

HZZ Analysis

Introduction to the Particle Physics Data Analysis

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Physics motivation



The physics motivation for the measurement:

- a good test for the SM,
- a measurement of inclusive and differential fiducial cross sections,
-

The Feynman diagram

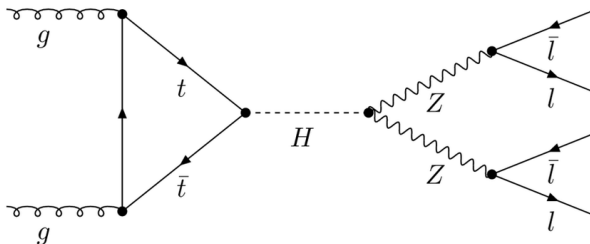


Figure: Feynman diagram for $H \rightarrow ZZ^* \rightarrow 4\ell$ decay [3].

Expected number of events



Number of Leptons

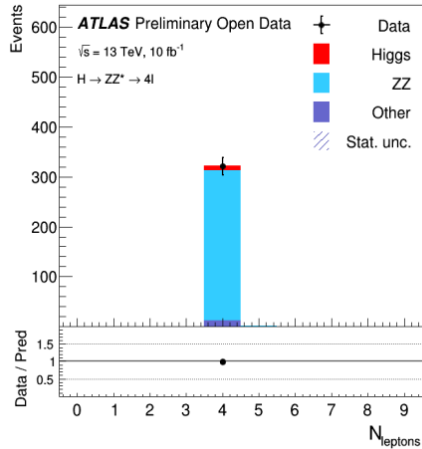


Figure: The histogram with number of leptons.

Bibliography I



The ATLAS collaboration

Review of the 13 TeV ATLAS Open Data release

<https://cds.cern.ch/record/2707171>



Aaboud, Morad and others

Measurement of inclusive and differential cross sections in the $H \rightarrow ZZ^* \rightarrow 4\ell$ decay channel in pp collisions at $s\sqrt{= 13}$ TeV with the ATLAS detector

[http://dx.doi.org/10.1007/JHEP10\(2017\)132](http://dx.doi.org/10.1007/JHEP10(2017)132)



Passon, Oliver

On the interpretation of Feynman diagrams, or, did the LHC experiments observe the Higgs to gamma gamma decay?