Single Top Production Measurements

Single top quark production offers several measurements that are not directly accessible to $t\bar{t}$ production.

Cross Section:

The production cross section should be measured with an accuracy of:

$$\delta\sigma_t = 24\%$$

$\Gamma(t \to Wb)$:

The single top production cross section is proportional to the partial width:

$$\Gamma(t \to Wb) \sim \sigma_t$$

The constant of proportionality has theoretical uncertainties which are currently at $\approx 10\%$ and will hopefully improve before the measurement is made. With 2 fb^{-1} we expect:

$$\delta\Gamma(t \to Wb) = 26\%$$

This partial width, in the absence of anomalous couplings, is a measure of the total width $\Gamma(t)$.

V_{tb}:

From $\Gamma(t \to Wb)$ comes a measure of V_{tb}:

$$\delta V_{tb} = 13\%$$