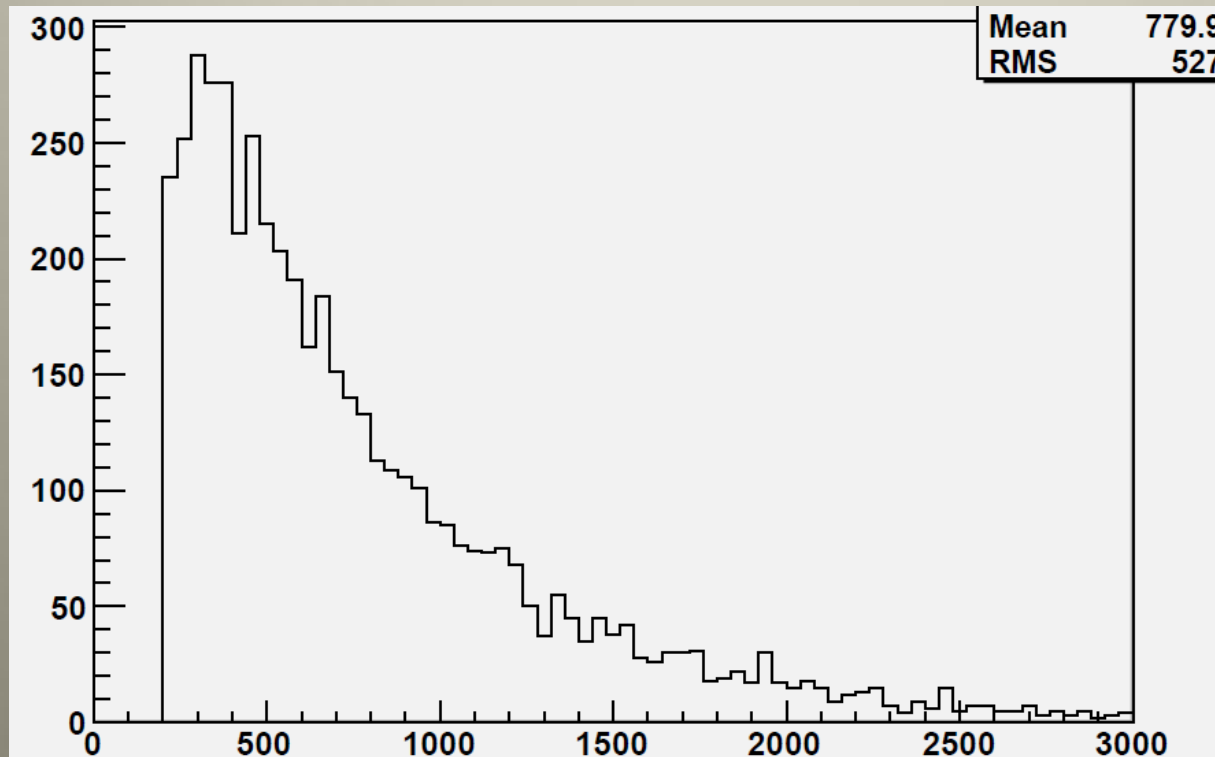
M_{WW} distributions for heavy resonances

- Other models

Inclusive cross sections

What I will do next…

- Backgrounds
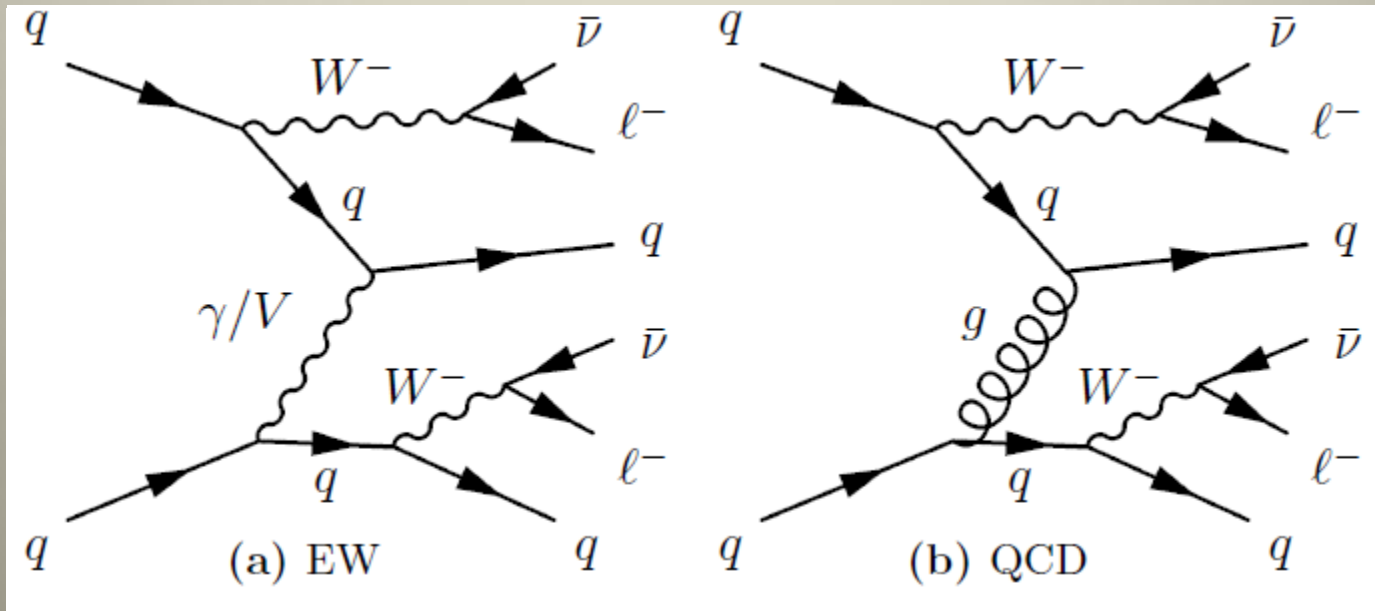
What I will do next…

- One of the characteristics of the VBS :

- 2 forward jets