



Contribution ID: 689

Type: **Parallel Sessions**

Cross section measurements of top quark production at CDF

Thursday 5 July 2012 10:00 (15 minutes)

The cross section for top-quark production, either in pairs through chromo-dynamical mechanisms or in single top-quarks through electro-weak based mechanisms, is a topic of great interest for testing theoretical predictions and constraining standard model parameters, as well as for searching for new physics in the top-quark sector. We present recent measurements of the top-quark pair production cross section in the all-leptonic channel and of the single top-quark production cross sections in the s- and t-channels. The combined s+t-channel single top-quark production cross section is also used to measure the $|V_{tb}|$ matrix element of the CKM matrix. We also present a measurements of the top-quark pair production cross section and branching ratio in the all-leptonic channel where one of the two leptons defining the decay channel is required to be a reconstructed tau channel. The pair production cross section measurements are using the full CDF Run II sample.

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