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Search for Flavor Changing Neutral Currents in Top Quark Decays at CDF JENNIFER GIMMELL, University of Rochester, CDF COLLABORATION — In the CDF II detector at the Fermilab Tevatron, $t\bar{t}$ pairs are produced in $p\bar{p}$ collisions at 1.96 TeV. We have performed a search for the flavor-changing neutral current (FCNC) decay of the top quark $t \to Zq$. This decay is extremely rare in the standard model, and any signal at the Tevatron would be an indication of new physics. For the summer 2007 conferences, using $1.12\,\mathrm{fb}^{-1}$ of data we presented the world's best limit on the branching fraction $\mathcal{B}\ (t \to Zq)$ of 10.6% at 95% C.L. In this talk, we show the updated analysis with $1.9\,\mathrm{fb}^{-1}$ of data. We discriminate signal from background by exploring kinematic constraints present in FCNC events. We construct a mass χ^2 variable and fit templates to the data, taking into account shape systematic uncertainties of the χ^2 distribution. Using a Feldman-Cousins limit technique, we expect to set an improved limit on the branching fraction $\mathcal{B}\ (t \to Zq)$.

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