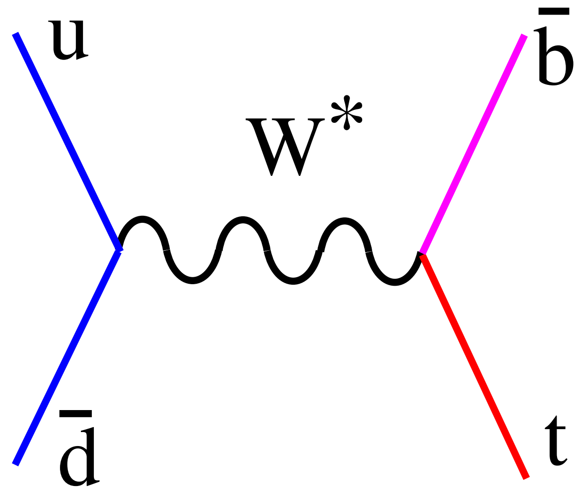
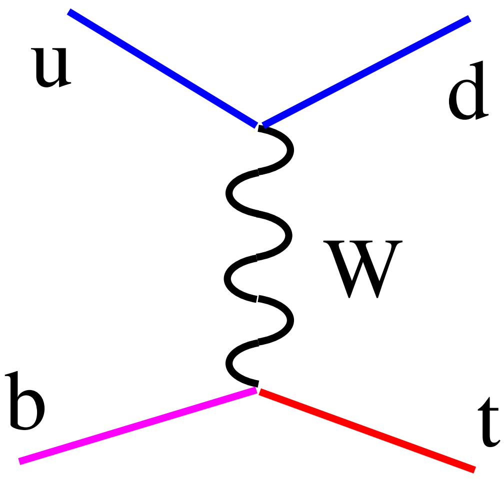
Single Top Production





A single top quark (or $\bar{t}$) can be created in hadron collisions.

$$\sigma_t = 2.5 \;\; pb, \qquad \frac{\sigma_t}{\sigma_{t\bar{t}}} \approx 1/3$$

Challenges:

- Final state a "W + 2 Jet" configuration, instead of a "W + 4 Jet" configuration.
- Background from QCD W+Jet processes much higher than for $t\bar{t}$ production.
- Smaller cross section than $t\bar{t}$.

Studies have shown that with 2 fb^{-1} single top quark production can be isolated with a S/B of about 0.5 and roughly 100 events in the final sample.