



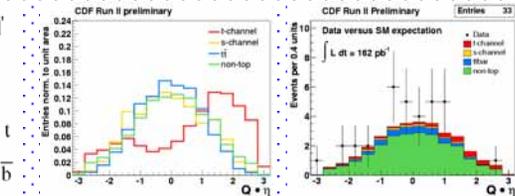
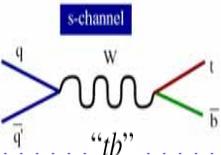
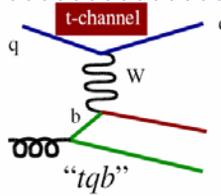
Top Properties at CDF



Single Top Search

Results of Single Top Search with 162 pb⁻¹

We perform two searches, one for the combined signal of the t- and s-channel production modes and another sensitive to the separate channels. We do not find evidence for a single top signal, but we set upper limits on the single top cross-section.



$$\sigma(\text{t-Channel}) < 10.1 \text{ pb @ 95\% C.L.}$$

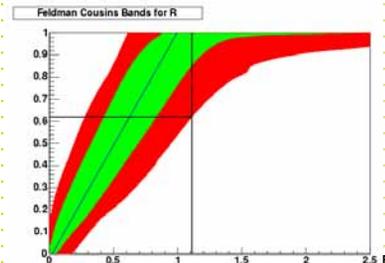
$$\sigma(\text{s-Channel}) < 13.6 \text{ pb @ 95\% C.L.}$$

$$\sigma(\text{t + s-Channel}) < 17.8 \text{ pb @ 95\% C.L.}$$

Branching Ratio

The Measurement of the Ratio $B(t \rightarrow Wb) / B(t \rightarrow Wq)$

We measure the ratio of the branching ratio $R = B(t \rightarrow Wb) / B(t \rightarrow Wq)$ in top quark decays at CDF. tt events are reconstructed in both the lepton-plus-jets and dilepton modes, and R is determined from the relative rates of identified b jets in the event samples. We find $R > 0.62$ at 95% CL, consistent with standard model expectations.

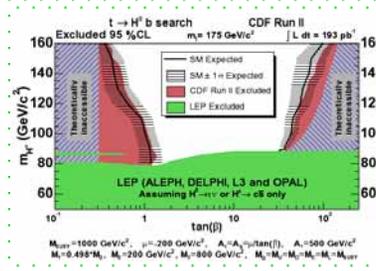
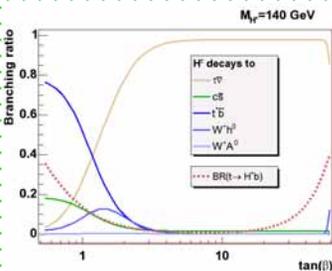


$$R = 1.11 \pm 0.21 \pm 0.19 \text{ (stat + syst)}$$
$$R > 0.62 \text{ at 95\% C.L.}$$

Charged Higgs Search

A search of charged Higgs in the decay products of pair-produced top quarks

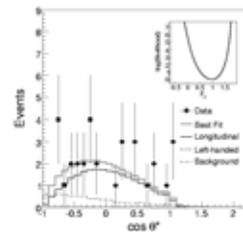
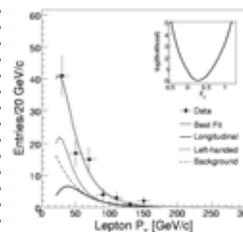
The two Higgs doublet extension of the Standard Model predicts the existence of charged Higgs bosons (H^\pm). In such models, the branching fraction for top quarks $B(t \rightarrow H^+b)$ can be large. This search is based on the $t\bar{t}$ cross section measurements in four exclusive decay channels; the "dilepton", "lepton + jets" with exactly 1-tag, "lepton + jets" with ≥ 2 -tags and "lepton + hadronic tau". The results are shown in the context of the MSSM.



W Helicity

Measurement of the Helicity of W Bosons in Top Quark Decays

We measure the branching fractions of the top quark to longitudinally and right-handed polarized W bosons, F_0 and F_+ , using $\sim 200 \text{ pb}^{-1}$. We analyze two kinematics quantities: the invariant mass of the charged lepton and the bottom-quark jet in the decay $t \rightarrow Wb \rightarrow l\nu b$ (where $l = e$ or μ), and the transverse momentum of the charged lepton. These measurements are in agreement with the Standard Model predictions.



$$F_0 = 0.74 \pm 0.22 \pm 0.34 \text{ (stat+syst)}$$
$$F_+ < 0.27 \text{ @ 95\% C.L.}$$