



Diffraction Z Analysis

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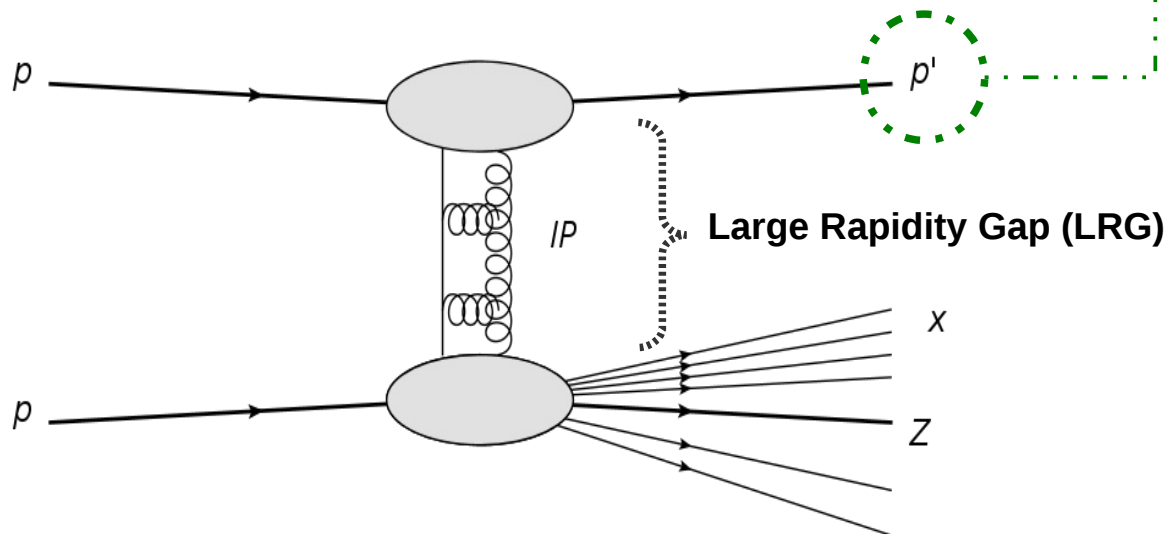
¹ Torino - Italy

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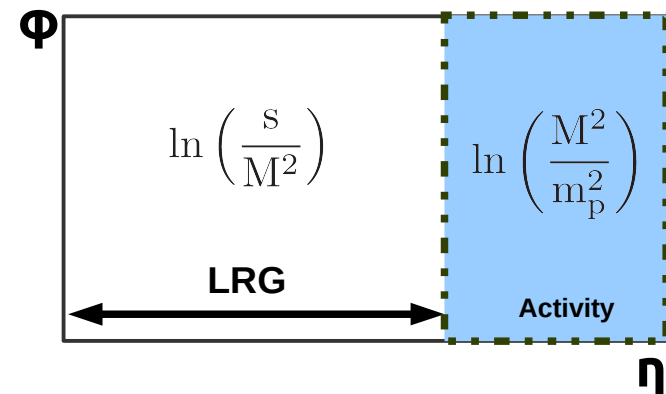
Physics Motivation

Event Topology

single diffractive Z (inclusive)



Phase Space



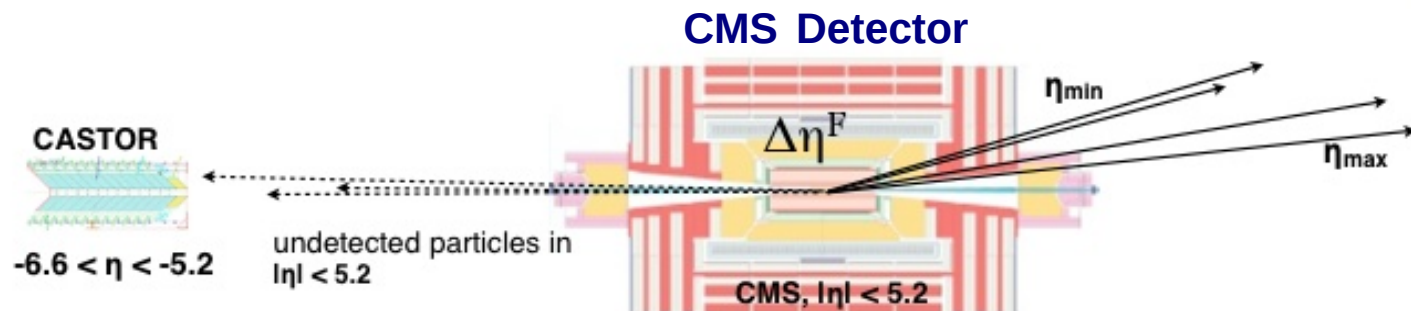
Hard Analysis: as the $M_z + X$ system is large, the gap is very forward.

Main Background: non diffractive Drell-Yan process

Z Channels:

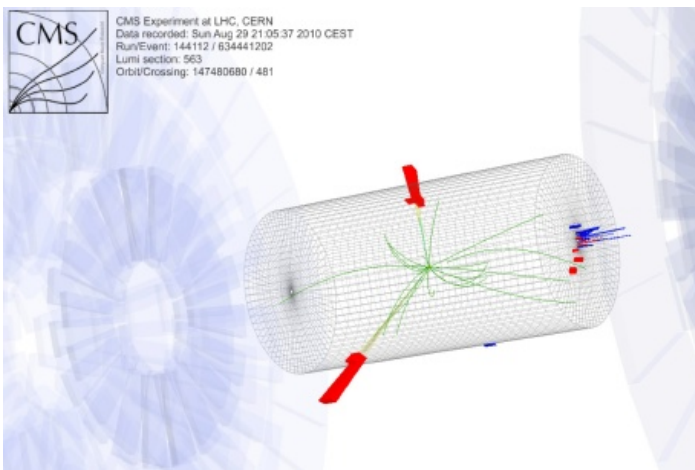
$$Z \rightarrow \mu^+ \mu^-$$

$$Z \rightarrow e^+ e^-$$



Physics Motivation

- Another motivation: a beautiful event!



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"Forward Energy Flow, Central Track Multiplicities and Large Rapidity Gaps in W and Z Boson Events at 7 TeV pp Collisions"

Outline

- Monte Carlo dependent. Compare data with Pompyt, Pomheg and Pythia;
 - 2010 CMS data with low pile-up has been analyzed with Castor calorimeter ($-6.6 < \eta < 5.2$);
 - Maybe 2011 and 2012 CMS data;
 - Looking forward to use proton tagged detectors or special runs with low luminosity (2015).
- Plans for feasibility studies at simulation level.

$Z (e^- e^+)$

Electron 1: $p_T = 47.3$ GeV
Electron 2: $p_T = 45.1$ GeV
Electron 1: $\eta = 0.42$
Electron 2: $\eta = 0.84$
Invariant mass: $m_{ll} = 94.2$ GeV/ c^2

