PLHC2011 - Physics at LHC 2011

Report of Contributions

https://indico.cern.ch/e/PLHC2011

Contribution ID: **1** Type: **not specified**

Welcome (5')

Monday 6 June 2011 10:30 (5 minutes)

Presenter: MANTOVANI, Giancarlo (INFN and Univers. of Perugia)

Session Classification: 1A - Opening, LHC Machine and Experiments

Contribution ID: **2** Type: **not specified**

CERN: status and future plans (30'+5')

Monday 6 June 2011 10:35 (35 minutes)

Presenter: BERTOLUCCI, Sergio (CERN)

Session Classification: 1A - Opening, LHC Machine and Experiments

Contribution ID: **3** Type: **not specified**

Status and Plans of LHC (30'+5')

Monday 6 June 2011 11:10 (35 minutes)

Presenter: ARDUINI, Gianluigi (CERN)

Session Classification: 1A - Opening, LHC Machine and Experiments

Contribution ID: **4** Type: **not specified**

How weak is electroweak ? Probing strong EWSB at the LHC (30'+5')

Friday 10 June 2011 09:00 (35 minutes)

Presenter: CONTINO, Roberto (Sapienza University of Rome)

Session Classification: 5A - Higgs and BSM

Contribution ID: **5** Type: **not specified**

Flavour Physics at LHC and B factories (30’ + 5’)

Saturday 11 June 2011 09:55 (35 minutes)

Presenter: NAKADA, Tatsuya (EPFL)

Session Classification: 6A - Looking ahead and closing

Contribution ID: **6** Type: **not specified**

Cosmology and LHC (30'+5')

Saturday 11 June 2011 09:20 (35 minutes)

Presenter: WEINER, Neal (NYU)

Session Classification: 6A - Looking ahead and closing

Contribution ID: **7** Type: **not specified**

Extra time for Experimental talk (30’ + 5’)

Presenter: T.B.A

Contribution ID: **9** Type: **not specified**

Experimental summary and outlook (40’ +5’)

Presenter: VIRDEE, Tejinder (Imperial College)

Contribution ID: **10** Type: **not specified**

Status of ATLAS (30'+5')

Monday 6 June 2011 11:45 (35 minutes)

Presenter: PONTECORVO, Ludovico (INFN and University of Roma I)

Session Classification: 1A - Opening, LHC Machine and Experiments

Contribution ID: **11** Type: **not specified**

Theoretical overview (40’ +5’)

Saturday 11 June 2011 11:45 (45 minutes)

Presenter: BARBIERI, Riccardo (INFN and SNS Pisa)

Session Classification: 6B - Looking ahead and closing

Contribution ID: **12** Type: **not specified**

Status of CMS (30'+5')

Monday 6 June 2011 12:20 (35 minutes)

Presenter: TONELLI, Guido (INFN and University of Pisa)

Session Classification: 1A - Opening, LHC Machine and Experiments

Contribution ID: **13** Type: **not specified**

Presentation of next venue

Saturday 11 June 2011 12:30 (10 minutes)

Presenter: LEFEBVRE, Michel (University of Victoria)

Session Classification: 6B - Looking ahead and closing

Contribution ID: **14** Type: **not specified**

Status of Totem (20'+5')

Monday 6 June 2011 14:30 (25 minutes)

Presenter: TURINI, Nicola (University of Siena and INFN Pisa)

Session Classification: 1B - LHC Experiments

Contribution ID: **15** Type: **not specified**

Status of LHCf (20'+5')

Monday 6 June 2011 14:55 (25 minutes)

Presenter: ADRIANI, Oscar (INFN Firenze)

Session Classification: 1B - LHC Experiments

Contribution ID: **16** Type: **not specified**

Higgs results from Tevatron (20' +5')

Friday 10 June 2011 09:35 (25 minutes)

Presenter: CASARSA, Massimo (Fermi National Accelerator Laboratory)

Session Classification: 5A - Higgs and BSM

Contribution ID: **17** Type: **not specified**

Higgs results from CMS (20' +5')

Friday 10 June 2011 10:00 (25 minutes)

We report on the various SM and BSM Higgs Boson searches conducted by the CMS experiment with the 2010 data. Projected CMS sensitivity to SM Higgs Boson searches at sqrt(s) = 7 TeV under various luminosity scenarios will also be described.

Presenter: MANNELLI, Marcello (CERN)

Session Classification: 5A - Higgs and BSM

Contribution ID: **18** Type: **not specified**

Status of ALICE (30'+5')

Monday 6 June 2011 15:20 (35 minutes)

Presenter: WESSELS, Johannes (WWU Münster)

Session Classification: 1B - LHC Experiments

Contribution ID: **19** Type: **not specified**

Status of LHCb (30'+5')

Monday 6 June 2011 15:55 (35 minutes)

Presenter: SCHOPPER, Andreas (CERN)

Session Classification: 1B - LHC Experiments

Contribution ID: **20** Type: **not specified**

Recent Higgs results from ATLAS (20' +5')

Friday 10 June 2011 10:25 (25 minutes)

In the context of the Standard Model and of scenarios beyond the Standard Model, results of Higgs boson searches of the ATLAS experiment are presented for 2010 and 2011 data. Combination of the Standard Model Higgs decay channels is shown for the 2010 data.

Presenter: ESCALIER, Marc (University Paris-sud)

Session Classification: 5A - Higgs and BSM

Contribution ID: **21** Type: **not specified**

Possible extra time (30'+5')

Contribution ID: **22** Type: **not specified**

Soft gluons and soft Physics (25'+5')

Tuesday 7 June 2011 09:00 (30 minutes)

Presenter: HAUTMANN, Francesco (ITP Oxford Univ.)

Session Classification: 2A - Soft QCD, Heavy Ion and Diffractive Physics

Contribution ID: **23** Type: **not specified**

The quest for new physics at the weak scale (30' +5')

Friday 10 June 2011 11:20 (35 minutes)

Presenter: WAGNER, Carlos E.M. (University of Chicago and ANL)

Session Classification: 5B - Higgs and BSM

Contribution ID: **24** Type: **not specified**

PDF for LHC Physics (20'+5')

Tuesday 7 June 2011 09:30 (25 minutes)

Presenter: FORTE, Stefano (INFN and University of Milano)

Session Classification: 2A - Soft QCD, Heavy Ion and Diffractive Physics

Contribution ID: **25** Type: **not specified**

Searches in CMS (25' +5')

Friday 10 June 2011 11:55 (30 minutes)

We discuss the results of searches for various new physics phenomena, including supersymmetry, in pp collisions at 7 TeV delivered by the LHC and collected with the CMS detector. These results demonstrate a good understanding of the detector and backgrounds in a variety of channels and in many cases they set the most stringent limits on these new physics phenomena, surpassing previous experiments.

Presenter: SONNENSCHEIN, Lars (RWTH Aachen)

Session Classification: 5B - Higgs and BSM

Contribution ID: **26** Type: **not specified**

Recent results from New Physics Searches in ATLAS (25' +5')

Friday 10 June 2011 12:25 (30 minutes)

The Large Hadron Collider provides an exceptional opportunity to test the validity of the Standard Model at the TeV scale where new phenomena are considered likely to be found. We present a review of new physics searches including searches for supersymmetry in pp collisions at 7 TeV using the ATLAS detector. Particular emphasis will be given to most recent results, including those obtained with 2011 data.

Presenter: LARI, Tommaso (INFN Milano)

Session Classification: 5B - Higgs and BSM

Contribution ID: **27** Type: **not specified**

Soft QCD results from Alice Experiment (20'+5')

Tuesday 7 June 2011 09:55 (25 minutes)

The ALICE experiment at the LHC has studied p-p collisions at several center-of-mass energies (namely, sqrt(s)= 0.9, 2.36, 2.76 and 7 TeV).
Although the main focus of the experiment is on the study of nuclear collisions, many aspects of p-p physics can be addressed by ALICE. In particular, soft observables (charged hadron multiplicity, identified particle spectra and ratios, Bose-Einstein correlations, azimuthal correlations) have been extensively studied, and a selection of hard probes (heavy flavours, J/psi) has also been investigated. In this talk, the results obtained in the 2010 run and in the first part of the 2011 run will be summarized, with emphasis on the soft QCD ones.

Presenter: RAMELLO, Luciano (INFN and Univ Piemonte Orientale)

Session Classification: 2A - Soft QCD, Heavy Ion and Diffractive Physics

Contribution ID: **28** Type: **not specified**

ATLAS Higgs results (15’ + 5’)

Friday 10 June 2011 14:30 (20 minutes)

First results from ATLAS on Higgs searches in the 2011 data are reported. Overview of the results will be given for several decays modes of the SM Higgs boson.

Presenter: ZHU, Yingchun (Department of Physics-University of Wisconsin)

Session Classification: 5C Parallel - Higgs and Susy

Contribution ID: **29** Type: **not specified**

Higgs Searches at CMS (15' + 5')

Friday 10 June 2011 14:50 (20 minutes)

We report on the various SM and BSM Higgs Boson searches conducted by the CMS experiment with the 2010 data. Projected CMS sensitivity to SM Higgs Boson searches at sqrt(s) = 7 TeV under various luminosity scenarios will also be described.

Presenter: KUMAR, Ashok (University of Delhi)

Session Classification: 5C Parallel - Higgs and Susy

Contribution ID: **30** Type: **not specified**

Onia at LHC (20'+5')

Tuesday 7 June 2011 10:20 (25 minutes)

The LHC opens new frontiers in heavy flavour physics through an unprecedented statistical reach for a variety of interesting states produced in pp collisions. The four experiments have excellent complementary acceptances and good mass resolutions to provide a complete picture of quarkonium production.
We will analyse the recent quarkonium results of the four LHC experiments, comparing them with the recent theoretical developments and in the
different rapidity regions. Prospects for future results will also be given.

Presenter: MANCA, Giulia (INFN and Univ. Cagliari)

Session Classification: 2A - Soft QCD, Heavy Ion and Diffractive Physics

Contribution ID: **31** Type: **not specified**

Higgs phenomenology beyond the SM (20' + 5')

Friday 10 June 2011 15:10 (25 minutes)

Detection of a signal in one of the standard LHC Higgs search modes does not guarantee that the particle discovered is the Standard Model Higgs. I'll survey some general classes of alternatives and ways to tell them apart.

Presenter: LOGAN, Heather (Carleton U.)

Session Classification: 5C Parallel - Higgs and Susy

Contribution ID: **32** Type: **not specified**

Overview of ATLAS Supersymmetry searches with 2010 LHC data (15' + 5')

Friday 10 June 2011 15:35 (20 minutes)

ATLAS searches for supersymmetry in data from the 2010 run of the LHC, corresponding to an integrated luminosity of 35 pb-1, will be reviewed. These searches were performed in various channels containing different lepton and jet multiplicities in the final state (with and without missing transverse momentum). Searches for semi-stable particles will also be covered.

Presenter: PETERSEN, Troels (Niels Bohr Institute Copenhagen)

Session Classification: 5C Parallel - Higgs and Susy

Contribution ID: **33** Type: **not specified**

Heavy ION theory (30'+5')

Tuesday 7 June 2011 11:15 (35 minutes)

Presenter: KHARZEEV, Dmitri (STONY BROOK UNIVERSITY)

Session Classification: 2B - Soft QCD, Heavy Ion and Diffractive Physics

Contribution ID: **34** Type: **not specified**

Search for SUSY in jets plus missing transverse momentum final states with the ATLAS (15' + 5')

Friday 10 June 2011 16:30 (20 minutes)

The most sensitive channels to Supersymmetry in proton-proton collisions are composed of jets and missing transverse momentum finalstates. The most recent results on these channels will be given based on data recordedin 2011.

Presenter: RAMMENSEE, Michael (Albert-Ludwigs-Universitaet Freiburg)

Session Classification: 5D Parallel - Higgs and Susy

Contribution ID: **35** Type: **not specified**

Search for SUSY at CMS in all-hadronic final states (15' + 5')

Friday 10 June 2011 16:50 (20 minutes)

A search for new physics is presented based on an event signature of at least three jets accompanied by large missing transverse momentum using a data sample of 36 pbˆ-1 of proton–proton collisions at sqrt(s) = 7 TeV acquired by the CMS detector at the LHC in 2010. There are three main background components. One is irreducible, from Z+jets events, with the Z decaying to neutrinos. A second comes from W+jets and top events where W decay yields a lepton that is not identified or a tau that decays hadronically. The third arises from QCD multi-jets where the missing momentum originates from jet mis-measurements, heavy-flavour decays, or instrumental effects. All these backgrounds are estimated from the data. No excess of events over backgrounds is observed. Exclusion limits are presented for the Constrained Minimal Supersymmetric extension of the Standard Model (CMSSM). Cross section limits are also presented using simplified models with generic particles decaying to one or two jets and an undetected particle.

Presenter: VERWILLIGEN, Piet (Universiteit Gent)

Session Classification: 5D Parallel - Higgs and Susy

Contribution ID: **36** Type: **not specified**

Exploring Yukawa and Gauge-Yukawa Unification at the LHC (15' + 5')

Friday 10 June 2011 17:10 (20 minutes)

Third family (t-b-tau) Yukawa unification is predicted in a class of grand unified models based on SO(10) as well as its subgroup H = SU(4) x SU(2) x S (2). This can lead to some surprising conclusions for the low energy MSSM phenomenology. For instance, in SO(10) the gluino turns out to be the lightest colored sparticle, while the gauge symmetry H can yield a gluino NLSP scenario. A search for NLSP gluino at the LHC involving multi-b final states will be discussed. Gauge-Yukawa unification can arise from higher dimensional unified theories, yields several interesting low energy scenarios including gluino NLSP, and it will be tested at the LHC following a precise determination of the top mass.

Presenter: SHAFI, Qaisar (Bartol research Institute, University of Delaware)

Session Classification: 5D Parallel - Higgs and Susy

Contribution ID: **37** Type: **not specified**

Search for Higgs Bosons in SUSY Cascade Decays and Neutralino Dark Matter (15' + 5')

Friday 10 June 2011 17:30 (20 minutes)

We study the possibility of observing at the LHC Higgs bosons produced from supersymmetric decay chains in the regions of parameter space consistent with a neutralino dark matter relic density. We analyze the dependence on the non- standard Higgs boson, slepton and squark masses, as well as on the condition of gaugino mass unification. In general, we conclude that, provided sleptons are heavier than the second lightest neutralino, the presence of (boosted) Higgs is a common MSSM feature, implying excellent prospects for observation of the light MSSM Higgs boson in the near future.

Presenter: GORI, Stefania (University of Chicago)

Session Classification: 5D Parallel - Higgs and Susy

Contribution ID: **38** Type: **not specified**

Search for SUSY at CMS in leptonic final states (15' + 5')

Friday 10 June 2011 17:50 (20 minutes)

We present results of searches for Supersymmetry in signatures involving one or more leptons. These searches are performed with data collected by the CMS experiment at the LHC in pp-collisions at a center of mass energy of 7 TeV. Various data driven techniques used to measure the Standard Model background are demonstrated. The results are interpreted within the CMSSM as well as more general, simplified models.

Presenter: DOBUR, Didar (University of Florida)

Session Classification: 5D Parallel - Higgs and Susy

Contribution ID: **39** Type: **not specified**

New results from ATLAS supersymmetry searches with 2010 data (15' + 5')

Friday 10 June 2011 18:10 (20 minutes)

This talk presents the latest searches for signals of Supersymmetry in the data collected in 2010 by the ATLAS experiment in LHC collisions at a centre-of-mass energy of 7 TeV. The first study looks for a signal in the di-photon plus large missing energy final state while the second is a search, based on the muon spectrometer, for long-lived stable massive particles No excess was observed and limits, most stringent to date, are set in both cases.

Presenter: OWEN, Simon (University of Sheffield)

Session Classification: 5D Parallel - Higgs and Susy

Contribution ID: **40** Type: **not specified**

Heavy ION at RHIC (30'+5')

Tuesday 7 June 2011 11:50 (35 minutes)

Presenter: WESTFALL, Gary (MICHIGAN ST. UNIVERSITY)

Session Classification: 2B - Soft QCD, Heavy Ion and Diffractive Physics

Contribution ID: **41** Type: **not specified**

Heavy ION at LHC (30'+5')

Tuesday 7 June 2011 12:25 (35 minutes)

In November 2010, the LHC experiments, ALICE, ATLAS and CMS, took first Pb-Pb data at the unprecedented centre of mass energy per nucleon pair of 2.76 TeV.
This talk gives an overview of the first physics results obtained with these data.

Presenter: MORSCH, Andreas (CERN)

Session Classification: 2B - Soft QCD, Heavy Ion and Diffractive Physics

Contribution ID: **42** Type: **not specified**

Searches for new particles decaying into jet pairs in 2011 ATLAS data (15' + 5')

Friday 10 June 2011 14:30 (20 minutes)

First results from the ATLAS searches for new particles decaying into dijet final states in the 2011 data are reported. An overview of the results will be given.

Presenter: BUCKINGHAM, Ryan Mark (Particle Physics-University of Oxford)

Session Classification: 5E Parallel - BSM

Contribution ID: **43** Type: **not specified**

Search for hadronic resonances at CMS (15' + 5')

Friday 10 June 2011 14:50 (20 minutes)

We present the results of searches for new heavy resonances in dijet, ttbar, and multijet hadronic final states in the pp collisions at 7 TeV delivered by LHC and collected with the CMS detector in 2010. No excess of events above the standard model predictions has been found.

Presenter: OZTURK, Sertac (University of Iowa)

Session Classification: 5E Parallel - BSM

Contribution ID: **44** Type: **not specified**

What if SUSY is not right? Non-susy signals at the LHC (20' + 5')

Friday 10 June 2011 15:10 (25 minutes)

I will summarize several of the signals that appear in NON supersymmetric models beyond the SM, like Z', extra-dimensions, little or composite Higgs and models without a Higgs.

Presenter: DELGADO, Antonio (University of Notre Dame)

Session Classification: 5E Parallel - BSM

Contribution ID: **45** Type: **not specified**

Heavy-ion results from the CMS experiment (15'+5')

Tuesday 7 June 2011 14:30 (20 minutes)

We present early results of the CMS experiment from PbPb collisions at $srqrts_{NN}$ = 2.76 TeV, probing quark and gluon matter at unprecedented values of energy density. The capabilities of the CMS apparatus allows us to investigate various hard probes, as well as bulk particle production and collective phenomena, using the calorimetry, muon and tracking systems covering a large range in pseudorapidity, complemented by a flexible two-level trigger system. We will review the latest results among which we will highlight: 1/ Detailed jet quenching studies from unbalanced dijets, high momentum charge particle suppression, b-quark quenching though its displaced decay to J/psi, and firs measurement of fragmentation functions, 2/ Unmodified electroweak reference probes : isolated photons, Z and W bosons, 3/ Quarkonia suppression, in particular the suppression of Upsilon excited states.

Presenter: GRANIER DE CASSAGNAC, Raphael (Ecole polytechnique, CNRS-IN2P3)

Session Classification: 2C Parallel - Heavy Ion

Contribution ID: **46** Type: **not specified**

Tevatron BSM results (15’ + 5’)

Friday 10 June 2011 15:35 (20 minutes)

Presenter: SAJOT, Gerard (University of Grenoble)

Session Classification: 5E Parallel - BSM

Contribution ID: **47** Type: **not specified**

Theoretical perspectives on Heavy Ion LHC program (20'+5')

Tuesday 7 June 2011 14:50 (25 minutes)

The extended kinematical reach in the collisions of heavy ions at the LHC opens several possibilities: new phenomena might emerge, while "known" observables are cast under a new light. I shall present a few examples of such effects, as well as tentative conclusions that could be drawn from the 2010 Pb+Pb run.

Presenter: BORGHINI, Nicolas (Univ. of Bielefeld)

Session Classification: 2C Parallel - Heavy Ion

Contribution ID: **48** Type: **not specified**

Searches for new heavy gauges bosons in 2011 ATLAS data (15' + 5')

Friday 10 June 2011 16:30 (20 minutes)

Many extensions of the Standard Model predict the existence of additional, heavy gauge bosons. The ATLAS detector is used to search for high-mass states, such as charged and neutral heavy gauge bosons, (W',Z') decaying to a charged lepton (electron or muon) and a neutrino or into two leptons, respectively in the 2011 data.

Presenter: OLIVITO, Dominick John (University of Pennsylvania)

Session Classification: 5F Parallel - BSM

Contribution ID: **49** Type: **not specified**

Search for leptonic resonances at CMS (15' + 5')

Friday 10 June 2011 16:50 (20 minutes)

We present the results of searches for excited leptons and new heavy gauge bosons in leptonic final states in the pp collisions at 7 TeV delivered by LHC and collected with the CMS detector in 2010. No excess of events above the standard model predictions has been found.

Presenter: DIEZ PARDOS, Carmen (CIEMAT Madrid)

Session Classification: 5F Parallel - BSM

Contribution ID: **50** Type: **not specified**

The top forward-backward asymmetry and the LHC (15' + 5')

Friday 10 June 2011 17:10 (20 minutes)

The long-standing Tevatron anomaly in the top forward-backward asymmetry has been the focus of a recent wave of model building. I will discuss models which account for the asymmetry and the prospects for related measurements at the LHC in both the short- and long-term. Two strategies for measuring related asymmetries at the LHC will be detailed, with large beyond-the-standard-model asymmetries observable in ~ 5 ifb at the 7 TeV LHC and the small SM asymmetry observable at the 14 TeV LHC.

Presenter: SHELTON, Jessie (Yale University)

Session Classification: 5F Parallel - BSM

Contribution ID: **51** Type: **not specified**

Search for Large Extra Dimensions at CMS (15' + 5')

Friday 10 June 2011 17:30 (20 minutes)

We present the results of a search for large extra spatial dimensions with the pp collisions at 7 TeV collected with CMS in 2010. No excess of events above the standard model predictions has been found. Limits are set on the effective Planck scale.

Presenter: TSANG, Ka Vang (Department of Physics - Brown University)

Session Classification: 5F Parallel - BSM

Contribution ID: **52** Type: **not specified**

Searches for ttbar resonances in 2011 ATLAS data (15' + 5')

Friday 10 June 2011 17:50 (20 minutes)

Many models beyond the standard model predict that new particles decaying into final states with top quarks. The ATLAS search results for top quark pair resonances in the 2011 data are reported.

Presenter: CINCA, Diane (LPC Clermont-F.)

Session Classification: 5F Parallel - BSM

Contribution ID: **54** Type: **not specified**

Baryon number transport at LHC energies with the ALICE experiment (15'+5')

Tuesday 7 June 2011 15:15 (20 minutes)

The Large Hadron Collider (LHC) provided the first p+p
collisions in the period of November-December 2009. Since then,
a large data sample has been recorded by all LHC experiments.
This event sample allows us to study more and more exotic particles and events. The ALICE (A Large Ion Collider Experiment) experiment, though designed primarily to study heavy ion collisions, has a rich proton-proton physics program. The characteristic features of ALICE are its very low-momentum cut-off, the low material budget and the excellent PID and vertexing
capabilities. In this presentation, we discuss the results from the
analysis of p+p collisions at the different LHC energies –√s =
900GeV, 7TeV and 2.76TeV. We concentrate on the baryon transport studies which are of great importance since they allow to determine the carrier of the baryon number (BN). In particular, the multiplicity, rapidity and transverse momentum dependence of the p(bar)/p, Λˆ0(bar)/Λˆ0, Ξˆ+/Ξˆ- and Ωˆ+/Ωˆ- ratios will be shown. The results will be compared with different theoretical predictions. Finally, the energy dependence of the mid-rapidity ratios will be presented.

Presenter: BROZ, Michal (Comenius University-Slovakia)

Session Classification: 2C Parallel - Heavy Ion

Contribution ID: **55** Type: **not specified**

Search for leptoquarks and heavy quarks at CMS (15' + 5')

Friday 10 June 2011 18:10 (20 minutes)

We present the results of searches for pair-production of leptoquarks and bottom-like fourth generation quark b′ in pp collisions at 7 TeV collected with CMS in 2010. No excess of events above the standard model predictions has been found. Limits are set on the production cross section, some of which are the most stringent to date.

Presenter: BARFUSS, Anne-Fleur (Kansas State University)

Session Classification: 5F Parallel - BSM

Contribution ID: **57** Type: **not specified**

Baryon number transport at LHC energies with the ALICE experiment (15')

Contribution ID: **58** Type: **not specified**

Results from lead-lead collisions at sqrt(s_NN)=2.76 TeV with ATLAS at the LHC (15'+5')

Tuesday 7 June 2011 15:35 (20 minutes)

A broad program of measurements using heavy ion collisions is underway in ATLAS, with the aim of studying the properties of QCD matter at high temperatures and densities. With the factor of 14 increase in collision energy compared to RHIC data, significant insight has already been gained using dijet asymmetry measurements, but a more detailed study of both high pT probes and global features of the collisions is well underway. Elliptic flow is measured over 5 units of pseudorapidity, from -2.5 to 2.5, and over a broad range in transverse momentum, 0.5-20 GeV. The results will be discussed in the context of previous measurements and theoretical model predictions. We also present precision measurements for the first six flow harmonics (v_1-$v-6$) using both the event plane method as well as two-particle correlations, a broad p_T range, and with fine centrality selections. The impact of these results on extracting features related to genuine jet-medium interactions will be discussed. The centrality dependence of the particle density near mid-rapidity scaled by the number of participating nucleon pairs (dNch/dη(|η| < 0.5)/(0.5Npart)) is presented, as well charged particle spectra and their ratios in different centrality bins over a wide range of transverse momenta and pseudorapidity. The centrality dependence of single muon production is used to study the production of W± and heavy flavor, which are sensitive to initial and final state effects, respectively. Finally, we will present results from ATLAS measurements of single jet production, di-jet correlations and jet fragmentation in Pb+Pb collisions at $\sqrt{s_{NN}} = 2.76$˜TeV. These results include an update on the original di-jet asymmetry analysis using the full statistics from the Fall 2010 LHC Pb+Pb run.

Presenter: BOLD, Tomasz (UC Irvine, AGH-UST Krakow)

Session Classification: 2C Parallel - Heavy Ion

Contribution ID: **59** Type: **not specified**

Flavour Physics at the LHC (25' +5')

Thursday 9 June 2011 09:00 (30 minutes)

Presenter: PEREZ, Gilad (Weizmann Institute)

Session Classification: 4A - B and top

Contribution ID: **60** Type: **not specified**

EWK di-boson production in ATLAS (15'+5')

Tuesday 7 June 2011 14:30 (20 minutes)

The production of pairs of bosons is an important process for investigating the electroweak sector of the Standard Model. We present measurements of the diphoton, Z+photon, W+photon and WW production cross sections. Constraints on the couplings are also presented.

Presenter: EBKE, Johannes (Ludwig-Maximilians-Univ. Muenchen)

Session Classification: 2E Parallel- EWK

Contribution ID: **61** Type: **not specified**

B physics from Tevatron (25' +5')

Thursday 9 June 2011 09:30 (30 minutes)

Presenter: SQUILLACIOTI, Paola (University of Siena and INFN Pisa)

Session Classification: 4A - B and top

Contribution ID: **62** Type: **not specified**

B decays, CKM, spectroscopy B and Charm at LHCb (40' +5')

Thursday 9 June 2011 10:00 (45 minutes)

The LHCb experiment has accumulated a sample of ˜37 pb-1 of data during the 2010 run of LHC, at a center of mass energy of 7 TeV, and has already collected more than 150 pb-1 in the 2011 run. Results will be presented for heavy flavour production and decays in several modes. First measurements of the Bs mixing frequency and CPV phase, direct CP asymmetries and searches for new Physics in
rare B decays will be also shown.

Presenter: CALVI, Marta (Universita degli Studi Milano - Bicocca)

Session Classification: 4A - B and top

Contribution ID: **63** Type: **not specified**

Status of Higgs and EW cross-sections for the LHC (20'+5')

Tuesday 7 June 2011 14:50 (25 minutes)

A short review of the status of theoretical calculations and their uncertainties for the most relevant electroweak processes at the LHC is presented

Presenter: PICCININI, Fulvio (INFN Pavia)

Session Classification: 2E Parallel- EWK

Contribution ID: **64** Type: **not specified**

Vector boson production in ATLAS (15'+5')

Tuesday 7 June 2011 15:15 (20 minutes)

Electroweak bosons are a "standard candle" process for physics at the
LHC. We present measurements of total inclusive W and Z production cross sections, as well as differential cross sections and the W charge asymmetry.

Presenter: KASHIF, Lashkar (University of Wisconsin-Madison)

Session Classification: 2E Parallel- EWK

Contribution ID: **65** Type: **not specified**

Study of W and Z production, lepton charge asymmetry and Z differential cross sections at CMS (15'+5')

Tuesday 7 June 2011 15:35 (20 minutes)

We present various measurements with W and Z bosons, based on 36 inverse-picobarns of pp collisions at √s = 7 TeV recorded by the CMS detector at the LHC in 2010. The results, obtained in the electron and muon channels, are compared to predictions at the NLO or NNLO in QCD using recent sets of parton densities. We first report on the inclusive W- and Z-boson production cross sections, measured in the acceptance of the detector as well as extrapolated to the full acceptance. The main uncertainty on the cross sections is 3.4%, from the integrated luminosity measurement. Other systematic uncertainties are comparable to the statistical uncertainties, of the order of 1 to 2%. We also present measurements of the lepton charge asymmetries in W events, covering the central pseudo-rapidity region up to 2.4 for electrons and 2.1 for muons. The size of the total experimental error in each bin of lepton pseudo-rapidity is comparable to the theory uncertainty due to the parton densities. Finally we present corrected and unfolded measurements with Drell-Yan pairs: transverse momentum and rapidity differential cross sections in the Z mass region (60 < M(ll) < 120 GeV) in the di-electron and di-muon channels, and Drell-Yan invariant mass spectrum from 15 to 600 GeV in the di-muon channel.

Presenter: YOO, Hwidong (Purdue University)

Session Classification: 2E Parallel- EWK

Contribution ID: **66** Type: **not specified**

Studies of electroweak boson production in the forward region with LHCb (15'+5')

Tuesday 7 June 2011 15:55 (20 minutes)

We report on measurements of W+, W−and Z0 production, using data taken by the LHCb experiment at sqrt(s) = 7 TeV during 2010. The electroweak bosons are reconstructed by selecting decays to muonic final states. The cross-sections are measured within the region 2 < eta < 4.5, using muons of transverse momenta exceeding 20 GeV/c, as well as differentially as a function of lepton pseudorapidity (for W) and boson rapidity (for Z). Measurements of the W charge asymmetry as a function of lepton pseudorapidity are obtained for different lepton transverse momentum thresholds in the same forward region, providing constraints on the u and d valence partons. Results are compared to NLO and NNLO predictions.

Presenter: FARRY, Stephen (UC Dublin)

Session Classification: 2E Parallel- EWK

Contribution ID: **67** Type: **not specified**

Top physics: theoretical aspects (25' +5')

Thursday 9 June 2011 11:15 (30 minutes)

Presenter: LAENEN, Eric (Fermi National Accelerator Laboratory (FNAL))

Session Classification: 4B - B and top

Contribution ID: **68** Type: **not specified**

Top results from Tevatron (25' +5')

Thursday 9 June 2011 11:45 (30 minutes)

Presenter: GARCIA-BELLIDO, Aran (University of Rochester)

Session Classification: 4B - B and top

Contribution ID: **69** Type: **not specified**

Top results from ATLAS (20' +5')

Thursday 9 June 2011 12:15 (25 minutes)

We present the most recent results on top quark physics using data collected with the ATLAS experiment. Results include the top pair production cross section in several channels, the search for single top production and searches for anomalous top quark production, and various measurements of top-quark properties such as the top quark mass and W polarization from top decay.

Presenter: COBAL, Marina (INFN and University of Udine)

Session Classification: 4B - B and top

Contribution ID: **70** Type: **not specified**

Top results from CMS (20' +5')

Thursday 9 June 2011 12:40 (25 minutes)

We give an overview of the most recent results on top quark properties and interactions, obtained using data collected with the CMS experiment during the year 2010 at 7 TeV center-of-mass energy, and amounting to a total integrated luminosity of 36 pb-1. Results include the top pair production cross section, measured in both the dilepton and lepton+jets channels, the top quark mass, single top production, and top pair charge asymmetry. We also present measurements of the top pair invariant mass distribution and searches for new particles decaying to top pairs. All results are confronted with accurate standard model predictions.

Presenter: CALDERON TAZON, Alicia (IFCA - CSIC)

Session Classification: 4B - B and top

Contribution ID: **71** Type: **not specified**

Jet Reconstruction and the Evolution of Background Effects in Pb-Pb Collisions Measured with the ALICE Experiment at the LHC (15'+5')

Tuesday 7 June 2011 17:15 (20 minutes)

The suppression of high-pT hadron production in central heavy-ion events compared to proton-proton collisions, known as jet quenching, reflects the parton energy loss in a hot and dense medium which is produced in heavy-ion collisions. The reconstruction of jets provides a more direct link to the initial hard-scattered partons and its modified fragmentation process.
The measurements in proton-proton collisions offer a clean sample of jets and a baseline, while the jet reconstruction in heavy ion collisions is strongly affected by soft background from the underlying event. For an appropriate interpretation of the jet observables it is essential to understand the influence of the background and its fluctuations on the reconstructed jets. With this purpose we embed a well-defined probe into measured heavy-ion data and study its reconstruction in the presence of large backgrounds. We will present the status of jet reconstruction based on charged particles with the ALICE experiment and the influence of background effects in heavy-ion collisions on the reconstructed jet spectrum.

Presenter: BATHEN, Bastian (UNIV. OF MÜNSTER)

Session Classification: 2D Parallel - Heavy Ion and Soft QCD

Contribution ID: **72** Type: **not specified**

ATLAS measurements of particle multiplicities and correlations (15'+5')

Tuesday 7 June 2011 17:35 (20 minutes)

Particle multiplicities and correlations are an important feature of physics at the LHC. They provide an insight into the environment in which all ATLAS physics measurements are performed. Measurements of charge and neutral particle multiplicities and of two-particle correlations with the ATLAS detector, made as a variety of centre-of-mass energies, are presented. These measurements are used to refine phenomenological models and probe production mechanisms.

Presenter: MONK, James William (DPA University College London)

Session Classification: 2D Parallel - Heavy Ion and Soft QCD

Contribution ID: **73** Type: **not specified**

Forward physics at the LHC (20'+5')

Tuesday 7 June 2011 17:55 (25 minutes)

Totally inclusive quantities such as the total and inelastic pp cross-sections at the LHC along with proposals for the measurements and estimates of pion proton and pion pion cross-sections will be discussed.

Presenter: SRIVASTAVA, Yogendra (INFN and Univers. Perugia)

Session Classification: 2D Parallel - Heavy Ion and Soft QCD

Contribution ID: **74** Type: **not specified**

Electromagnetic Dissociation Measurement at LHC with ALICE ZDC (15'+5')

Tuesday 7 June 2011 18:20 (20 minutes)

New data on neutron emission in electromagnetic dissociation Pb ions at LHC will be presented. The measurement was performed by means of the Zero Degree Calorimeters (ZDC) of the ALICE experiment, which consists of two identical sets of detectors located at opposite sides with respect to the beam intersection point, ˜114 m away from it. Each set of detectors include a neutron (ZN) and a proton (ZP) Zero Degree Calorimeter. In particular the ZN is placed at zero degrees with respect to the LHC axis and
detects neutral particles at pseudorapidities eta>8.7. During the 1.38+1.38 ATeV Pb-Pb data taking, a dedicated run has been performed, requiring a minimum energy deposition in at least one of the two
ZNs. The trigger tagged essentially neutrons emitted in the Coulomb breakup of the excited lead nucleus. The neutrons from electromagnetic dissociation are expected to be emitted very close to beam rapidity and with an average energy close to the one of the beam. Thanks to the good ZN energy resolution, the measured energy spectra show a clean separation of the single neutron contribution from the 2n, 3n... ones. The experimental results will be presented and compared to theoretical predictions.

Presenter: DE MARCO, Nora (INFN and Univers. Torino)

Session Classification: 2D Parallel - Heavy Ion and Soft QCD

Contribution ID: **75** Type: **not specified**

Underlying event studies at CMS (15'+5')

Tuesday 7 June 2011 18:40 (20 minutes)

A measurement of the underlying activity in scattering processes with a pT scale in the several GeV region is performed in proton-proton collisions at sqrt(s) = 7 TeV, using data collected by the CMS experiment at the LHC. The production of charged particles with pseudorapidity eta < 2 and pT > 0.5 GeV/c is studied in the azimuthal region transverse to that of the leading set of charged particles forming a "track-jet". A significant growth of the average multiplicity and scalar pT sum of those particles is observed with increasing pT of the leading track-jet, followed by saturation above a few GeV/c. A hardening of the multiplicity distribution, of the scalar pT sum distribution, and of the charged particle pT spectrum is also observed. For track-jet pT larger than a few GeV/c, the activity in the transverse region is approximately doubled with a centre-of-mass energy increase from 0.9 to 7 TeV. Predictions of several QCD-inspired models as implemented in PYTHIA are compared to the data.

Presenter: BARTALINI, Paolo (NTU- Taiwan)

Session Classification: 2D Parallel - Heavy Ion and Soft QCD

Contribution ID: **76** Type: **not specified**

Transverse sphericity in minimum bias p-p collision at 0.9 and 7 Tev with ALICE (15'+5)

Tuesday 7 June 2011 19:00 (20 minutes)

A study of the linearized sphericilty in minimum bias proton-proton collisions at sqrt(s) = 0.9 and 7 TeV with the ALlCE detector at the LHC is presented.
The observable was measured in the plane perpendicular to the beam direction and using primary charged tracks in |eta|<=0.8. The average sphericity as a function of multiplicity is reported for events with different hardness ("soft" and hard") defined by a cut on the transverse momentum of the leading particle.
In addition to those studies the average transverse momentum versus multiplicity was measured for different event classes.
Data are compared with PYTHIA6 (tunes: ATLAS-CSC and PERUGIA-0), PYTHIA8 and PHOJET.
The behavior of the linearized sphericity and of the mean p_t with multiplicity indicates that the current event generators tend to "build up" multiplicity by generating more jets while on the contrary the data indicate that at high multiplicity the events tend to be more isotropic and the mean p_t smaller.

Presenter: ORTIZ VELASQUEZ, Antonio (ICN UNA Mexico)

Session Classification: 2D Parallel - Heavy Ion and Soft QCD

Contribution ID: **77** Type: **not specified**

Search for New Physics with rare decays of B and Bs mesons at LHCb (15' +5')

Thursday 9 June 2011 14:30 (20 minutes)

Rare decays of the B and Bs mesons are sensitive indirect probes of New Physics. In particular, the search for B(s) −> μ+μ−decays provides information on the presence of new (pseudo-)scalar particles, while the angular analysis of decays like B −> K*μ+μ−provides information on possible new vector-axial contributions. Furthermore radiative decays like Bs −> Φγ provide valuable information of New Physics modifying the photon polarization. LHCb is well suited for these analyses due to its large acceptance and trigger efficiency, as well as its excellent invariant mass resolution and particle identification capabilities. The status of these analyses with ˜37 pb−1 of pp collisions collected by LHCb in 2010 at √s = 7 TeV is reviewed.

Presenter: ALBRECHT, Johannes (CERN)

Session Classification: 4C Parallel - B, charm and onia

Contribution ID: **78** Type: **not specified**

Quarkonium Production at ATLAS (15' + 5')

Thursday 9 June 2011 14:50 (20 minutes)

The production of quarkonium is an important testing ground for QCD calculations. The fraction of J/\psi mesons produced from B-hadron decays was measured by the ATLAS experiment and the prompt and non-prompt differential J/\psi production cross-sections determined. The cross-section values extracted from data are compared to predictions from next-to-leading order QCD calculations. Results for heavier quarkonia will also be shown.

Presenter: REEVES, Kendall (University of Texas at Dallas)

Session Classification: 4C Parallel - B, charm and onia

Contribution ID: **79** Type: **not specified**

Signals of supersymmetry in flavour physics (20' + 5')

Thursday 9 June 2011 15:10 (25 minutes)

We discuss the characteristic signals of supersymmetric models in low energy observables that are sensitive to flavour and CP violation. We focus in particular on two of the golden channels at LHCb: the rare Bs - μ+μ− decay and CP violation in Bs mixing.
We show the distinct predictions for the above flavour observables within several supersymmetric frameworks, including the MSSM with Minimal Flavour Violation, and outline how the characteristic patterns of New Physics effects allow to distinguish the different models from each other. Finally, we also briefly outline the role and the interplay of the direct NP searches at the LHC with the indirect searches performed by low energy flavour physics observables

Presenter: ALTMANNSHOFER, Wolfgang (Fermilab)

Session Classification: 4C Parallel - B, charm and onia

Contribution ID: **80** Type: **not specified**

Mixing and CP violation in the Bs system at LHCb (15' + 5')

Thursday 9 June 2011 15:35 (20 minutes)

The determination of the CP-violating phase Φs in Bs0 -> J/ Ψ Φ decays is one of the key goals of the LHCb experiment. Its value is predicted to be very small in the Standard Model but can be significantly enhanced in many models of new physics. To perform the first LHCb analysis of Φs on 2010 data at a centre-of-mass energy of 7 TeV, many milestones needed to be achieved first, such as the measurements of the b-hadron lifetimes, the optimization and calibration of the flavour-tagging algorithms, the measurement of the polarization amplitudes in B0 -> J/Ψ K*0 decays, of the Bs mixing frequency Δms and of the CP asymmetry in B0 -> J/Ψ KS. We will present our result of the first Φs analysis and related measurements. Additionally we will show signals of several Bs decay modes that have been observed for the first time at the LHCb experiment and which can potentially be used to extract information on Φs such as Bs0 -> J/Ψ f0 or Bs0 -> K*0 anti-K*0.

Presenter: COWAN, Greig (EPFL)

Session Classification: 4C Parallel - B, charm and onia

Contribution ID: **81** Type: **not specified**

Measurements of quarkonia production and polarization with the CMS experiment (15'+ 5')

Thursday 9 June 2011 15:55 (20 minutes)

This talk presents the J/psi and psi(2S) differential cross sections and J/psi spin alignment in pp collisions at 7 TeV, as a function of transverse momentum and in several rapidity ranges, on the basis of the 2010 data collected by CMS. The B to J/psi and B to psi(2S) fractions will also be presented, and compared to other measurements as well as to theory calculations. We also report the measurement of the Y(1S), Y(2S), and Y(3S) differential cross sections as a function of transverse momentum and rapidity. Finally, a measurement of the ratio of the production cross sections for X(3872) and ψ(2S) is presented.

Presenter: WOEHRI, Hermine K. (CERN)

Session Classification: 4C Parallel - B, charm and onia

Contribution ID: **82** Type: **not specified**

CP-violation measurements and prospects with hadronic B decays at LHCb (15'+ 5')

Thursday 9 June 2011 16:15 (15 minutes)

Using data collected by the LHCb detector during the 2010 run of the LHC we reconstruct the main charmless charged two-body b-hadron decay modes, namely B0−> pi+pi−, B0 −> K+pi−, Bs0 −> K+K−, Bs0 −> pi+K−, Lamdab −> pK−and Lamdab −> ppi−, and obtain first preliminary measurements of direct CP asymmetries. We also present studies of decays of the type B −> DX, where D is a charmed meson (D0, D(*)+ or Ds+), representing the first steps on a programme towards a precision measurement of the angle gamma of the CKM Unitarity Triangle. The prospects for CP violation results with hadronic B decays in the 2011 data will be reviewed.

Presenter: EKLUND, Lars (University of Glasgow)

Session Classification: 4C Parallel - B, charm and onia

Contribution ID: **83** Type: **not specified**

Measurements of B production with the CMS experiment (15' + 5')

Thursday 9 June 2011 17:00 (20 minutes)

We present the measurements of b-quark production in inclusive channels and exclusive decays. The measurements are based on different methods, such as inclusive jet measurements with secondary vertex tagging or selecting a sample of events containing jets and at least one muon. In addition, measurements of B+, B0 and Bs meson production cross sections are presented. Finally, a study of the angular correlations between beauty and anti-beauty hadrons is presented, probing for the first time the small angular separation region.

Presenter: OTIOUGOVA, Polina (University of Zurich)

Session Classification: 4D Parallel - B, charm and onia

Contribution ID: **84** Type: **not specified**

Anomalous t-Wb couplings:interplay of t -Wb decays and B-Bbar mixing in MFV models (15' + 5')

Thursday 9 June 2011 17:20 (20 minutes)

Precise measurements of the top quark decay properties at hadron colliders offer interesting new possibilities of testing the standard model. At the same time, recent intriguing experimental results concerning CP violation in the Bd and Bs systems have stimulated many studies of physics beyond the standard model. We investigate anomalous tWdj interactions as a possible source of new effects in Bds –Bbar ds oscillations within a model independent approach based on the assumptions of Minimal Flavor Violation. After matching our effective operators onto the low-energy effective Lagrangian describing Bds meson mixing and evolving it down to the B-mass scale, we extract the preferred ranges of the anomalous tWdj interactions at the weak scale. These values are then compared to previously considered constraints coming from the rare radiative B Xs gamma decay. Finally, we reconsider the associated effects in the t - bW decays and find that the W helicity fractions FL+ can deviate by as much as 15%, 30% from their standard model values, respectively. The deviations in FL in particular, can reach the level of expected precision measurements at the LHC.

Presenter: DROBNAK, Jure (Jozef Stefan Institute)

Session Classification: 4D Parallel - B, charm and onia

Contribution ID: **85** Type: **not specified**

CP-violation studies with charm decays at LHCb (15' + 5')

Thursday 9 June 2011 17:40 (20 minutes)

LHCb has reconstructed large samples of open charm events using 37 pb–1 of LHCb data collected in 2010. CP violation in charm is an excellent probe for New Physics due to the smallness of the Standard Model predictions. The analyses of D0 decays into two-body final states are presented, including time-dependent measurements of CP violation and mixing via the parameters AΓ and yCP and the measurement of the time-integrated CP asymmetry difference ΔACP = ACP(KK)–ACP(ππ). AΓ and ΔACP provide clean access to CP violation in box and penguin diagrams, respectively. Furthermore a model-independent search of CP violation in the Dalitz plot of D+ ⟶ K–K+π–is presented, using Ds+ ⟶ K–K+π–and D+ ⟶ K–π+π–as control channels. Prospects are given for improving the sensitivity of these measurements in the 2011–2012 run.

Presenter: GLIGOROV, Vladimir (CERN)

Session Classification: 4D Parallel - B, charm and onia

Contribution ID: **86** Type: **not specified**

J/psi measurements in p-p and Pb-Pb collisions at LHC with ALICE (15' + 5')

Thursday 9 June 2011 18:00 (20 minutes)

In heavy ion collisions at the LHC, the ALICE experiment is studying nuclear matter at very high energy density where the formation of a Quark Gluon Plasma (QGP) is expected. J/ψ production is an important probe to characterize the properties of the QGP as it gives access to the early stages of the collision. However a fundamental understanding of the J/ψ production mechanism in p-p collisions is important to study the nuclear matter effects on J/ψ production in Pb-Pb collisions. In 2010 and 2011, the LHC provided p-p collisions at √s = 7 and 2.76 TeV and Pb Pb collisions at √s = 2.76 TeV per nucleon pair. We will report on the latest measurements of J/ψ production at mid-rapidity (in the dielectron channel) and at forward rapidity (in the dimuon channel).

Presenter: HADJIDAKIS, Cynthia (INP and University Paris-sud)

Session Classification: 4D Parallel - B, charm and onia

Contribution ID: **88** Type: **not specified**

Open Bottom & Charm Production at ATLAS (15' + 5')

Thursday 9 June 2011 18:20 (20 minutes)

The production cross sections of the D+-, *D+- and Ds+- charm mesons have been measured with the ATLAS detector in pp collisions at sqrt{s}=7 TeV. The differential cross sections as a function of transverse momentum and pseudorapidity as well as the total cross sections are measured for* D+- and D+- production. Further production measurements of B and D hadrons will be presented.

Presenter: WATSON, Miriam (University of Birmingham, UK)

Session Classification: 4D Parallel - B, charm and onia

Contribution ID: **89** Type: **not specified**

Measurements of open heavy flavour production in p-p and Pb-Pb collisions with Alice (15' + 5')

Thursday 9 June 2011 18:40 (20 minutes)

The main goal of the ALICE experiment is the investigation of the properties of strongly-interacting matter in a very high density deconned state, that should be formed in Pb-Pb collisions.
The measurement of the heavy avour production cross section in p-p collisions at the LHC will allow to test perturbative QCD calculations in a new energy regime. The p-p collisions data are also important as a reference for the study of dense matter eects in Pb-Pb collisions, where heavy quarks are expected to be sensitive probes for the QCD medium properties, as they are formed at shorter time scale than the medium itself. The nuclear modication factor (RAA), obtained by comparing p-p and Pb-Pb pT -dierential distributions, allows to measure the eect of in-medium energy loss. The status of open heavy avour measurements in p-p collisions at 7 TeV and Pb-Pb collisions at 2.76 TeV with the ALICE experiment will be presented. The results of the single lepton analyses (electrons at central rapidity, muons at forward rapidities) and D mesons reconstruction in their hadronic decays will be discussed.

Presenter: CAFFARRI, Davide (INFN and University of Padova)

Session Classification: 4D Parallel - B, charm and onia

Contribution ID: **90** Type: **not specified**

Multijets and the internal structure of jets measurements at ATLAS (15'+5')

Tuesday 7 June 2011 17:15 (20 minutes)

Studies of the internal structure of jets, and of events with high jet
multiplicities, provide a stringent test of QCD. These important standard model process may also hide, or reveal, new physics. We present measurements of multijet cross sections and distributions, of the subjet
structure in high-pT jets, and of the distribution of charged particle
inside jets.

Presenter: DEMIRKOZ, Bilge (IFAE, Barcelona)

Session Classification: 2F Parallel - Hard QCD and Diffractive

Contribution ID: **91** Type: **not specified**

Measurements of forward energy flow and forward jet production with CMS (15'+5')

Tuesday 7 June 2011 17:35 (20 minutes)

We present measurements of the forward (3 < |eta| < 5) energy flow in minimum bias events and in events with either hard jets or W and Z bosons produced at central rapidities, as well as measurements of the inclusive forward jet cross section and of associated production of forward and central jets. Results are compared to MC models with different parameter tunes for the description of the underlying event and to perturbative QCD calculations, the PYTHIA and HERWIG parton shower event generators, as well as to the CASCADE Monte Carlo

Presenter: FLOSSDORF, Alexander (DESY)

Session Classification: 2F Parallel - Hard QCD and Diffractive

Contribution ID: **92** Type: **not specified**

Higher-order effects in QCD and EW cross sections at the LHC (20'+5')

Tuesday 7 June 2011 17:55 (25 minutes)

Presenter: BOUGHEZAL, Radja (Argonne NL)

Session Classification: 2F Parallel - Hard QCD and Diffractive

Contribution ID: **93** Type: **not specified**

Diffraction and the Inelastic Cross Section measurements with ATLAS (15'+5')

Tuesday 7 June 2011 18:20 (20 minutes)

A measurement of the inelastic cross section for proton-proton collisions at 7 TeV centre-of-mass energy is present. In addition the separate contributions of single- and double-diffractive dissociation are measured, and the differential cross section as a function of rapidity gap is presented.

Presenter: KEPKA, Oldrich (IP Prague)

Session Classification: 2F Parallel - Hard QCD and Diffractive

Contribution ID: **94** Type: **not specified**

Exclusive measurements (di-leptons and vector mesons) at CMS (15'+5')

Tuesday 7 June 2011 18:40 (20 minutes)

A measurement of exclusive production of muons pairs in pp collisions at \sqrt{s} = 7 TeV is presented. Events are selected requiring the observation of two muons and no other activity in the CMS detector. Single differential cross sections are obtained as function of the dimuon transverse momentum, invariant mass and acoplanarity for dimuon pairs with an invariant mass above 11 GeV. Data are compared to predictions of the LPAIR Monte Carlo model for elastic, single and double proton-dissociative $\gamma\gamma -> \mu\mu$ production.

Presenter: PIOTRZKOWSKI, Krzysztof (Universite Catholique de Louvain)

Session Classification: 2F Parallel - Hard QCD and Diffractive

Contribution ID: **95** Type: **not specified**

Exclusive dimuon measurements with LHCb (15'+5')

Tuesday 7 June 2011 19:00 (20 minutes)

We report on studies of exclusive dimuon production, using LHCb experimental data. Muon pairs can be exclusively produced by two-photon fusion (a QED process ideally suited to obtaining a precise integrated luminosity measure), or by resonance production. We show results for exclusive dimuon production, and first observations of the exclusive J/Psi, Psi(2S) and Chi_c states, obtained with 37 pb−1 of data at ,-sqrt(s) .= 7 TeV. We compare our cross-section mesasurements to predictions.

Presenter: NIESS, Valentin (LPC-Inst. Nat. Phys. Nucl. et P.)

Session Classification: 2F Parallel - Hard QCD and Diffractive

Contribution ID: **96** Type: **not specified**

Jet production in association with vector bosons at ATLAS (15' + 5')

Thursday 9 June 2011 14:30 (20 minutes)

We present detailed measurements of W or Z plus jet production, including multiplicities, jet transverse momentum and other differential cross sections. The cross sections for W+b-jets and Z+b-jets are also presented. The measurements are compared to NLO QCD predictions.

Presenter: FIASCARIS, Maria (University of Chicago)

Session Classification: 4E Parallel - EWK and QCD

Contribution ID: **97** Type: **not specified**

W,Z + jets production with CMS detector (15' + 5')

Thursday 9 June 2011 14:50 (20 minutes)

We present a study of jet production in association with W and Z bosons in pp collisions at a centre-of-mass energy of 7 TeV using 36 inverse-picobarns of data collected in the CMS experiment. The production of vector bosons with jets provides a stringent and important test of perturbative QCD calculations, and is an important background in searches for new physics and for studies of the top quark. We report the normalized jet multiplicity distributions as well as the ratios σ(V + (≥ n + 1)jets)/σ (V + (≥ n) jets) with a jet threshold of 30 GeV. We also present a measurement of the polarization of W bosons produced with large transverse momentum, establishing that W bosons produced in association with at least one hard jet are predominantly left-handed, as predicted by the Standard Model. Finally we report the observation of the production of the Z boson in association with at least one b-quark jet and a measurement of the fraction of b-jets over light-quark-jets in Z events.

Presenter: REECE, William Robert (CERN)

Session Classification: 4E Parallel - EWK and QCD

Contribution ID: **98** Type: **not specified**

Role of gluons in soft and semi'hard hadron production in pp collisions at LHC (15' + 5')

Thursday 9 June 2011 15:10 (20 minutes)

Hadron inclusive spectra in pp collisions are analyzed within the soft QCD (SQCD), the quark-gluon string model, and the perturbative QCD (PQCD). It is shown that the SQCD results in the satisfactory description of the experimental data on the inclusive spectra of light hadrons like pions and kaons at transverse momenta Pt not larger than 1-2 GeV/c. We discuss some difficulties to apply the SQCD model at energies above the ISR and suggest to include the distribution of gluons in the proton unintegrated over the internal transverse momentum. It leads to an increase in the inclusive spectra of hadrons and allows us to extend the satisfactory description of the data in the central rapidity region at LHC energies. The comparison of our results with data at low Pt allows us to find the information on the unintegrated gluon distribution in proton.

Presenter: LYKASOV, Gennady (Joint Inst. for Nuclear Research (JINR))

Session Classification: 4E Parallel - EWK and QCD

Contribution ID: **99** Type: **not specified**

QCD studies with photons in CMS (15' + 5')

Thursday 9 June 2011 15:30 (20 minutes)

We present QCD measurements with photons using data from pp collisions at sqrt(s)= 7 TeV, recorded with the CMS detector at the CERN LHC. The differential cross section for the inclusive production of isolated prompt photons as a function of the photon transverse energy and the inclusive di-photon production rate as a function of the di-photon invariant mass are compared to next-to-leading-order perturbative QCD calculations. Also, the photon+jet ratio of cross sections is presented, compared to Monte-Carlo generator predictions.

Presenter: GRAS, Philippe (CEA Saclay)

Session Classification: 4E Parallel - EWK and QCD

Contribution ID: **100** Type: **not specified**

Jet production measurement with the ATLAS detector (15' + 5')

Thursday 9 June 2011 15:50 (20 minutes)

Jet production is the hard QCD process with the widest kinematic reach and largest cross section at the LHC. Jets at large rapidity intervals, and jets which are not back-to-back, can also probe novel QCD evolution and radiation patterns. Comprehensive measurements of inclusive and dijet production are presented, as well as the production cross sections for jets containing beauty and charmed hadrons. The measurements are compared to state of-the art NLO QCD calculations, and the sensitivity to the parton distributions in the proton is also investigated.

Presenter: MUELLER, Felix (University of Heidelberg)

Session Classification: 4E Parallel - EWK and QCD

Contribution ID: **101** Type: **not specified**

Measurements of WW, Wγ and Zγ production cross sections at CMS (15' + 5')

Thursday 9 June 2011 16:10 (20 minutes)

We present production cross-section measurements of diboson final states, WW, Wγ and Zγ, based on 36 inverse-picobarns of proton proton collisions data at √s = 7 TeV recorded at the LHC by the CMS detector. The electron and muon decay channels of the W and Z are used. For the W mode, we consider ee, e-mu and mu-mu final states. For the Wγ and Zγ modes, we measure the cross sections for the photon transverse energy ET(γ)>10 GeV and spatial separation from charged leptons ΔR(l,γ)>0.7. Our measurements are in agreement with standard model predictions. We also set the limits on anomalous WWγ, WWZ, ZZγ, and Zγγ trilinear gauge couplings at √s = 7 TeV.

Presenter: LANARO, Armando (University of Wisconsin Madison)

Session Classification: 4E Parallel - EWK and QCD

Contribution ID: **102** Type: **not specified**

Production of the Higgs boson and other electroweak objects at the LHC (25'+5')

Wednesday 8 June 2011 09:00 (30 minutes)

Presenter: PETRIELLO, Frank (Northwestern Univers. and ANL)

Session Classification: 3A - Electroweak and hard QCD

Contribution ID: **103** Type: **not specified**

EWK/hard QCD results from Tevatron (25'+5')

Wednesday 8 June 2011 09:30 (30 minutes)

Presenter: ZHU, Junjie (University of Michigan)

Session Classification: 3A - Electroweak and hard QCD

Contribution ID: **104** Type: **not specified**

EWK results from CMS (20'+5')

Wednesday 8 June 2011 10:00 (25 minutes)

We present the results of electroweak studies performed using data collected in 2010 at a center-of-mass energy of 7 TeV by the CMS experiment at the LHC. Besides their intrinsic interest as unique samples to calibrate and understand the CMS detector response to leptons, jets and missing energy, events containing W and Z bosons appear as dominant components in many Higgs seaches and in most of the searches beyond the Standard Model, either as signal or as background. In addition, the excellent level of theoretical and experimental understanding of these processes allows electroweak tests at the LHC at an unprecendented level of precision. CMS uses a wide range of final states to measure cross sections, asymmetries, polarizations and differential distributions in general. The integrated luminosity in 2010 was already sufficient to perform not just inclusive measurements using W and Z decays into electrons and muons, but also precise studies of associated jet production and final states containing taus, as well as first measurements of diboson cross sections and associated b-jet production.

Presenter: LISTA, Luca (INFN and Univers. Napoli)

Session Classification: 3A - Electroweak and hard QCD

Contribution ID: **105** Type: **not specified**

Recent EWK results from ATLAS (20'+5')

Wednesday 8 June 2011 10:25 (25 minutes)

The talk will summarize recent results in W/Z production for the full 2010 data sample. These results include the inclusive W/Z cross-sections, the W asymmetry, the PT(Z) distribution, and studies of W+jets and Z+jets production. Many comparisons with state of the art calculations are included. First results on di-boson production will also be presented, including WW, WZ, and W/Z+gamma results, with a first glimpse at the new 2011 data. Comparisons are made to SM expectations.

Presenter: SCHOTT, Matthias (CERN)

Session Classification: 3A - Electroweak and hard QCD

Contribution ID: **106** Type: **not specified**

Top quark pair production cross section measurements in the single- lepton and di-lepton channels with ATLAS (15' + 5')

Thursday 9 June 2011 17:00 (20 minutes)

We present a measurement of the top-quark pair-production in proton-proton collisions at = 7 TeV with the ATLAS detector at the Large Hadron Collider using the full 2010 data sample. The cross sections are measured in the lepton+jets and dilepton channels both with and without the use of b-tagging

Presenter: ROE, Adam (Goettingen University)

Session Classification: 4F Parallel - top

Contribution ID: **107** Type: **not specified**

Top quark cross section measurements with CMS (15' + 5')

Thursday 9 June 2011 17:20 (20 minutes)

We present precise measurements of the top quark pair production cross section at 7 TeV, performed using CMS data collected in 2010-2011. The total cross section is measured in the lepton+jets, dilepton and fully hadronic channels, including the tau-dilepton and tau+jets modes. The results are combined and confronted with precise theory calculations. We also obtain an indirect constraint on the top quark mass through its relation to the cross section. Various differential cross sections are measured as well and compared with theoretical models. Measurements of the top pair invariant mass distribution are used to search for new particles decaying to top pairs. Further results include measurements of the top pair charge asymmetry.

Presenter: SUMOWIDAGDO, Haryo (University of California, Riverside)

Session Classification: 4F Parallel - top

Contribution ID: **108** Type: **not specified**

The third generation quark sector in warped models LHC predictions from LEP/Tevatron anomalies (15' + 5')

Thursday 9 June 2011 17:40 (20 minutes)

Since a decade, there have been extensive developments about an alternative to super- symmetry: the scenarios with warped extra dimensions. Those constitute a new paradigm in the sense that they are dual, through the AdS/CFT correspondence, to composite Higgs models. These scenarios predict strong deviations from the Standard Model mainly in the bottom and top quark sector. In that sense, the LEP anomaly on Forward-Backward bottom asymmetry (Ab FB) and the recent Tevatron anomalies on the top asymmetry At FB could be interpreted as early signatures of the warped models. We will discuss warped model real- izations allowing to explain both Ab FB and At FB, taking into account the constraints issued from dijet production rates at LHC. The other constraints from the measurements of top pair production cross section _ttbar at LHC will be studied. Then, I will describe what are the predictions of these warped models at LHC, pointing out the complementarity between Tevatron and LHC on top physics (I will also mention the possibilities for measuring top asymmetries at LHC). There are typically two types of predicted signatures at LHC: a resonance peak in the t tbar invariant mass distribution (due to the exchange of a Kaluza-Klein excitation of the gluon) or the production of exotic colored fermions around a few hundred's of GeV. The results presented here are based on our works in Ref. [1], Ref. [2] and Ref. [3].
[1] A. Djouadi, G. Moreau and F. Richard, Nucl. Phys. B773 (2007) 43, hep-ph/0610173.
[2] A. Djouadi, G. Moreau, F. Richard and R. K. Singh, Phys. Rev. D82 (2010) 071702, arXiv:0906.0604 [hep-ph].
[3] A. Djouadi, G. Moreau and F. Richard, arXiv:1105.3158 [hep-ph].

Presenter: MOREAU, Gregory (LPT Orsay)

Session Classification: 4F Parallel - top

Contribution ID: **109** Type: **not specified**

Searches for Single Top-Quark Production with the ATLAS Detector in pp Collisions at sqrt(s) = 7 TeV (15' + 5')

Thursday 9 June 2011 18:00 (20 minutes)

We present the result of searches for single top-quark production in the t- and Wt-channels in 7 TeV proton-proton collisions with the ATLAS detector using the full 2010 data sample. The t-channel search is based on the selection of events with a single lepton (muon or electron), jets and missing transverse energy. A likelihood function approach is also used to cross-check the result. Results are consistent with the Standard Model expectation. The Wt-channel analysis isbased on the selection of events with one or two leptons, jets and missing transverse energy. A 95% confidence level limit is set on the Wt-channel production cross section of sigma(Wt).

Presenter: SCHWIENHORST, Reinhard (Michigan State University)

Session Classification: 4F Parallel - top

Contribution ID: **111** Type: **not specified**

Single top quark production with CMS (15' + 5')

Thursday 9 June 2011 18:20 (20 minutes)

We present measurements of single top quark production, performed using CMS data collected in 2010-2011 at a centre-of-mass energy of 7 TeV. The cross section for the electroweak production of single top quarks is measured in the t-channel using various methods. The combined result is used to place a constraint on the CKM matrix element Vtb. The data sample analyzed allows to study also differential distributions. For the first time, we measure single top production in the tW channel.

Presenter: SENGHI SOARES, Mara (CIEMAT Madrid)

Session Classification: 4F Parallel - top

Contribution ID: **112** Type: **not specified**

Top quark property measurements at ATLAS (15' + 5')

Thursday 9 June 2011 18:40 (20 minutes)

We present result on the direct measurement of the top quark mass in the lepton+jets channel, and an ndirect measurement of the top quark mass from the top quark pair production cross section. We also present a measurement of the W boson polarisation in top quark decays and set limits on anomalous contributions to the Wtb vertex. All data were collected from proton-proton collisions at sqrt(s)=7 TeV, recorded with the ATLAS detector during 2010.

Presenter: DAO, Valerio (University of Geneve)

Session Classification: 4F Parallel - top

Contribution ID: **113** Type: **not specified**

Top quark mass and other properties measurements with CMS (15' + 5')

Thursday 9 June 2011 19:00 (20 minutes)

We present measurements of the top quark mass and other properties, obtained from CMS data collected in 2010-2011 at a centre-of-mass energy of 7 TeV. The mass of the top quark is measured using several methods. We use the lepton+jets, as well as the dilepton and the fully hadronic decay channels. The results are combined. Top pair production cross section measurements are used to place an indirect constraint on the top quark mass through the predicted dependence of the cross section on the mass. Further results include measurements of the W helicity in top decays and search for anomalous couplings.

Presenter: SPEER, Thomas (Brown University)

Session Classification: 4F Parallel - top

Contribution ID: **114** Type: **not specified**

Hard QCD: theoretical aspects (25'+5')

Wednesday 8 June 2011 11:20 (30 minutes)

Presenter: ZANDERIGHI, Giulia (University of Oxford)

Session Classification: 3B - Electroweak and hard QCD

Contribution ID: **115** Type: **not specified**

Hard QCD results from CMS (25'+5')

Wednesday 8 June 2011 11:50 (30 minutes)

CMS is pursuing a rich program of hard QCD physics. Jet and photon cross section measurements are reported on inclusive and di-object production, as well as ratios of 3/2 jet and photon+jet cross sections. The QCD multi-jet dynamics is studied with event-shape variables, dijet azimuthal decorrelation and dijet angular distributions. Inclusive forward jet production and associated production of forward and central jets have been measured as function of jet transverse momentum. The experimental results are compared to the pQCD calculations as well as various Monte Carlo generators.

Presenter: KOUSOURIS, Konstantinos (Fermilab)

Session Classification: 3B - Electroweak and hard QCD

Contribution ID: **116** Type: **not specified**

Recent Hard QCD results from ATLAS (25'+5')

Wednesday 8 June 2011 12:20 (30 minutes)

The LHC provides a new regime to probe perturbative QCD and for which MC generators need to be tested to pave the way for BSM searches. The results of several studies performed in ATLAS using the full 2010 data sample are presented: inclusive jets and dijets cross sections,azimuthal decorrelations, multijets, dijets with jet veto, jet sub-structure, b-jet and prompt-photon production. In addition, some of these observables will become sensitive to alpha_s, can constrain PDFs or reveal new physics.

Presenter: PLAMONDON, Mathieu (University of Victoria)

Session Classification: 3B - Electroweak and hard QCD

Contribution ID: **117** Type: **not specified**

Farewell

Saturday 11 June 2011 12:40 (5 minutes)

Presenter: MITSELMAKHER, Guenakh (University of Florida)

Session Classification: 6B - Looking ahead and closing

Contribution ID: **118** Type: **not specified**

Opening of the Poster Session

Tuesday 7 June 2011 16:15 (1 hour)

Contribution ID: **119** Type: **not specified**

Experimental Summary and outlook (40’ + 5’)

Saturday 11 June 2011 11:00 (45 minutes)

Presenter: VIRDEE, Jim (Imperial College)

Session Classification: 6B - Looking ahead and closing

Contribution ID: **120** Type: **not specified**

Study of the dijet invariant mass distribution in ppbar->W + jj final states at D0 (15'+5')

Saturday 11 June 2011 09:00 (20 minutes)

Presenter: GARCIA-BELLIDO, Aran (University of Rochester)

Session Classification: 6A - Looking ahead and closing