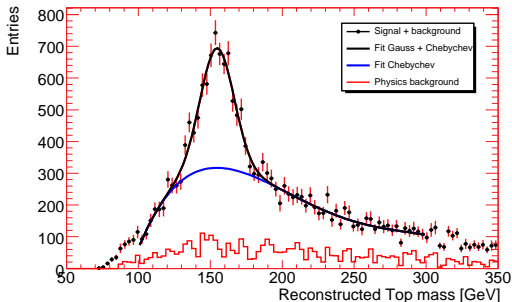


# Physics analyses of the first LHC pp-data



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## The main aims when looking at the first data

### Assumed LHC Conditions

- Start: 10/08,  $L = 10^{31}$  /cm/s,  $\sqrt{s} = 10$  TeV,  $\mathcal{L}_{\text{int}} = 50 \text{ pb}^{-1}$ ,  
Pileup: in total about 2 events/BC.

### The $t\bar{t}$ sample (is not so different)

- Channels:  $t\bar{t} \rightarrow b\bar{b} W^+ W^- \rightarrow b\bar{b} \ell\nu qq'$  with  $\ell = e, \mu$ .
- $N = \sigma(10\text{TeV}) \cdot \mathcal{L}_{\text{int}} \cdot Br \cdot \epsilon = 300 \cdot 50 \cdot \frac{2 \cdot 12}{81} \cdot 0.16 \approx 700$ .
- Selection: Lepton trigger + high  $p_t$  lepton + 4 jets +  $E_T^{\text{miss}}$ .
- Investigate data integrity: ID alignment, calo performance, noise cluster, acceptance holes, trigger performance and the unexpected, as trained on the FDR2 data.
- Study lepton trigger, lepton identification, jet production, W-mass measurement and  $t\bar{t}$  selection efficiencies.

### The hope

- Produce a mass plot and a cross-section number.
- Caveat: R.H., A.B., S.P. and T.G. finish their Phd from 12/08 - 07/09.

If possible aim for a paper titled: *Observation of  $t\bar{t}$  production at the LHC.*

