DIS2011

Electroweak Physics and Beyond the Standard Model
Parallel Session X, Thursday 14th of April 2011, 14:15-16:00
Joint with Heavy Flavours

Title: Top quark cross sections and differential distributions
Nikolaos Kidonakis (Kennesaw State University)
I present results for the top quark pair total cross section and the top quark transverse momentum distribution at Tevatron and LHC energies. I also present results for single top quark production. All calculations include NNLO corrections from NNLL threshold resummation.

Title: Search for new physics in top decays at D0
Frédérique Badaud
We present results on the search for new physics using the sample of top quarks identified in up to 5.4 /fb of D0 data, using different types of measurements. We present constraints on the production of new 4th generation quarks, of charged Higgs bosons and tt/tb resonances, as well as constraints on anomalous couplings of the top quark which could lead to new decay channels (FCNC) or to modifications of the production cross sections or the decay distributions (anomalous couplings).

Title: Measurement of the top pair invariant mass distribution at 7 TeV and search for New Physics
Davide Pagano (Univ. Catholique de Louvain)
We present a measurement of the top-pair mass in tt events by using proton-proton collisions at the LHC at a centre-of-mass energy of 7 TeV. We use data collected with the CMS experiment during the year 2010, and amounting to a total integrated luminosity of 36 /pb. The analysis is performed by a full top-pair event reconstruction and by combining the electron+jets and muon+jets channels. The measurement is then used for searching for production of a massive, narrow-width, neutral boson decaying into top-pairs. We observe no significant deviations from the QCD expectations, therefore we translate the measurement into an upper limit on the new physics production cross-section as a function of the particle mass.

Title: Searches for BSM physics involving top quarks and other BSM physics searches at ATLAS
Tatjana Lenz (Bergische Universitaet Wuppertal)
(Combined abstracts:)
Top quarks are an appealing probe for physics beyond the standard model due to their large mass and their decay before hadronization which allows for the observation of top quark decay properties. We report on searches for physics beyond the standard model altering either top quark production or top quark decay using the ATLAS detector on the full 2010 LHC data sample.
We present the first results of searches for new physics with the ATLAS detector using the 2010 LHC pp-collision data at sqrt(s) = 7 TeV. After a few months of LHC operations, these searches

already go significantly beyond the reach of previous experiments and start to explore new territories.

Title: CDF – The Top Quark Forward Backward Asymmetry
TBA
We present measurements of the inclusive forward-backward t-tbar production asymmetry and its rapidity and mass dependence. The measurements are performed with 5.3 fb-1 of proton-antiproton collisions at sqrt{s} = 1.96 TeV, recorded with CDF II at the Fermilab Tevatron. Significant inclusive asymmetries are observed and are consistent with CP conservation under interchange of top and antitop. The asymmetry is found to be most significant at high rapidity and mass of the top-antitop system.

Title: CMS – Measurement of the charge asymmetry in top quark pair production at 7 TeV
Ioana Maria Anghel (University of Illinois at Chicago)
We present a measurement of the charge asymmetry in top-pair production in proton-proton collisions at the LHC at a centre-of-mass energy of 7 TeV. We use data collected with the CMS experiment during the year 2010, and amounting to a total integrated luminosity of 34 pb-1. The analysis uses events with one charged lepton and at least four jets. In order to measure the charge asymmetry in charge-symmetric initial state processes, the difference of absolute pseudo rapidities of top and anti-top is used. The measured value is consistent with the asymmetry predicted by the Standard Model.