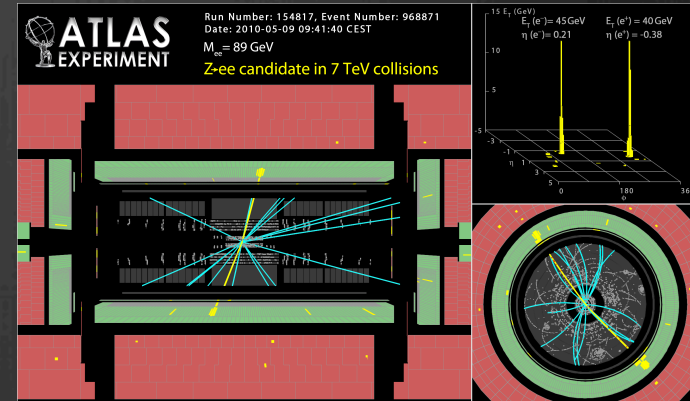
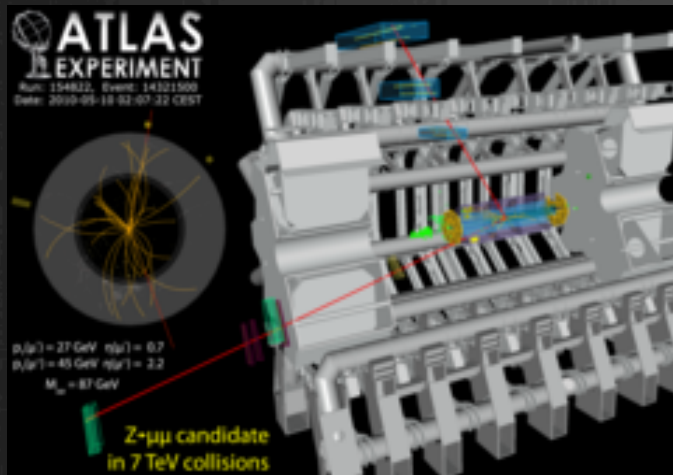


# Actual LHC Results



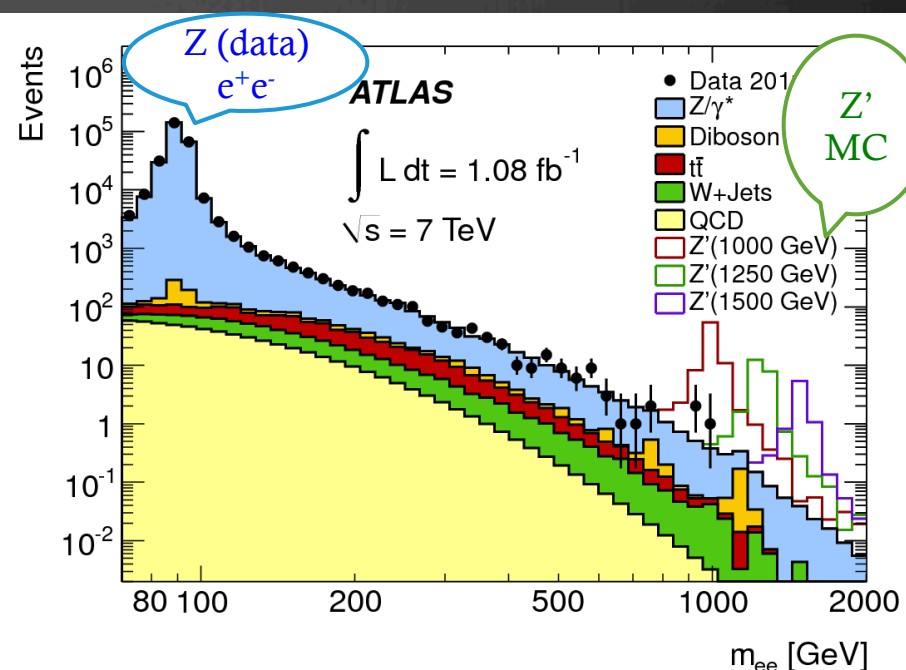
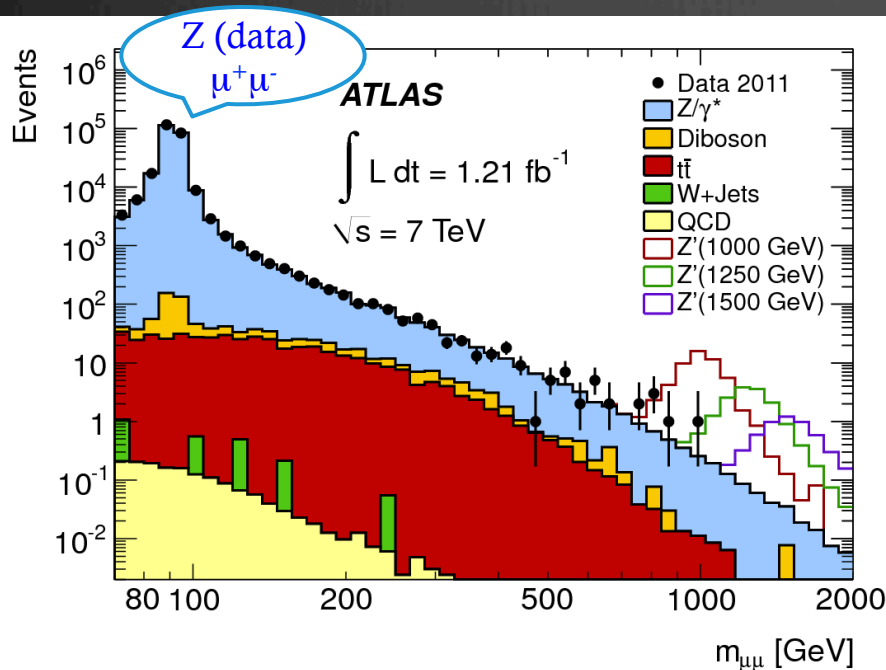
<http://atlas.ch/photos/events-collision-proton.html>

Prepared for the International Particle Physics Masterclasses 2012

# Well done, you were so close to ATLAS!

Standard Model rediscovery at LHC with invariant mass technique

Is there any New Physics out there? For example a new weak interaction mediated by a  $Z'$  boson?



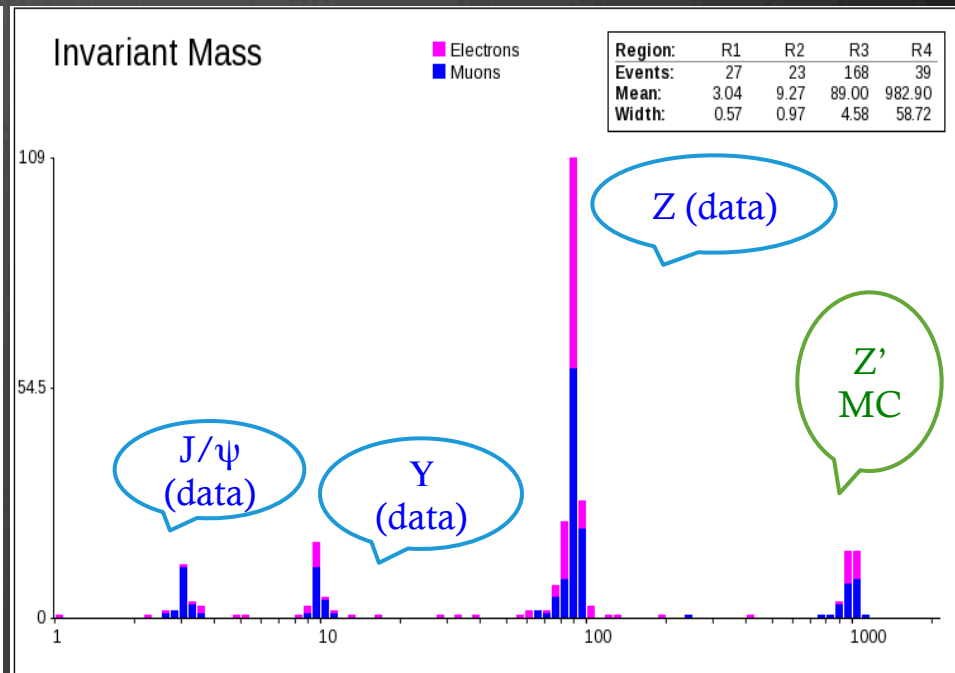
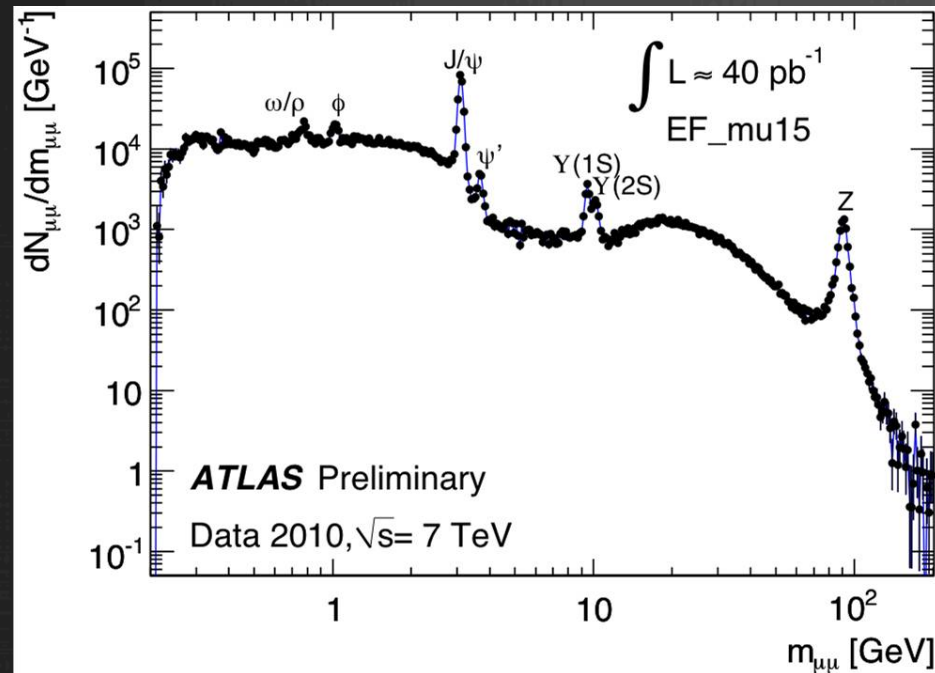
⊗  **$Z'$  must be heavier than 1-2 TeV**

⊗ **Need more statistics to conclude**

# Well done, you were so close to ATLAS!

Standard Model rediscovery at LHC with invariant mass technique

Is there any New Physics out there? For example a new weak interaction mediated by a  $Z'$  boson?



ATLAS and CMS have re-discovered many of the Standard Model particles

You have discovered the  $J/\psi$ ,  $Y$  and  $Z$

The  $Z'$  signal at 1 TeV is Monte Carlo simulated!