Measuring the Top Mass in the Semileptonic Channel

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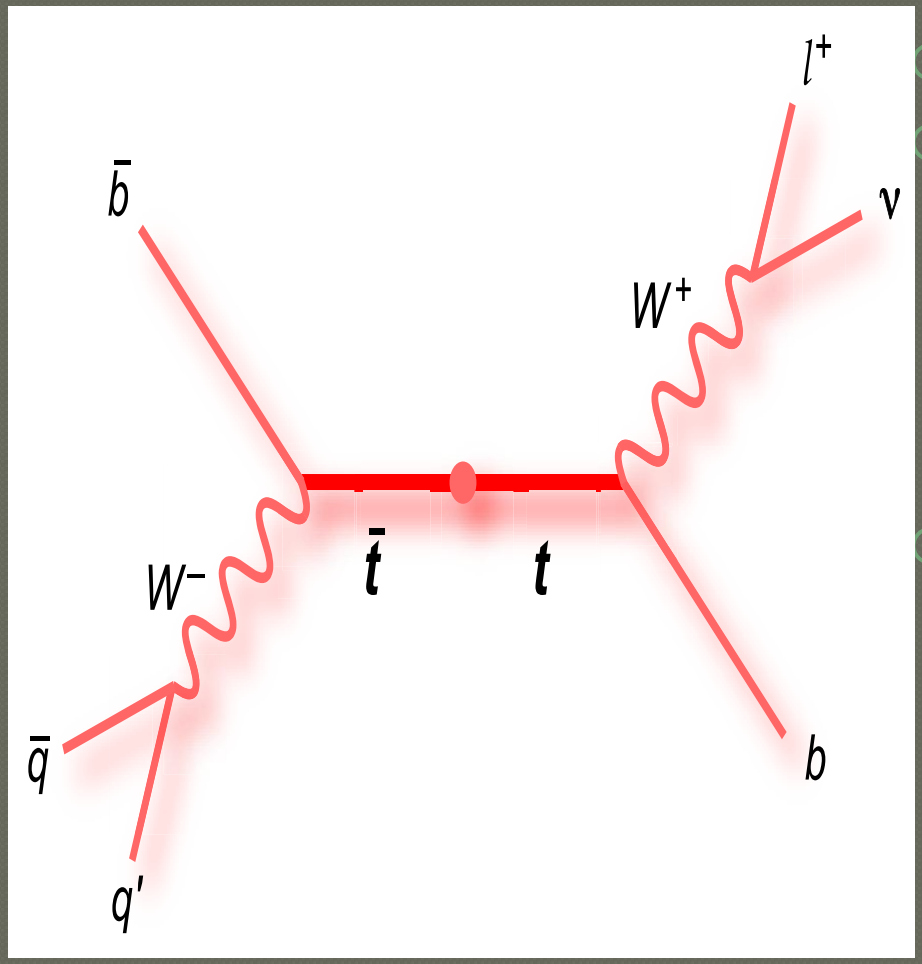
28-06-12

The physics

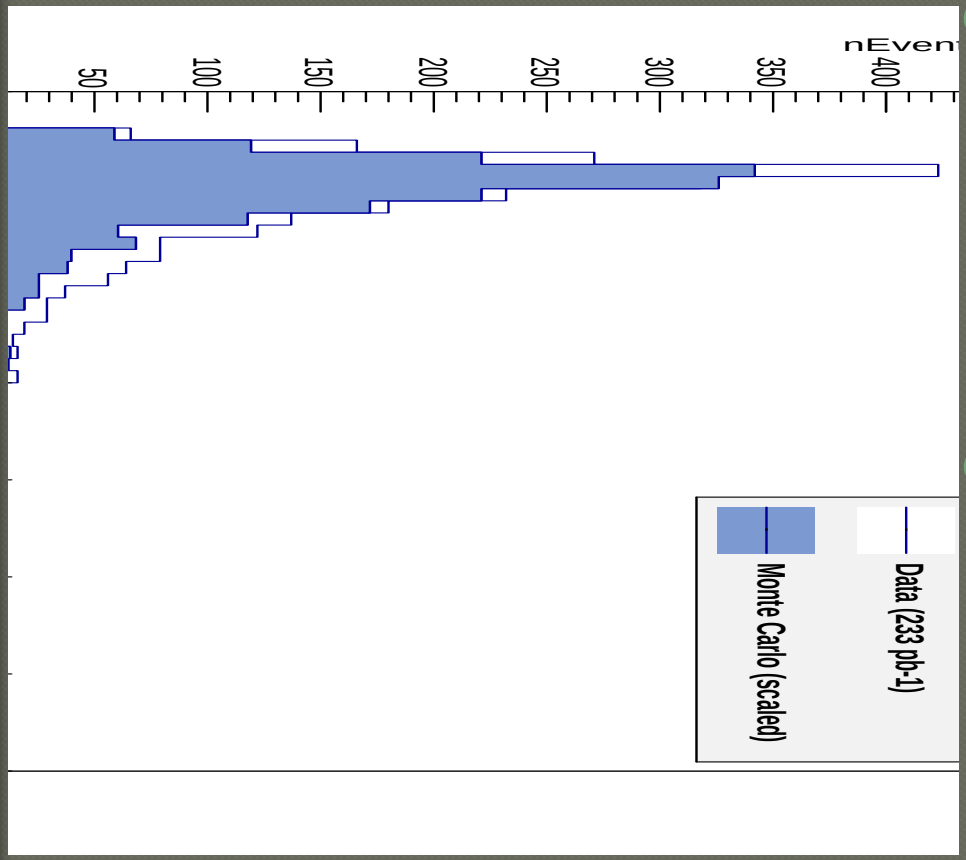


- ttbar → W^+bW^-bbar
- The b's become jets; the W's usually all decay to two light quarks which also become jets
- Sometimes one W decays to $\mu+\nu$which is more easily separable from background

The computing

- Using PAT Tuple organized data; currently 210 pb^{-1}
- Looping over all events and cutting for:
  - at least 1 energetic μ
  - 4 energetic jets
  - Further cuts on muon isolation and quality
- Make histogram of invariant mass of 3 highest-p_T jets and comparing to Monte Carlo, try to figure out remaining background
- Not yet doing significant error analysis (statistical/systematic) but that is next step– number without uncertainty is meaningless

Some preliminary results



- Initially looks like I am getting in good agreement with expected (accepted) value
- Some issues to work out- difference between data/MC- why so jagged?

Why?

- Top mass has been measured before with fairly high precision
- It never hurts to check and recheck to get better precision and lower the uncertainty
- Better we know parameters of Standard Model, the better we understand it, and more prepared we are to move beyond it
- Learning experience– how things are done here at CERN