Finding the Z - boson

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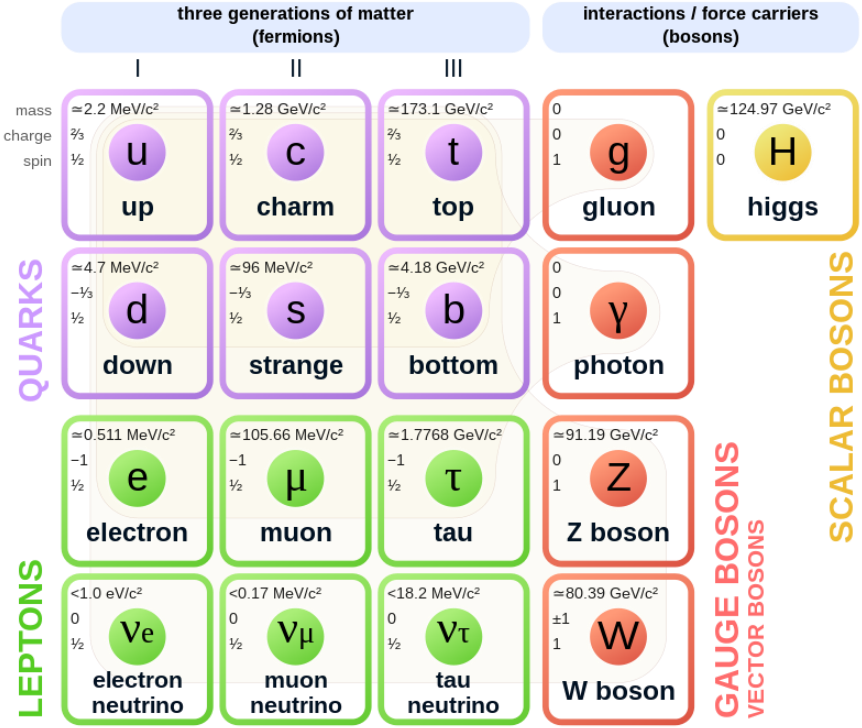
Standard Model of Elementary Particles

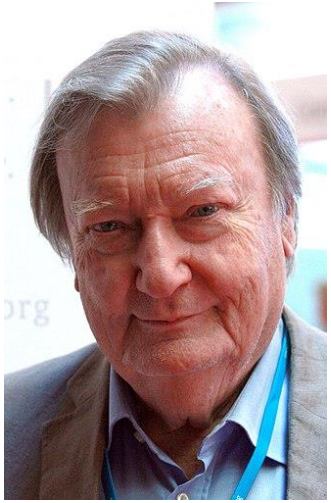


History

1933. - Enrco Fermi, theory of the weak force.

SPS → proton-antiproton collider.

1983. - W,Z boson observed for the first time.

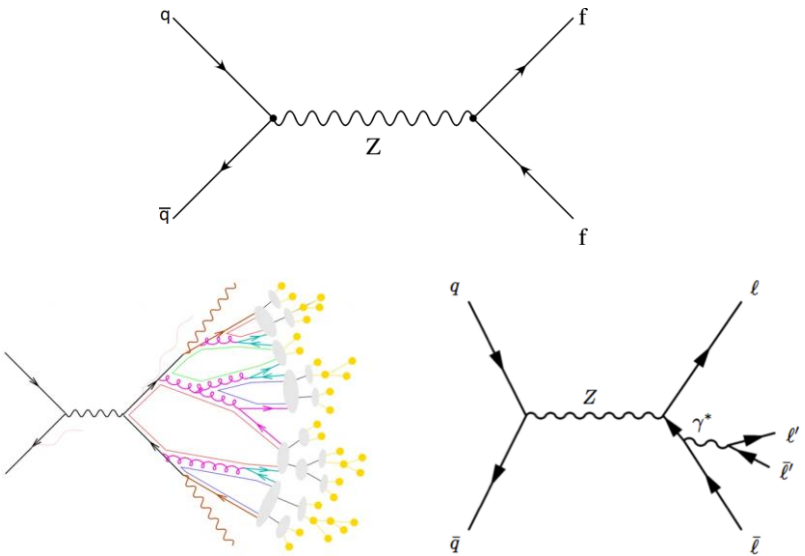


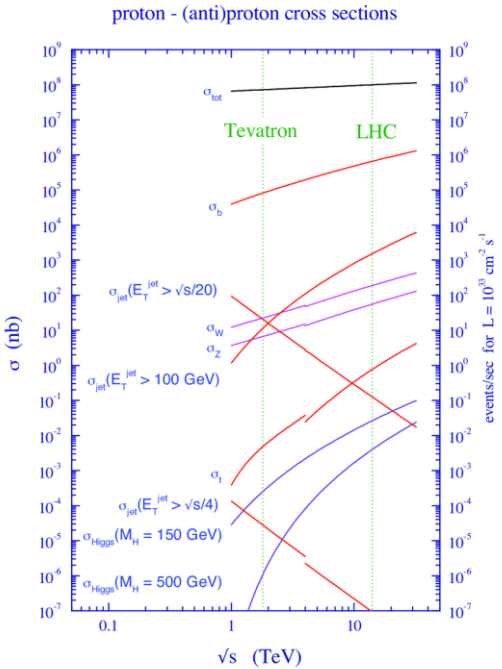
Carlo Rubbia

Simon van der Meer

Prechecking a theory - simulation

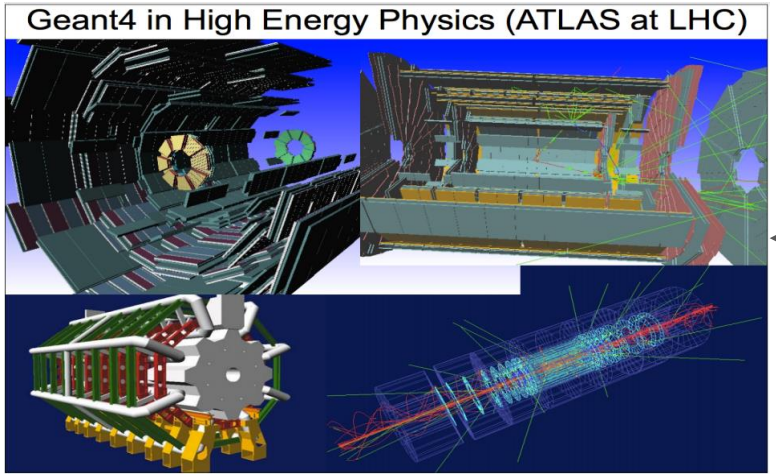
Generating events



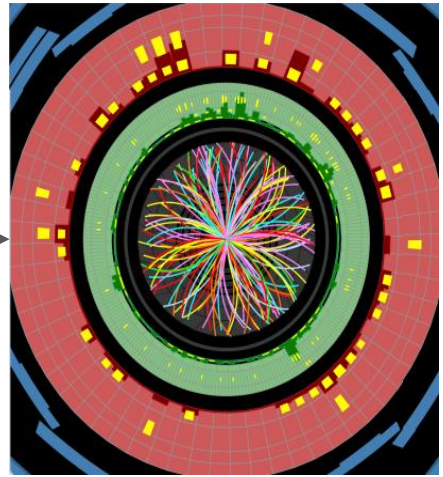


Prechecking a theory - simulation

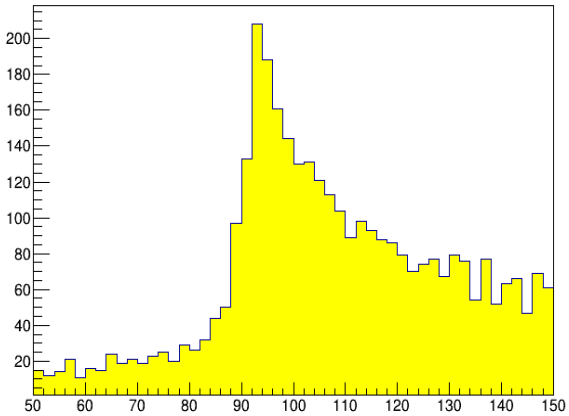
Detector simulation



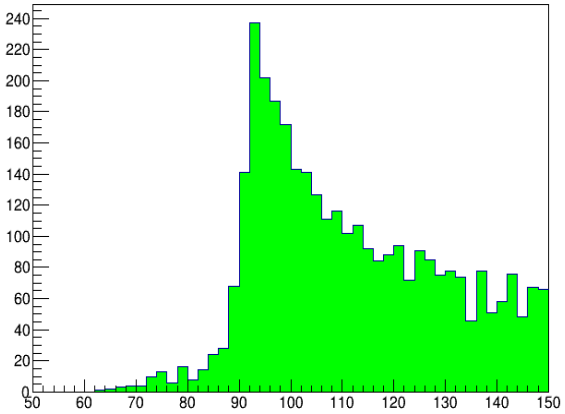
Compare



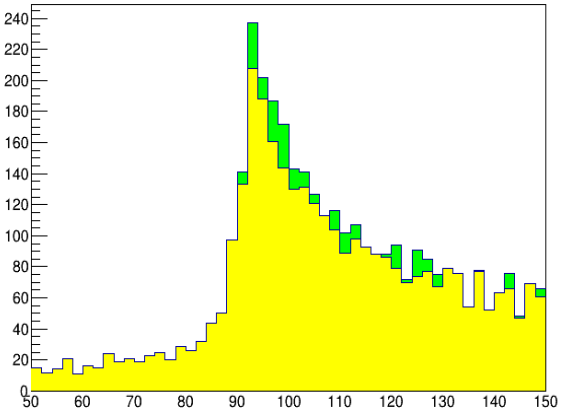
Simulated and reconstructed Z decay



Z boson decay reconstructed



Z boson decay simulation

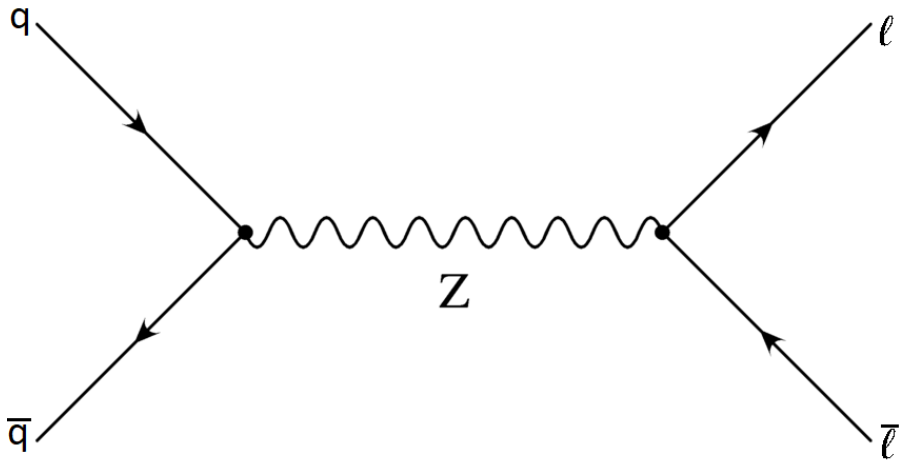


Comparison

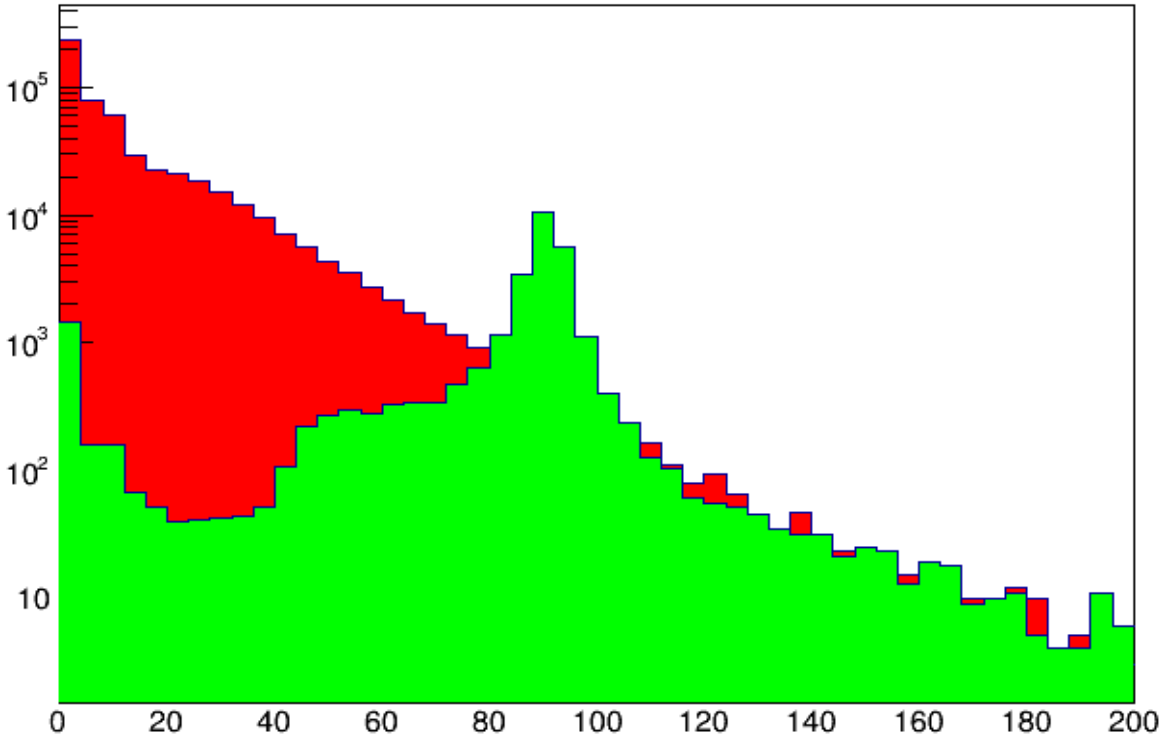
Z boson decay to muons

Conditions:

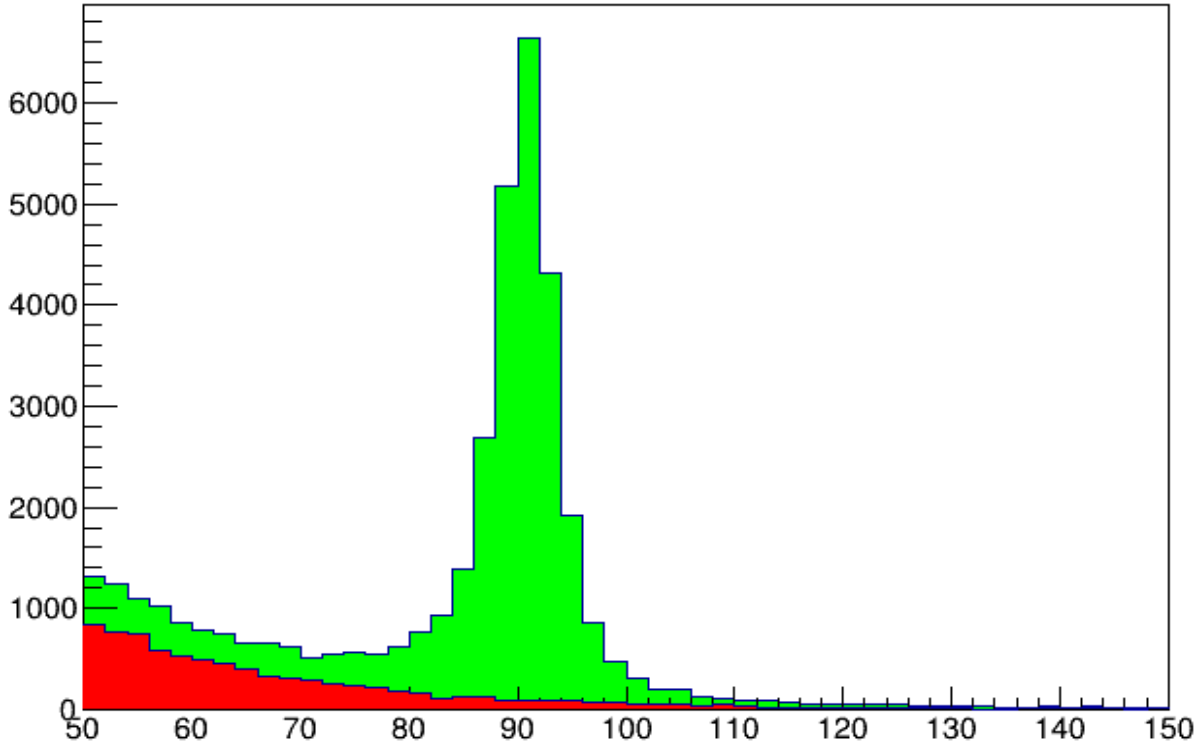
1. number of muons
2. muons charge
3. muons energy > 20GeV



Z peak in real data - *Unfiltered*



Z peak in real data



Thank you for your attention!