CMS experiment data analysis

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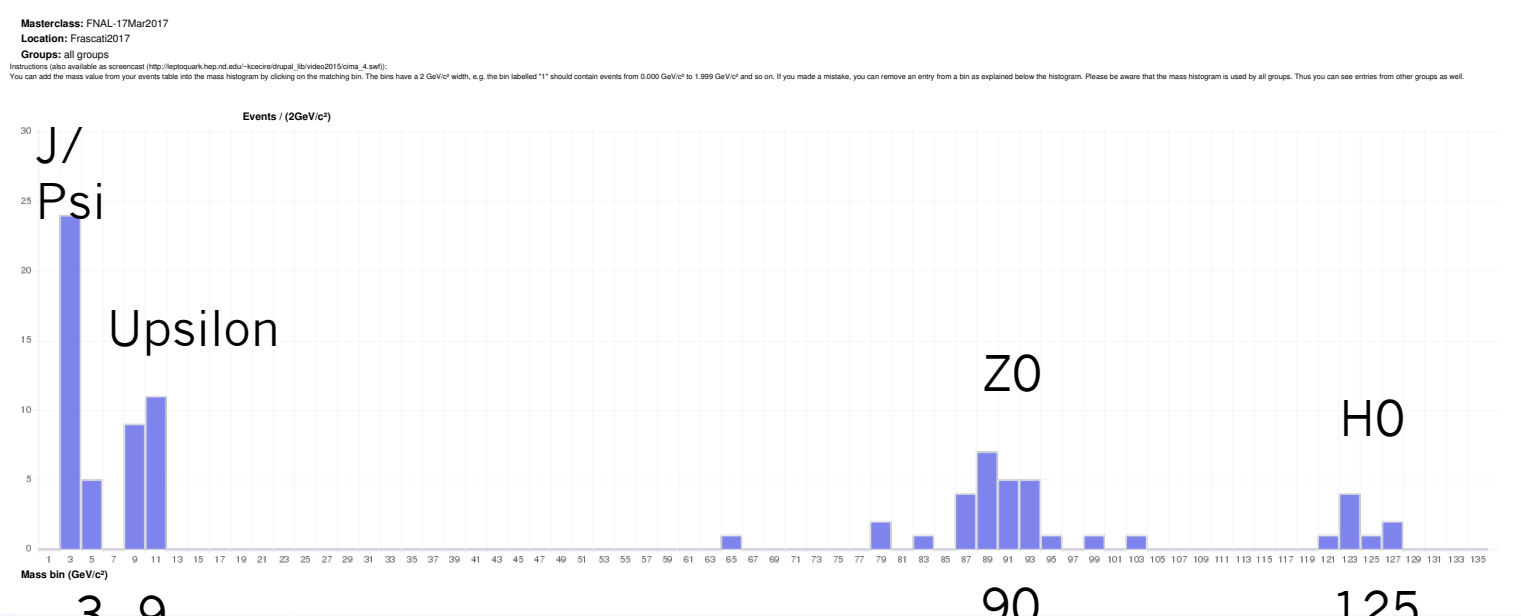
Introduction

- 401 events from 2012 data taking period at 7 TeV center-of-mass energy have been analyzed
- we worked on researching the following channels: W boson production, Z boson, Higgs Boson and other neutral particles
- Analyzed the products of particles decay: muons, electrons, photons and missing energy
- Our aim was to study invariant mass distribution and channels decay ratios

Results

CIMA https://www.i2u2.org/elab/cms/cima/hist.php

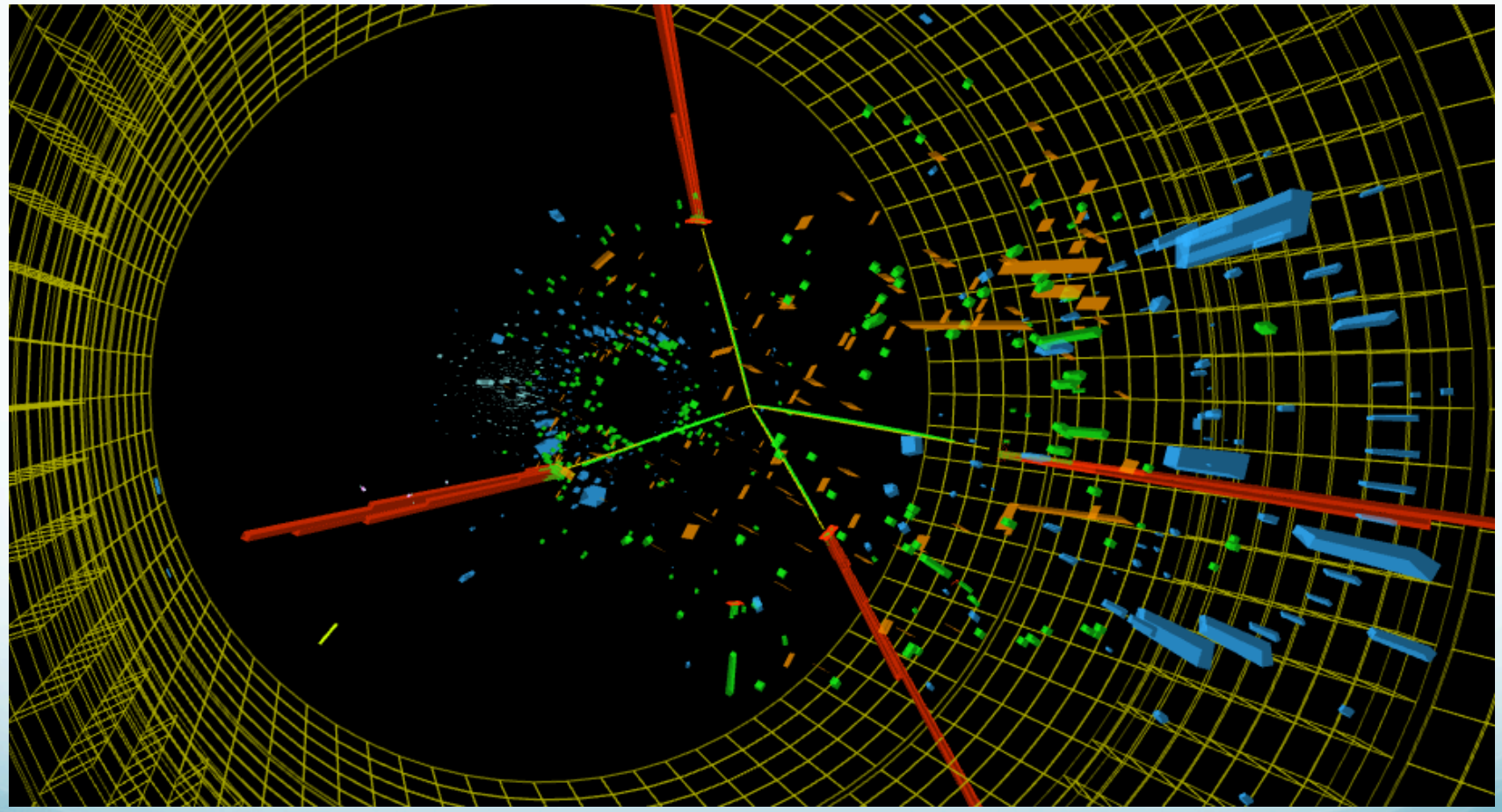


Invariant mass [GeV/c2]

muon	electron	W	W+	W-	NP	Higgs	Zoo	Summe	e/mu	W+/W-
177	183	45	129	111	75	9	32	401	1.03	1.16

Higgs candidate event

Run – 193575 Event - 400912970 LS – 523 Invariant Mass = 121.8



Conclusions

- the invariant mass distribution shows peaks corresponding to J/Psi, Upsilon, Z0, H0
- The ratio electron/muon is approximately 1 as expected
- The ratio W+/W- is approximately 1.2. As expected a larger number of W+ was found.