The analysis components developing responsible for vetoing bad momentum resolution muons for Run 3

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Outlook

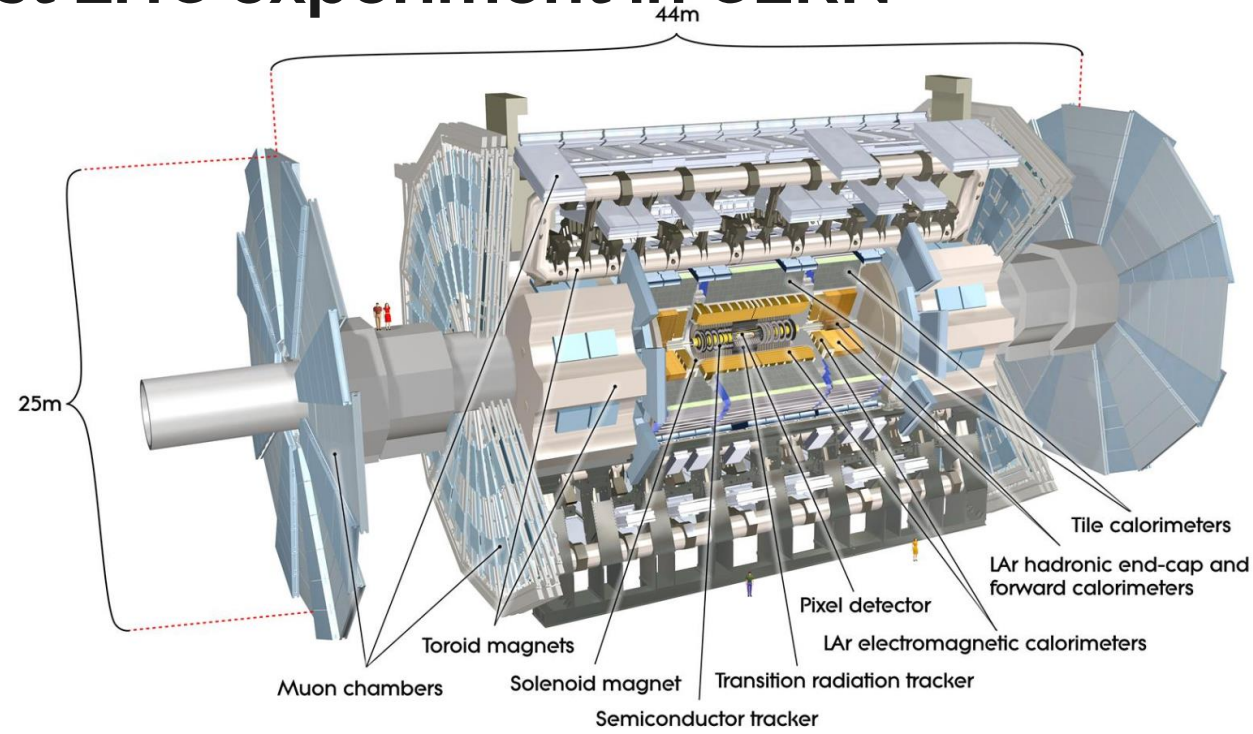
1. ATLAS
2. Muon detection by subdetectors and chambers.
3. What is the main idea?
4. Software and libraries

ATLAS - the largest LHC experiment in CERN

The ATLAS detector has a layout that is typical for a collider detector.
There are two types of detector components:
1. tracking detectors, which measure the position of a crossing charged particle with minimal disturbance;
2. calorimeters, which measure the energy of a particle by total absorption.

Dimensions:
Height: 25 m;
Length 44 m.

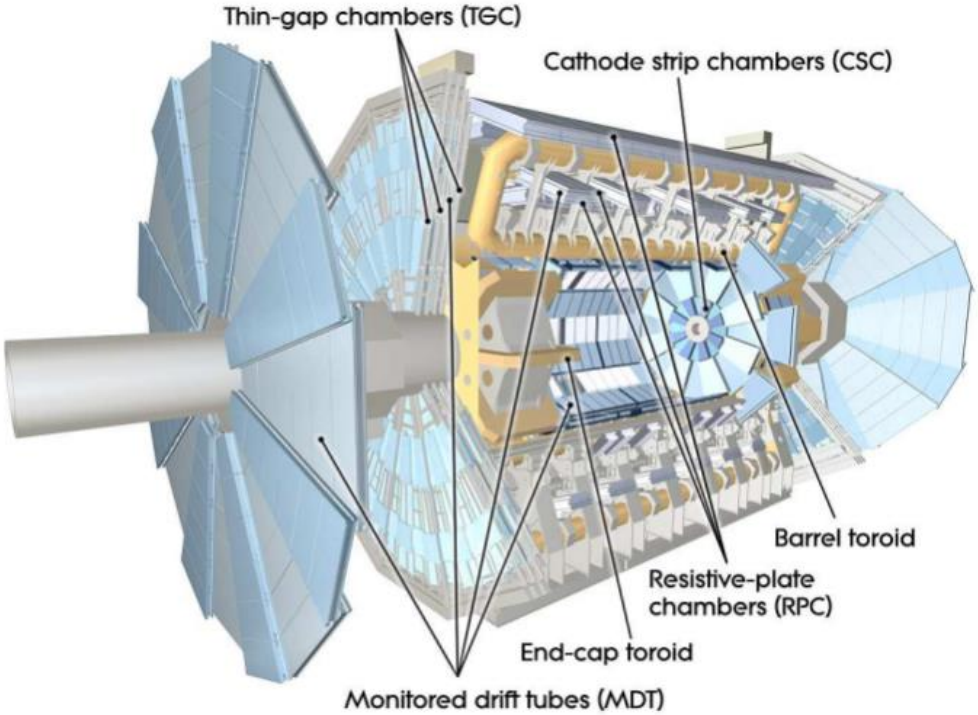
The overall weight of the detector is approximately 7000 tonnes.



Muon detecting

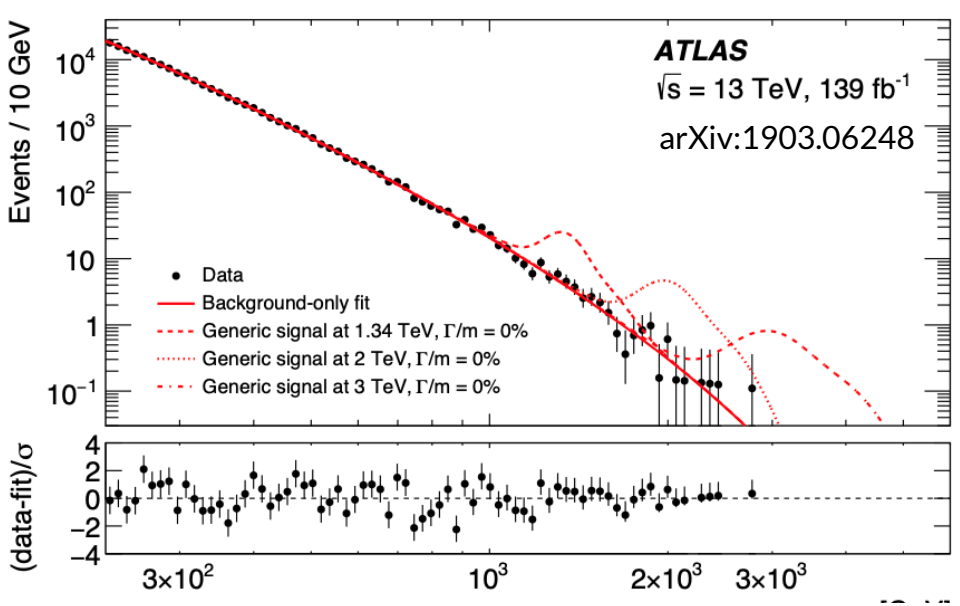
Muon system parts:

1. Thin-gap chambers (TGC)
2. Cathode strip chambers (CSC)
3. Monitored drift tubes (MDT)
4. Toroids: barrel and 2 end-caps
5. Resistive plate chambers (RPC)

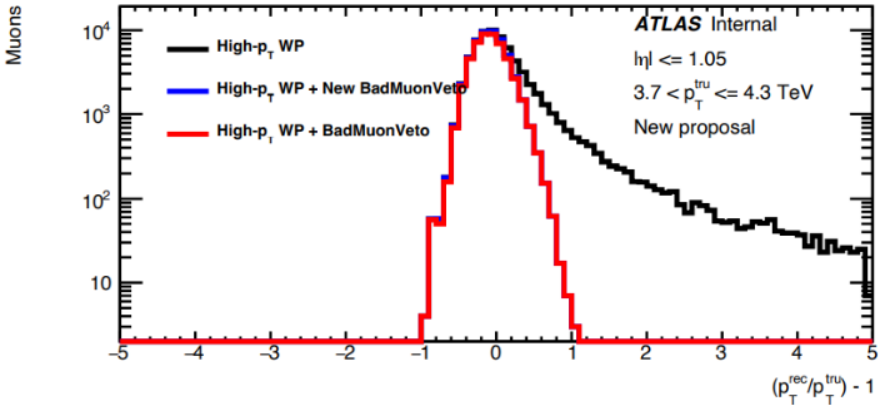


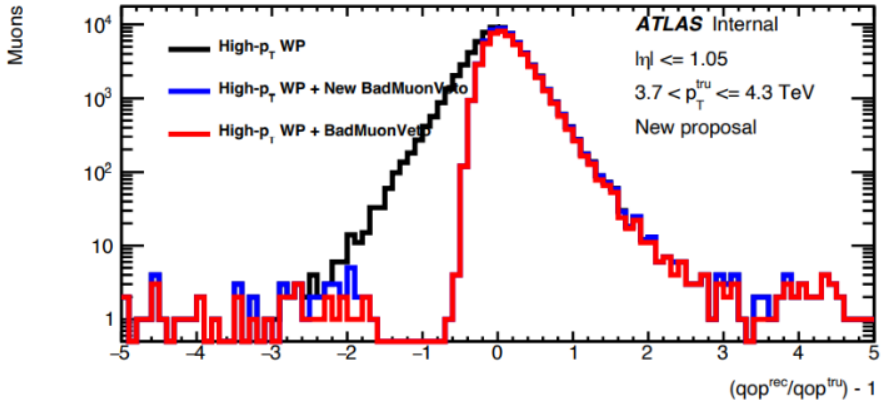
What is the main purpose?

Muons with bad momentum resolution must be rejected from our data sample to study High-pT muons in events used in searching for very high energy new particles in the new Run 3 data-set.



The previous vetoing muons charts for Run 1 and Run 2





What will be involved?

What will be used?

- the main programming languages for coding; + Monte Carlo Method.

- plots, data structuring by Ntuples/TTress

How will it be used?

1. Vetoing bad resolution muons via MC method

2. Comparing with nominal muons; calculation of errors.

3. Plot making based on further results.

Thank you for attention!