Top at the LHC

At $\sqrt{s} = 14$ TeV, the $t\bar{t}$ production cross section is approximately 760 pb (a factor of 100 over the Tevatron at $\sqrt{s} = 2$ TeV). In a year of running at low luminosity,

$$10 \ \text{fb}^{-1} \Rightarrow 7 - 8 \ \text{million} \ \ t\bar{t} \ \ \text{pairs} \ \ \text{produced.}$$

Most top physics maybe restricted to the low luminosity running periods due to the degradation of b-tagging with multiple interactions at high luminosity. The top measurement program, techniques, and systematic uncertainties will be similar to those used at the Tevatron. Clearly, most measurements will be systematics limited.

- Top Mass: The systematics which rely on control samples in the data will benefit from the large samples.

  $$\delta \mathrm{M_t} \sim 1 - 2 \ \ \mathrm{GeV}/c^2$$

- $\mathrm{d}\sigma_{t\bar{t}}/\mathrm{dX}$, differential cross sections, will benefit greatly from the increase statistics and populate well out into the tails of the distribution and therefore be a much more stringent test of the Standard Model.

- Rare Decays: With Standard Model BR of 10^{-10}, even the LHC will not be able to reach these, but the limits will be much better than the Tevatron.