LHC students poster session

Report of Contributions

https://indico.cern.ch/e/369822

Contribution ID: **0** Type: **not specified**

Measurement of the semileptonic CP asymmetry in B0−\bar{B0} mixing with LHCb

Wednesday, 4 March 2015 17:03 (1 minute)

The semileptonic CP asymmetry in B0−B□□□0 mixing, adsl, is measured in proton-proton collision data, corresponding to an integrated luminosity of 3.0 fb−1, recorded by the LHCb experiment. Semileptonic B0 decays are reconstructed in the inclusive final states D−μ+ and D∗−μ+, where the D− meson decays into the K+π−π− final state, and the D∗− meson into the D□□□0(→K+π−)π− final state. The asymmetry between the numbers of D(∗)−μ+ and D(∗)+μ− decays is measured as a function of the decay time of the B0 mesons. The CP asymmetry is measured to be adsl=(−0.02±0.19±0.30)%, where the first uncertainty is statistical and the second systematic. This is the most precise measurement of adsl to date and is consistent with the prediction from the Standard Model.

Session Classification: Physics of heavy flavours

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

$\mathcal{CP}$ violating phase ϕ_s and penguin pollution in $B_s^0 \to J/\psi K^+K^-$ with LHCb

Wednesday, 4 March 2015 17:04 (1 minute)

CP violating phase φs appears in b ⟶ anti(c)cs transitions due to the interference between the direct decay and the decay after the Bs^0-anti(Bs^0) mixing. In SM, φs = -2βs + δP, where -2βs is related to CKM matrix elements and δP is the penguin phase where contributions due to penguin diagrams are taken into account, being this δP phase also the main source of theoretical uncertainty in φs. This φs phase is very sensitive to possible NP (new particles contributing to box diagrams during the mixing, several possible BSM scenarios are presented), so δP should be estimated in order to disentangle these penguin pollution contributions from possible NP contributions, φs(LHCb) = -2βs + δP + δNP. The decay Bs^0 ⟶ J/ψ K^+K^- is a golden decay for φs measurement: latest LHCb combined result also including Bs^0 ⟶ J/ψ $\pi^+\pi^-$ measurements is φs = -0.010 ± 0.039 rad, which is in excellent agreement with SM. The penguin pollution phase δP can be estimated using B^0 ⟶ J/ψ ρ^0 and Bs^0 ⟶ J/ψ anti(K^0) *decay channels separately: measurement in* B^o ⟶ *J/ψ* ρ^o *decay is |δP| < 0.02 rad at 95% CL. Measurement in* Bs^o ⟶ *J/ψ anti(*K^0) decay channel is still ongoing.

Presenter: VAZQUEZ SIERRA, Carlos (Universidade de Santiago de Compostela (ES))

Session Classification: Physics of heavy flavours

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

Production asymmetries of neutral B mesons in pp collisions at LHCb

Wednesday, 4 March 2015 17:08 (1 minute)

The B0bar-B0 and Bsbar-Bs production asymmetries, AP(B0) and AP(Bs), are measured by means of a time-dependent analysis of B0 -> J/\psi K*0, B0 -> D- pi+ and Bs -> Ds- pi+ decays, using a data sample corresponding to an integrated luminosity of 1.0 fbˆ{-1}, collected by LHCb in pp collisions at a centre-of-mass energy of 7 TeV. The measurements are performed as a function of transverse momentum and pseudorapidity of the B0 and Bs mesons within the LHCb acceptance. The production asymmetries, integrated over pT and eta in the range 4 < pT< 30 GeV/c and 2.5<eta<4.5, are determined to be AP(B0) = (-0.35 +/- 0.76 +/- 0.28)% and AP(Bs) = (1.09 +/- 2.61 +/- 0.66)%, where the first uncertainties are statistical and the second systematic.

Presenter: FERRARI, Fabio (University of Bologna and INFN (IT))

Session Classification: Physics of heavy flavours

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

LHCb's Real-Time Alignment in Run 2

Wednesday, 4 March 2015 17:23 (20 minutes)

Presenter: BATOZSKAYA, Varvara (National Centre for Nuclear Research (PL))

Session Classification: Physics performance etc

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

Searches for Exotics with LHCb

Wednesday, 4 March 2015 17:06 (20 minutes)

A search is presented for long-lived particles with a mass between 25 and 50 GeV/cˆ2 and a lifetime between 1 and 200ps in a sample of proton-proton collisions at a centre-of-mass energy of \sqrt{s} = 7TeV, corresponding to an integrated luminosity of 0.62fbˆ{-1}, collected by the LHCb detector. The particles are assumed to be pair-produced by the decay of a Standard Model-like Higgs boson. The experimental signature of the long-lived particle is a displaced vertex with two associated jets. No excess above the background is observed and limits are set on the production cross-section as a function of the long-lived particle mass and lifetime.

Presenter: MUSTER, Bastien Luca (Ecole Polytechnique Federale de Lausanne (CH))

Session Classification: BSM searches

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

Measurement of the Differential Z+Jet Production Cross Section in pp Collisions at √s = 8 TeV with the CMS Experiment

Wednesday, 4 March 2015 17:00 (1 minute)

Differential Z + jet cross section measurements with respect to the number of jets and various jet kinematic variables are presented where the Z bosons are reconstructed from opposite sign electron and muon pairs. The analysis is based on data of proton proton collisions with the centre of mass energy of 8 TeV collected in 2012 by the CMS experiment at LHC corresponding to 19.8 fbˆ-1 of integrated luminosity. Obtained results are compared with different Monte-Carlo generators and are shown to be consistent with the Standard Model predictions.

Presenter: BILIN, Bugra (Middle East Technical University (TR))

Session Classification: Jets and QCD studies

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

Simulation studies on precise timing information during High Luminosity LHC at the CMS experiment.

Wednesday, 4 March 2015 17:08 (1 minute)

We present prospects for the usage of precise timing information during the high luminosity phase of the LHC, where the instantaneous luminosity is estimated to be greater than 10ˆ34 cm-2s-1, resulting in about 140 simultaneous proton-proton (pileup) collisions that occur every 25 nsec. It is shown that time information could be exploited for the association of photons to their collision vertex, and for pileup mitigation through the verification of time compatibility among energy deposits. Details on the simulation of the time response of calorimeter cells, and on the assumed resolution are given. The gain in reconstruction performance is illustrated for a few show-cases, including cleaning of detector level-observables, jet reconstruction and identification, and vertex reconstruction from time information in H->gg decays.

Presenter: Mr PERNIE, Luca (Universite Libre de Bruxelles (BE))

Session Classification: Detector upgrades and R&D

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

Measurement of the top-quark pair+photon production cross section in pp Collisions at sqrt(s) = 8 TeV with the CMS Detector

Wednesday, 4 March 2015 17:05 (1h 55m)

The production cross section of top-quark pairs associated with a photon (ttbar+gamma) is determined in the muon+jets decay channel using 19.7 fb-1 of data taken at sqrt(s) = 8 TeV with the CMS detector. The relative fraction of ttbar+gamma events normalized to inclusive ttbar production is measured. Using an inclusive CMS cross section measurement, the ttbar+gamma cross section is determined and found to agree with the Standard Model expectation.

Presenter: ARNDT, Till Michael (Deutsches Elektronen-Synchrotron (DE))

Session Classification: Top quark physics

Contribution ID: **8** Type: **not specified**

Angular analysis of the $B^0 \to K^{*0}e^+e^-$ decay in the low-q^2 region at LHCb

Wednesday, 4 March 2015 17:09 (1 minute)

An angular analysis of the $B^0 \to K^{*0}e^+e^-$ decay is performed using a data sample, corresponding to an integrated luminosity of 3.0 fb^{-1}, collected by the LHCb experiment in pp collisions at centre-of-mass energies of 7 and 8 TeV during 2011 and 2012.
For the first time several observables are measured in the dielectron mass squared (q^2) interval between 0.002 and 1.120 GeV$^2/c^4$. The
angular observables $F_{\rm L}$ and $A_{\rm T}^{\rm Re}$ which are related to the \Kstarz polarisation and to the lepton forward-backward asymmetry, are measured to be $F_{\rm L} = 0.16 \pm 0.06 \pm 0.03$ and $A_{\rm T}^{\rm Re} = 0.10 \pm 0.18 \pm 0.05$, where the first uncertainty is statistical and the second systematic. The angular observables $A_{\rm T}^{(2)}$ and $A_{\rm T}^{\rm Im}$ which are sensitive to the photon polarisation in this q^2 range, are found to be $A_{\rm T}^{(2)} = -0.23 \pm 0.23 \pm 0.05$ and $A_{\rm T}^{\rm Im} = 0.14 \pm 0.22 \pm 0.05$. The results are consistent with Standard Model predictions.

Presenter: BORSATO, Martino (Laboratoire de l'Accelerateur Lineaire (FR))

Session Classification: Physics of heavy flavours

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

CKM angle γ from LHCb

Wednesday, 4 March 2015 17:10 (1 minute)

Results of the latest γ combination from LHCb are presented, along with the six LHCb measurements used as inputs. In addition, the anticipated precision attainable for measuring γ after the LHCb Upgrade is outlined.

Presenter: SMITH, Jackson William (University of Cambridge (GB))

Session Classification: Physics of heavy flavours

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

Search for resonances and quantum black holes using dijet mass spectra in proton-proton collisions at √ s = 8 TeV with the CMS experiment

Wednesday, 4 March 2015 17:26 (1 minute)

A search for resonances and quantum black holes is performed using the dijet mass spectra measured in proton-proton collisions at √s = 8 TeV with the CMS detector at the LHC. The data set corresponds to an integrated luminosity of 19.7 fb−1. In a search for narrow resonances that couple to quark-quark, quark-gluon, or gluon-gluon pairs, model independent upper limits, at 95% confidence level, are obtained on the production cross section of resonances, with masses above 1.2 TeV. When interpreted in the context of specific models the limits exclude: string resonances with masses below 5.0 TeV; excited quarks below 3.5 TeV; scalar diquarks below 4.7 TeV; W0 bosons below 1.9 TeV or between 2.0 and 2.2 TeV; Z0 bosons below 1.7 TeV; and Randall-Sundrum gravitons below 1.6 TeV. A separate search is conducted for narrow resonances that decay to final states including b quarks. The first exclusion limit is set for excited b quarks, with a lower mass limit between 1.2 and 1.6 TeV depending on their decay properties. Searches are also carried out for wide resonances, assuming for the first time width-to-mass ratios up to 30%, and for quantum black holes with a range of model parameters. The wide resonance search excludes axigluons and colorons with mass below 3.6 TeV, and color-octet scalars with mass below 2.5 TeV. Lower bounds between 5.0 and 6.3 TeV are set on the masses of quantum black holes.

Presenter: GURPINAR, Emine (Cukurova University (TR))

Session Classification: BSM searches

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

Measurement of Distributions of Event Level Variable in Top Pair Events at 7 and 8 TeV with CMS

Wednesday, 4 March 2015 19:00 (1 minute)

A differential cross section measurement of the top quark pair production with respect to the global variables missing transverse energy (ETmiss), jet transverse momentum sum (HT), total observed transverse momentum sum (ST), W-boson transverse mass (MTW) and W-boson transverse momentum (pTW) is presented here using approximately 5.0fb-1 of data from CMS at √s=7TeV and 19.7fb-1 of data at √s=8TeV. The semi-leptonic channel is investigated, where the leptonically decaying W-boson decays to a muon or an electron.

Presenter: JACOB, Jeson Abe (University of Bristol (GB))

Session Classification: Top quark physics

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

Measurement of the cross section ratio sigma(t t-bar b b-bar) / sigma(t t-bar jj) in pp collisions at sqrt(s) = 8 TeV with the CMS Detector

Wednesday, 4 March 2015 19:01 (1 minute)

The first measurement of the cross section ratio sigma(t t-bar b b-bar) / sigma(t t-bar jj) is presented using a data sample corresponding to an integrated luminosity of 19.6 inverse femtobarns collected in pp collisions at sqrt(s) = 8 TeV with the CMS detector at the LHC. Events with two leptons (e or mu) and four reconstructed jets, including two identified as b quark jets, in the final state are selected. The ratio is determined for a minimum jet transverse momentum pt of both 20 and 40 GeV. The measured ratio is 0.022 +/- 0.003 (stat) +/- 0.005 (syst) for pt > 20 GeV. The absolute cross sections sigma(t t-bar b b-bar) and sigma(t t-bar jj) are also measured. The measured ratio for pt > 40 GeV is compatible with a theoretical quantum chromodynamics calculation at next-to-leading order.

Presenter: BROCHERO CIFUENTES, Javier (Chonbuk National University (KR))

Session Classification: Top quark physics

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

Search for Dark Matter with CMS

Wednesday, 4 March 2015 17:27 (1 minute)

Search for dark matter in the mono-X channels (mono-lepton, mono-jet, mono-photon) with the full 2012 dataset. Exclusion limits have been set using both, vector- and axial-vector couplings. Interpretations have been performed in the EFT approach (where the mediator is not modelled) as well as scanning mediator parameters. The poster should summarize these three channels and show the complete LHC picture of such searches.

Presenter: PADEKEN, Klaas Ole (Rheinisch-Westfaelische Tech. Hoch. (DE))

Session Classification: BSM searches

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

Searches for $H \to \gamma\gamma$ and $H \to b\bar{b}$ produced in association with single top quarks with the CMS detector

Wednesday, 4 March 2015 17:05 (1 minute)

The poster presents searches for the production of Higgs bosons in association with single top quarks, performed by the CMS experiment. Two decay channels of the Higgs boson are considered: diphoton and bb. Full 8 TeV dataset of 19.7/fb is utilised. The searches are focused on the case of an anomalous top-quark Yukawa coupling y_t = -1. They deliver upper limits of 4.1 and 7.6 times the expected cross section for the diphoton and bb channels respectively.

Presenter: POPOV, Andrey (Universite Catholique de Louvain (UCL) (BE))

Session Classification: Higgs studies

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

Study of vector boson scattering and search for new physics in events with two same-sign leptons and two jets with CMS

Wednesday, 4 March 2015 17:01 (1 minute)

Presenter: LEVIN, Andrew Michael (Massachusetts Inst. of Technology (US))

Session Classification: EW gauge bosons

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

B-tagging at High Level Trigger for the Run II in the CMS experiment

Wednesday, 4 March 2015 17:15 (1 minute)

Presenter: COUBEZ, Xavier (Institut Pluridisciplinaire Hubert Curien PHC (FR))

Session Classification: Physics performance etc

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

Topological Trigger Developments at LHCb

Wednesday, 4 March 2015 17:45 (20 minutes)

The main b-physics trigger algorithm used by the LHCb experiment is the so-called topological trigger. The topological trigger selects vertices which are a) detached from the primary proton-proton collision and b) compatible with coming from the decay of a b-hadron. In the LHC Run 1, this trigger utilized a custom boosted decision tree algorithm, selected an almost 100% pure sample of b-hadrons with a typical efficiency of 60-70%, and its output was used in about 60% of LHCb papers. This talk presents studies carried out to optimize the topological trigger for LHC Run 2. In particular, we have carried out a detailed comparison of various machine learning classifier algorithms, e.g., AdaBoost, MatrixNet and uBoost. The topological trigger algorithm is designed to select all "interesting" decays of b-hadrons, but cannot be trained on every such decay. Studies have therefore been performed to determine how to optimize the performance of the classification algorithm on decays not used in the training. These include cascading, ensembling and blending techniques. Furthermore, novel boosting techniques have been implemented that will help reduce systematic uncertainties in Run 2 measurements. We demonstrate that the reoptimized topological trigger is expected to significantly improve on the Run 1 performance for a wide range of b-hadron decays.

Presenter: LIKHOMANENKO, Tatiana (National Research Centre Kurchatov Institute (RU))

Session Classification: Physics performance etc

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

Fast pile-up jet identification at the High Level Trigger of the CMS experiment

Wednesday, 4 March 2015 18:05 (1 minute)

The LHC is expected to reach up to forty proton-proton collisions per bunch crossing at 13 TeV this year. In this high pile-up scenario, the rate of hadronic triggers is expected to be high. Soft jets originating from pile-up collisions may contribute to the multijet trigger rate and, in addition, they can produce fake missing transverse energy. At the CMS experiment, pile-up effects are mitigated by the use of the Particle Flow algorithm, even at the High Level Trigger (HLT). However, this algorithm can be run at the HLT only for a small fraction of events since it requires large CPU time (˜ 1 s). This poster presents a faster method for identifying pile-up jets. The algorithm tags a jet as originating from "pile-up" if it has a low fraction of jet momentum carried by tracks originating from the primary vertex. These tracks can be reconstructed quickly (˜10 ms) from pixel hits because the primary vertex and jet directions can be used as constraints. The poster also presents the performance of pile-up jet identification in terms of efficiency and fake rate estimates.

Presenter: DONATO, Silvio (Universita di Pisa & INFN (IT))

Session Classification: Physics performance etc

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

Search for pair-produced vector-like quarks of charge -1/3 decaying to bH using boosted Higgs jet-tagging in pp collisions at sqrt{s}= 8 TeV with CMS detector

Wednesday, 4 March 2015 17:29 (1 minute)

A search is performed for the pair-production of a heavy vector-like quark b' of charge -1/3 and its anti-particle, using data collected by the CMS experiment, from the LHC pp collisions at centre-of-mass energy of 8 TeV and corresponding to an integrated luminosity of 19.7 fb-1. We search for the b' quark decaying to a Higgs-boson and a b quark, assuming a branching ratio of 100%, in a final state containing a fat jet to reconstruct the boosted Higgs boson and one or more b-tagged jets. The multijets background is evaluated entirely from the data while the tt+jets background is obtained from simulations.

Presenter: TSAI, Jui-Fa (National Taiwan University (TW))

Session Classification: BSM searches

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

Search for monotops at the LHC in the CMS experiment

Wednesday, 4 March 2015 17:28 (1 minute)

We explore new physics scenarii where a top quark is produced together with missing transverse energy. These classes of processes, called monotops, are described with an effective theory approach. The phenomenological study done to prepare the searches on real data is presented as well as a status report of searches being performed using the 8 TeV p-p collisions of the LHC.

Presenter: Mr BUTTIGNOL, Michaël (Institut Pluridisciplinaire Hubert Curien (IPHC))

Session Classification: BSM searches

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

Production of heavy quarks in proton-proton and heavy-ion collisions in CMS

Wednesday, 4 March 2015 17:02 (1 minute)

Presenter: INNOCENTI, Gian Michele (Massachusetts Inst. of Technology (US))

Session Classification: Heavy Ion Collisions

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

Search for new physics using events with two same-sign isolated leptons in the final state with CMS

Wednesday, 4 March 2015 17:30 (1 minute)

Although same sign dileptons final states are very rare in the SM context, they appear naturally in many different new physics scenarios such as SUSY where two same-sign dileptons can be produced in the decay chain of supersymetric particles.

Different scenarios can be presented: Same-sign dileptons accompanied by b-quarks can arise from SUSY processes where 3rd generation quark superpartners are lighter that other squarks., resulting in an abundance of top and bottom quarks produced in the cascade decays. In general, same-sign dileptons can be particularly sensitive to SUSY models with compressed spectra where the mass of the LSP is very close to the mass of the produced supersymetric particle, either if it is produced via strong production (squarks or gluinos) when it is accompanied with high hadronic activity or if it is produced via ewk production (charginos or neutralinos) when almost no hadronic activity is present. In all cases the SUSY decay chain ends with the LSP, that escapes undetected and therefore contribute strongly to the MET of the event.

We therefore search for SUSY using same sign dilepton events with/out hadronic activity and large missing ET, using the full 2012 integrated luminosity and we interpret our results in the context of various SUSY models.

Presenters: DUNSER, Marc (Eidgenoessische Tech. Hochschule Zuerich (CH)); FOLGUERAS, Santiago (Universidad de Oviedo (ES))

Session Classification: BSM searches

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

Measurement of momentum flow relative to the dijet system in PbPb and pp collisions at $\sqrt{s_{NN}} = 2.76$ TeV with CMS.

Wednesday, 4 March 2015 17:03 (22 minutes)

The energy loss of partons transversing a hot, dense medium is studied by comparing the measured momentum flow of PbPb and pp collisions containing high momentum dijets. The PbPb and pp data used has integrated luminosities of 150 μb^{-1} and 5.3 pb^{-1}, respectively, and was gathered by the CMS detector at $\sqrt{s_{NN}}$= 2.76 TeV. Dijet events are selected by using an anti-kt jet reconstruction algorithm having distance parameter R = 0.3, and requiring a leading jet having p_T > 120 GeV/c and a subleading jet with p_T > 50 GeV/c . Comparison with pp data reveals that PbPb collisions have more dijet events with large momentum asymmetry between the leading and subleading jets. The nature of this asymmetry is characterized using the multiplicity, momentum, and angular spectra of charged particles as a function of dijet asymmetry, and PbPb collision centrality.

Presenter: BATY, Austin Alan (Massachusetts Inst. of Technology (US))

Session Classification: Heavy Ion Collisions

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

Measurement of the ratio of Z + jets to photon + jets cross sections in pp collisions at sqrt(s)=8 TeV with CMS

Wednesday, 4 March 2015 17:01 (1 minute)

Presenter: TAKASUGI, Eric Hayato (Univ. of California Los Angeles (US))

Session Classification: Jets and QCD studies

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

CMS Alignment and Calibration Workflows:Lessons Learned and Future Plans

Wednesday, 4 March 2015 17:10 (1 minute)

We review the online and offline workflows designed to align and calibrate the CMS detector. Starting from the gained experience during the first LHC run, we discuss the expected developments for Run II. In particular, we describe the envisioned different stages, from the alignment using cosmic rays data to the detector alignment and calibration using the first proton-proton collisions data (O(100 pb-1)) and a larger dataset (O(1 fb-1)) to reach the target precision. The automation of the workflow and the integration in the online and offline activity (dedicated triggers and datasets, data skims, workflows to compute the calibration and alignment constants) are discussed.

Presenter: DI GUIDA, Salvatore (Universita degli Studi Guglielmo Marconi (IT))

Session Classification: Detector upgrades and R&D

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

The CMS Data Quality Monitoring software: experience and future improvements

Wednesday, 4 March 2015 17:09 (1 minute)

The Data Quality Monitoring Software proved to be a central tool in the Compact Muon Solenoid experiment. Its flexibility allowed its integration in several environments: online, for real-time detector monitoring; offline, for the final, fine-grained data certification. The usage of the Data Quality Monitoring software in the different environments and its integration in the Compact Muon Solenoid reconstruction software framework and in all production workflows are presented. The main technical challenges and the adopted solutions to them will be also discussed with emphasis on functionality, long-term robustness and performance.

Presenter: BATINKOV, Atanas Ivanov (University of Sofia (BG))

Session Classification: Detector upgrades and R&D

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

Upgrade of the TOTEM DAQ for the LHC's Run Two

Wednesday, 4 March 2015 17:11 (1 minute)

Data acquisition systems in High Energy Physics process data produced by particle detector at colliders or fixed target experiments. With the LHC era collisions are produced at the bunch crossing rate of 40MHz. Data volumes and trigger rates pose requirements for Data Acquisition Systems. The TOTEM Experiment at the LHC collider measures total p-p cross section at the accelerator energies and studies diffractive dissociation processes.
At the present stage TOTEM adopts a standalone VME based readout system. Front End Card (FED) modules, housed in VME crates, receive data over optical fibres directly from the experimental area. Standard PCs connected to the VME crates read the FED modules and send data over Ethernet network to the Event Builders processors that store the full event data on the storage medium. The maximum first level trigger (L1A) rate for TOTEM is defined by the VME bus bandwidth at 1kHz.
We propose an upgrade and consolidation program that integrates the Scalable Readout System (SRS), designed by the RD51 collaboration at CERN, in the TOTEM DAQ system during the Long Shut Down (LS1) of the LHC operation. The new architecture, introducing the SRS, allows readout at a trigger rate more than one order of magnitude higher. The project leverages the resources available on the SRS Frond End Cards (FEC) and Scalable Readout Unit (SRU). Both modules are equipped with high performance Filed Programmable Gate Array (FPGA) devices and allow data processing and transmission using high throughput links (1Gbps and 10Gbps).

Presenter: QUINTO, Michele (Universita e INFN-Bari (IT))

Session Classification: Detector upgrades and R&D

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

Exotic-spin and anomalous coupling study of the H boson with the H->ZZ->4l channel with CMS

Wednesday, 4 March 2015 17:06 (1 minute)

The study of spin-parity of the recently discovered H boson is performed using the H->4l decay mode. The full dataset recorded by the CMS experiment during the LHC Run 1 is used, corresponding to an integrated luminosity of up to 5.1 fbˆ-1 at a center-of-mass energy of 7 TeV and up to 19.7 fbˆ-1 at 8 TeV. Any mixed-parity spin-one state is excluded in the ZZ modes at a greater than 99.999% confidence level. A wide range of spin-two models is excluded at a 99% confidence level or higher. All observations are consistent with the expectation for a scalar SM-like Higgs boson.

Presenter: YOU, Can (Johns Hopkins University (US))

Session Classification: Higgs studies

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

Searches for new heavy resonances decaying into dielectrons or dimuons at CMS

Wednesday, 4 March 2015 17:31 (1 minute)

Resonances in the dielectron and dimuon decay channels arise in many well established theories beyond the standard model, like grand unified theories (GUT) or models proposing extra spatial dimension(s). The legacy results obtained from the LHC RUN1, using the full dataset collected by the CMS experiment in 2012 from proton-proton collisions at a center-of-mass energy of 8 TeV, and corresponding to an integrated luminosity of ˜ 20 fb-1, are presented. In absence of a significant deviation from the standard model predictions, 95% confidence level limits are calculated on the ratio of the new signal cross section to the Z boson peak cross section. For several models, lower limits on the resonance mass are derived : a sequential standard model Z'_SSM (heavy Z replica, with SM couplings to fermions) and a superstring-inspired Z'_psi lighter than 2960 GeV and 2600 GeV respectively can be excluded at 95% confidence level. Future prospect on RUN2 (data to be taken in years 2015-17) and RUN3 (years 2020-22) at a proton-proton center-of-mass energy of 13 or 14 TeV will be also presented, using MC simulations. In case a new resonance is observed in the dilepton channel during RUN2 and RUN3, the CMS potential for the new signal characterization (via for example forward-backward measurement) is investigated for the high-lumi LHC run (LHC phase 2), foreseen after year 2023.

Presenters: RANDLE-CONDE, Aidan Sean (Universite Libre de Bruxelles (BE)); FASANELLA, Giuseppe (Universite Libre de Bruxelles (BE))

Session Classification: BSM searches

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

Higgs Physics at the HL-LHC with CMS detector

Wednesday, 4 March 2015 17:07 (1 minute)

Presenter: APYAN, Aram (Massachusetts Inst. of Technology (US))

Session Classification: Higgs studies

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

CMS Level 1 trigger upgrade and its performance for Run 2 Heavy Ion data taking

Wednesday, 4 March 2015 17:12 (1 minute)

Presenter: GUILBAUD, Maxime (Rice University (US))

Session Classification: Detector upgrades and R&D

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

Monte Carlo Study of Diffractive Events at LHCf with Central Information at LHC p-p,√s=13TeV

Wednesday, 4 March 2015 18:06 (1 minute)

LHCf will have an operation of √s=13TeV p-p collisions in May 2015. The operation is scheduled for 5 days with very low luminosity (1029 cm-2 s-1), collaborating with the ATLAS experiment. The common data acquisition with ATLAS gives central information to help LHCf identifying the diffractive events. We designed the trigger system on the LHCf side for the common operation. By using PYTHIA 8185, the cross sections for the all LHCf trigger and LHCf trigger without ATLAS track in |η|<2.5 are 13.6 mb and 1.7 mb, respectively. The expected efficiencies of identifying diffractive events by LHCf-ATLAS common data-taking are approximately 35-40% with above 99% purity.

Presenter: ZHOU, Qidong (Nagoya University (JP))

Session Classification: Physics performance etc

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

Timing detector for the Totem experiment

Wednesday, 4 March 2015 17:13 (1 minute)

Presenter: BOSSINI, Edoardo (Università degli Studi di Siena e INFN-Pisa)

Session Classification: Detector upgrades and R&D

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

Measurement of differential ttbar cross sections at sqrt(s)=8 TeV with the CMS experiment

Wednesday, 4 March 2015 19:02 (1 minute)

Presenter: KOROL, Ievgen

Session Classification: Top quark physics

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

Search for CP violation in $D^0 \to \pi^-\pi^+\pi^0$ decays with LHCb

Wednesday, 4 March 2015 17:11 (1 minute)

The LHCb experiment has recorded the world's largest sample of charmed meson decays. This contribution presents a study of a D^0 meson decaying into a final state containing a neutral pion in LHCb. The search for CP violation exploits a novel model-independent unbinned technique to assign a p-value for the no CP violation hypothesis. With a data sample size exceeding that of previous measurements by almost an order of magnitude the world's best sensitivity is obtained. The p-value of no CP violation hypothesis given data of $D^0 \to \pi^-\pi^+\pi^0$ decay analysed is found to be $(2.6 \pm 0.5) \times 10^{-2}$.

Presenter: CHEN, Shanzhen (University of Manchester (GB))

Session Classification: Physics of heavy flavours

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

The ATLAS Tile Calorimeter for Run II and towards Phase II

Wednesday, 4 March 2015 17:14 (1 minute)

This poster will present the status of the ATLAS Tile Calorimeter at the beginning of the LHC Run II, with emphasis on the electronics consolidation during LS1 and recent operation experience with cosmics. The status of the Phase II upgrade R&D will also be briefly presented.

Presenter: CERDA ALBERICH, Leonor (Instituto de Fisica Corpuscular (ES))

Session Classification: Detector upgrades and R&D

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

Getting the ATLAS IBL detector ready for Run 2 data taking

Wednesday, 4 March 2015 17:15 (1 minute)

The Insertable B-Layer was inserted in May 2014 in the centre of the ATLAS detector. This new layer will enhance the tracking robustness of the inner detector, improve the vertexing and b-tagging capabilities and preserve the high performance of the Pixel detector, in spite of the radiation damage, particularly important in the B-Layer. The poster presents an overview of the structure of the IBL detector as well as results from the milestone cosmic runs, aiming to commission the new detector within the ATLAS experiment.

Presenter: FRANCONI, Laura (University of Oslo (NO))

Session Classification: Detector upgrades and R&D

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

First observation and measurement of the branching fraction for the decay $B_s^0 \to D_s^* K$ with LHCb.

Wednesday, 4 March 2015 17:12 (1 minute)

The Bs-> *Ds* K and Bs-> *Ds* \pi decays are of paramount interest as they can be used, combined with Bs -> Ds K and Bd -> D*pi, to measure the weak phase \gamma. We present the first observation of the Bs -> Ds*K decay, where Ds* are reconstructed through the decay chain Ds* -> Ds (-> K K \pi) \gamma, using an integrated luminosity of 3.0 fb^{-1} recorded by the LHCb experiment.

Presenter: SESTINI, Lorenzo (Universita e INFN (IT))

Session Classification: Physics of heavy flavours

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

Differential branching fraction and angular anaysis of $\Lambda_b \to \Lambda\mu^+\mu^-$ decays with the LHCb experiment

Wednesday, 4 March 2015 17:13 (1 minute)

The differential branching fraction of the rare decay Λ0b ⟶ Λμ+μ− is measured as a function of q2, the square of the dimuon invariant mass. The analysis is performed using data collected by the LHCb experiment, corresponding to an integrated luminosity of 3.0 fb−1. These include evidence for signal at dimuon masses below the square of the J/ψ mass with significance above 3σ. In the q2 intervals where the signal is observed, angular distributions are studied and the forward-backward asymmetries in the dimuon and hadron systems are measured for the first time.

Presenter: PESCATORE, Luca (University of Birmingham (GB))

Session Classification: Physics of heavy flavours

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

Suppression of $\psi(2S)$ production in p-Pb collisions at $\sqrt{s_{NN}}$=5.02 TeV with ALICE

Wednesday, 4 March 2015 17:25 (1 minute)

The ALICE Collaboration has studied the inclusive $\psi(2S)$ production in p-Pb collisions at the CERN LHC. The $\psi(2S)$ is detected through its decay to a muon pair, using the forward Muon Spectrometer, which covers the pseudo-rapidity range $-4 < \eta < -2.5$. $\psi(2S)$ results are compared to the J/ψ ones by means of the production cross section ratio as a function of rapidity, transverse momentum and event activity. The $\psi(2S)$ nuclear modification factor, $R_{\rm pA}$, is also discussed. The results show a larger $\psi(2S)$ suppression compared to the one observed for the J/ψ and are not described by theoretical models including cold nuclear matter effects as nuclear shadowing and energy loss.

Presenter: LEONCINO, Marco (University of Turin and INFN (IT))

Session Classification: Heavy Ion Collisions

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

J/psi production as a function of the relative multiplicity in p-Pb collisions at sqrt(s_NN)=5.02 TeV with ALICE

Wednesday, 4 March 2015 17:26 (1 minute)

Measurements of particle production as a function of the event multiplicity provide a very useful tool to study the presence of collective-like effects in small size systems compared to Pb-Pb, as is the case of pp and p-Pb collisions.

We report the measurement of the inclusive J/ψ yield and transverse momentum as a function of charged particle pseudo rapidity density $dN_{ch}/d\eta/\langle dN_{ch}/d\eta\rangle$ in p-Pb collisions at $\sqrt{s_{\rm NN}} = 5.02$ TeV with the ALICE experiment at the LHC. A similar yield behaviour to the one observed in pp collisions is found in p-Pb collisions at backward rapidity, while at forward rapidity a saturation of the yield at high multiplicity is observed. The mean transverse momentum at forward and backward rapidities show a similar behaviour increasing at low multiplicities and saturating at high multiplicities. These results can help to constrain available theoretical models to improve the understanding on particle production and the role of initial and final state effects.

Presenter: MARTIN BLANCO, Javier (Laboratoire de Physique Subatomique et des Technologies Associe)

Session Classification: Heavy Ion Collisions

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

Neutral meson production in pp and Pb-Pb collisions at the LHC measured with ALICE

Wednesday, 4 March 2015 17:27 (1 minute)

Identified hadron spectra are considered to be sensitive to transport properties of strongly interacting matter produced in high-energy nucleus-nucleus collisions.
We present measurements of π^0 and η mesons at mid-rapidity in a wide transverse momentum range in pp and Pb-Pb collisions at LHC energies measured with the ALICE detector. The mesons are reconstructed via their two-photon decays by two complementary methods, using the electromagnetic calorimeters and the central tracking system for photons converted to electron-positron pairs on the material of the inner ALICE barrel tracking detectors.
The spectrum and the nuclear modification factor (R_{AA}) of the π^0 production measured in Pb-Pb collisions at different collision centralities shows a clear pattern of strong suppression with respect to pp collisions. Comparison of the ALICE results on neutral mesons with those of lower-energy experiments is discussed.

Presenter: ZHANG, Haitao (Central China Normal University CCNU (CN))

Session Classification: Heavy Ion Collisions

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

Measurement of D+-meson production in Pb-Pb collisions with ALICE

Wednesday, 4 March 2015 17:28 (1 minute)

Heavy quarks (charm and beauty) can be used to study the properties of the strongly interacting matter that is created in central Pb-Pb collisions at ultrarelativistic energies. They are produced in parton scattering processes with high momentum transfer in the initial stages of the collisions. Therefore, the heavy quarks pass through all the phases of the system evolution losing energy via gluon radiation and elastic collisions in the medium.

The production of open heavy flavour has been measured by ALICE in pp, p-Pb and Pb-Pb collisions. In particular, the measurement of D^{+} production in Pb-Pb collisions at $\sqrt{\mathrm{s_{NN}}}$ = 2.76 TeV will be presented and compared with pp results. The dependence of the $\mathrm{p_T}$-differential D^{+}-meson yield on the centrality of the collisions will also be shown.

Presenter: BEDDA, Cristina (Universita e INFN Torino (IT))

Session Classification: Heavy Ion Collisions

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

Charged jet production in p-Pb collisions at √sNN = 5.02 TeV measured with the ALICE detector

Wednesday, 4 March 2015 17:29 (1 minute)

Highly energetic jets are sensitive probes for the kinematics and the topology of nuclear collisions. Jets are collimated sprays of charged and neutral particles, which are produced in the fragmentation of hard scattered partons in an early stage of the collision. The measurement of jet spectra in p–Pb collisions provides an important way of quantifying the effects of cold nuclear matter in the initial state on jet production, fragmentation, and hadronization. Unlike in Pb–Pb collisions, strong hot nuclear matter effects – e.g. from quark-gluon plasma formation – are not expected to occur in p–Pb collisions. Hence, cold nuclear matter effects can be investigated in isolation.

The impact of cold nuclear matter effects on charged jet spectra is expected to depend also on the event centrality. Higher event centralities are principally connected to a higher probability for an interaction of proton and lead-nucleus and therefore also for a possible nuclear modification.

This poster will show the minimum bias and centrality-dependent results on charged jet production measured with ALICE. The focus is here on the fully corrected jet production cross sections and the nuclear modification factors. Additionally, the jet radial structure is explored by comparing jet spectra reconstructed with different resolution parameters.

Presenter: HAAKE, Rudiger (Westfaelische Wilhelms-Universitaet Muenster (DE))

Session Classification: Heavy Ion Collisions

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

Production of strange particles in charged jets in p–Pb and Pb–Pb collisions measured with ALICE

Wednesday, 4 March 2015 17:30 (1 minute)

At intermediate transverse momenta (2 GeV/c < pT < 5 GeV/c), a strong increase of the baryon-to-meson ratio is observed for inclusive light particles produced in heavy-ion collisions (Pb–Pb) and proton–nucleus collisions (p–Pb) when compared to the ratio measured in proton–proton collisions. Production by fragmentation in vacuum cannot explain this phenomenon. Other hadronisation mechanisms, like coalescence or parton recombination, have been proposed instead.
Properties of the hot and dense strongly interacting matter created in ultra-relativistic heavy-ion collisions can be studied using partons created in the first hard scattering. Their subsequent fragmentation into jets is expected to be modified by their interaction with the medium.
Measurements of spectra of identified particles produced in jets in Pb–Pb and p–Pb collisions can provide further important insights into the interplay of various hadronisation processes which participate in the particle production in the hot and dense medium.
In this contribution, we present the measurements of the pT spectra of Λ baryons and K0S mesons produced in association with charged jets in p–Pb collisions at √sNN = 5.02 TeV and first preliminary results from Pb–Pb collisions at √sNN = 2.76 TeV. The results are obtained with ALICE at the LHC, exploiting the excellent particle identification capabilities of this experiment. Baryon-to-meson ratios of the spectra of strange particles associated with jets in p–Pb collisions are compared to the ratios obtained for inclusive particles and for particles coming from the underlying event.

Presenters: ZIMMERMANN, Alice (Ruprecht-Karls-Universitaet Heidelberg (DE)); KUCERA, Vit (Acad. of Sciences of the Czech Rep. (CZ))

Session Classification: Heavy Ion Collisions

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

(Hyper)nuclei and anti-(hyper)nuclei production in ALICE experiment at the LHC

Wednesday, 4 March 2015 17:31 (1 minute)

The ALICE detector was designed to study heavy-ion collisions at the LHC energies. During Run-I of Pb–Pb collisions, ALICE collected data at √(⊠_NN) = 2.76 TeV. At this energy, almost equal amounts of matter and antimatter are produced in the central rapidity region. This is also observed for (hyper)nuclei and anti-(hyper)nuclei, which are measured with nearly identical abundances. Thanks to its tracking and particle identification capabilities, the ALICE detector allows one to investigate this rarely produced (anti-)matter. Results on the production of light (anti-)nuclei and (anti-)hypernuclei and searches for exotic bound states are presented.

Presenter: COLOCCI, Manuel (Universita e INFN, Bologna (IT))

Session Classification: Heavy Ion Collisions

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

Transverse momentum spectra of pi, K and p in small collision systems: search for collective phenomena

Wednesday, 4 March 2015 17:32 (1 minute)

Abstract: The ALICE detector with its excellent particle identification (PID) and transverse momentum (pT) coverage is an ideal tool to study the production of identified particles at mid-rapidity over a wide range of pT. This poster contains a summary of the results on pT spectra of π, K and p at low pT. Studies aiming at searches for collective phenomena in smaller systems, such as pp and p-Pb, will also be presented and compared with corresponding results in Pb-Pb collisions. Production of hadrons in central Pb-Pb collisions shows clear hints of collective behaviour, exhibiting a mass dependent hardening of the spectral shape. This evolution can be interpreted as hydrodynamical flow and may be quantitatively parameterised with the Boltzmann-Gibbs Blast Wave model. At LHC energies, events with a very high number of charged particles in the final state have been observed in elementary pp collisions. Features of data in pp similar to results in Pb-Pb collisions hint at the possible existence of collective phenomena also in smaller systems.

Presenter: JACAZIO, Nicolo (Universita e INFN Torino (IT))

Session Classification: Heavy Ion Collisions

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

ALICE results on light-flavour hadron production at intermediate and high pT at the LHC

Wednesday, 4 March 2015 17:33 (1 minute)

The ALICE experiment has unique capabilities for particle identification at midrapidity over a wide range of transverse momentum (pT), making it an ideal tool for comprehensive measurements of hadrons such as charged pions, kaons, and protons as well as Lambda, K0s and phi. The transverse momentum distributions of these particles as measured in p–Pb and Pb–Pb collisions will be presented and their evolution will be studied by computing the nuclear modification factors R_pPb and R_PbPb. Furthermore, baryon to meson ratios are shown to exhibit an enhancement at intermediate transverse momenta for both p–Pb and Pb–Pb collisions with a larger charged-particle multiplicity, while no significant dynamics is observed in the ratios at larger transverse momenta. Finally, measurements of identified particle ratios in association with high-pT particles as well as within reconstructed jets will be discussed.

Presenter: RICHERT, Tuva Ora Herenui (Lund University (SE))

Session Classification: Heavy Ion Collisions

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

Performance and development for the Inner Detector Trigger Algorithms at ATLAS

Wednesday, 4 March 2015 17:07 (1 minute)

Presenter: PENC, Ondrej (Acad. of Sciences of the Czech Rep. (CZ))

Session Classification: Physics performance etc

Contribution ID: **53** Type: **not specified**

b-Tagging in Boosted Environments at ATLAS

Wednesday, 4 March 2015 17:12 (1 minute)

Presenters: KAGAN, Michael Aaron (SLAC National Accelerator Laboratory (US)); ZENG, Qi (SLAC National Accelerator Laboratory (US))

Session Classification: Physics performance etc

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

Pushing the limits by looking within: Jet Substructure with the ATLAS Detector

Wednesday, 4 March 2015 18:07 (1 minute)

A review of recent developments on the performance of jet substructure with the ATLAS detector. Topics include jet mass calibrations and uncertainties, pileup mitigation using subjet pileup jet tagging, new substructure variables, and jet mass performance in high pileup conditions.

Presenter: NACHMAN, Ben (SLAC National Accelerator Laboratory (US))

Session Classification: Physics performance etc

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

Study of the rare B_s^0 and B^0 decays into the $\pi^+\pi^-\mu^+\mu^-$ final state at LHCb

Wednesday, 4 March 2015 17:14 (1 minute)

A search for the rare decays B0s->pi pi mu mu and B0->pi pi mu mu is performed in a data set corresponding to an integrated luminosity of 3.0 fb-1 collected by the LHCb detector in proton-proton collisions at centre-of-mass energies of 7 and 8TeV. Decay candidates with pion pairs that have invariant mass in the range 0.5–1.3 GeV/c2 and with muon pairs that do not originate from a resonance are considered. The first observation of the decay B0s->pi pi mu mu and the first evidence of the decay B0->pi pi mu mu are obtained and the branching fractions, restricted to the dipion-mass range considered, are measured to be Br(B0s->pi pi mu mu) = (8.6 +/- 1.5 (stat) +/- 0.7 (syst) +/- 0.7 (norm))*10ˆ-8 and Br(B0->pi pi mu mu) = (2.11 +/- 0.51 (stat) +/- 0.15 (syst) +/- 0.16 (norm))*10ˆ-8, where the third uncertainty is due to the branching fraction of the decay B0->J/psi K*, used as a normalisation.

Presenter: KOMAROV, Ilya (Ecole Polytechnique Federale de Lausanne (CH))

Session Classification: Physics of heavy flavours

Contribution ID: **56** Type: **not specified**

Electroweak physics in the forward region at LHCb

Wednesday, 4 March 2015 17:02 (1 minute)

Presenter: SIRENDI, Marek (University of Cambridge (GB))

Session Classification: EW gauge bosons

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

Demonstrator for the ATLAS LAr calorimeter Phase-I Trigger Readout Upgrade

Wednesday, 4 March 2015 17:16 (1 minute)

From 2019 –2021, during Run 3, the LHC will achieve luminosities of about
L ˜ 2.2×10ˆ(34) cm−² s−¹ and an integrated luminosity of ˜ 300 fb−¹ is expected. In order to exploit the higher luminosity while keeping the same first level trigger bandwidth of 100 KHz, higher transverse granularity and depth information for the ATLAS Liquid Argon (LAr) Calorimeter Trigger is required.

Presenter: MILIC, Adriana (CERN)

Session Classification: Detector upgrades and R&D

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

Flavour Tagging with the LHCb experiment

Wednesday, 4 March 2015 18:08 (10 minutes)

Measurements of flavour oscillations and time-dependent CP asymmetries in neutral B meson systems require knowledge of the b quark production flavour. This identification is performed by the Flavour Tagging.

Presenters: BIRNKRAUT, Alex (Technische Universitaet Dortmund (DE)); EITSCHBERGER, Ulrich Paul (Technische Universitaet Dortmund (DE))

Session Classification: Physics performance etc

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

$\sin(2\beta)$ with $B^0 \to J/\psi K_S$ at the LHCb experiment

Wednesday, 4 March 2015 17:15 (1 minute)

Presenters: NIET, Ramon (Technische Universitaet Dortmund (DE)); MUELLER, Vanessa (Technische Universitaet Dortmund (DE))

Session Classification: Physics of heavy flavours

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

Search for Supersymmetry in events with a Z boson, jets and large ETmiss with ATLAS

Wednesday, 4 March 2015 17:32 (1 minute)

A search for supersymmetric particles in final states containing a Z boson, jets and large missing transverse momentum is presented. The data sample was collected at a centre-of-mass energy sqrt{s}=8 TeV by the ATLAS detector at the Large Hadron Collider and corresponds to an integrated luminosity of 20.3 fbˆ{−1}. The search targets GGM models in which Z bosons can arise in the decays of the SUSY particles. An excess of events above the expected Standard-Model background is observed, with a significance of 3.0 standard deviations.

Presenter: SCHREYER, Manuel (Bayerische Julius Max. Universitaet Wuerzburg (DE))

Session Classification: BSM searches

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

Electron and photon energy calibration with the ATLAS detector using LHC Run 1 data

Wednesday, 4 March 2015 18:18 (1 minute)

This poster presents the electron and photon energy calibration achieved with the ATLAS detector using about 25 fb−1 of LHC proton–proton collision data taken at centre-of-mass energies of s√ = 7 and 8 TeV. The reconstruction of electron and photon energies is optimised using multivariate algorithms. The response of the calorimeter layers is equalised in data and simulation, and the longitudinal profile of the electromagnetic showers is exploited to estimate the passive material in front of the calorimeter and reoptimise the detector simulation. After all corrections, the Z resonance is used to set the absolute energy scale. For electrons from Z decays, the achieved calibration is typically accurate to 0.05% in most of the detector acceptance, rising to 0.2% in regions with large amounts of passive material. The remaining inaccuracy is less than 0.2–1% for electrons with a transverse energy of 10 GeV, and is on average 0.3% for photons. The detector resolution is determined with a relative inaccuracy of less than 10% for electrons and photons up to 60 GeV transverse energy, rising to 40% for transverse energies above 500 GeV.

Presenter: GREVTSOV, Kirill (Centre National de la Recherche Scientifique (FR))

Session Classification: Physics performance etc

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

Associated production of Z boson and prompt and non-prompt J/ψ mesons with the ATLAS experiment

Wednesday, 4 March 2015 17:16 (1 minute)

Presenter: LEONTSINIS, Stefanos (National Technical Univ. of Athens (GR))

Session Classification: Physics of heavy flavours

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

Identification and Calibration of Tau-Leptons in ATLAS

Wednesday, 4 March 2015 18:19 (1 minute)

Hadronically decaying tau-leptons are important for Standard Model (SM), Higgs- and Beyond SM analyses and hence a key part of the ATLAS physics program. A correct understanding of the performance of the reconstruction and identification algorithms is a crucial part for any analysis involving tau-leptons.

Presenter: DRECHSLER, Eric (Georg-August-Universitaet Goettingen (DE))

Session Classification: Physics performance etc

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

Search for Scalar Charm in ATLAS

Wednesday, 4 March 2015 17:33 (1 minute)

A search for pair production of scalar charm quarks has been performed using 20 fb-1 of data collected by the ATLAS experiment in 8 TeV proton-proton collisions at the LHC. An innovative charm tagging algorithm was used to identify jets produced by the hadronisation of a charm quark. Results for this first dedicated search for scalar charm quarks, obtained with the final state of two identified charm jets and missing transverse momentum, are presented.

Presenter: KALDERON, William (University of Oxford (GB))

Session Classification: BSM searches

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

Measurement of the off-shell Higgs boson signal strength in the high mass ZZ and WW final states with the ATLAS detector

Wednesday, 4 March 2015 17:08 (1 minute)

Presenter: CALANDRI, Alessandro (CEA/IRFU,Centre d'etude de Saclay Gif-sur-Yvette (FR))

Session Classification: Higgs studies

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

An ATLAS study of VH->Vbb for the High Luminosity LHC

Wednesday, 4 March 2015 17:09 (1 minute)

Presenter: GLAYSHER, Paul (University of Edinburgh (GB))

Session Classification: Higgs studies

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

Search for long lived SUSY particles in ATLAS

Wednesday, 4 March 2015 17:34 (1 minute)

Searches for heavy long-lived charged particles (LLP) were performed on a 19.1 ⌧-1 data sample from p-p collisions at √s = 8TeV collected by the ATLAS detector at the LHC. No excess is observed above the estimated background and limits are placed on the mass of the LLPs in various supersymmetric models: R-hadrons, directly produced charginos, stable sleptons produced directly or in cascade decays in GMSB and LeptoSUSY models.

Presenter: KOPELIANSKY, Revital (Israel Institute of Technology (IL))

Session Classification: BSM searches

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

Measurements of fiducial and differential cross sections for Higgs boson production at $\sqrt{s}$ = 8 TeV with the ATLAS detector

Wednesday, 4 March 2015 17:10 (1 minute)

This poster presents measurements of the fiducial and differential cross sections for Higgs boson production in the H⟶γγ and H⟶ZZ*⟶4l channels at √s = 8 TeV with the ATLAS detector. The cross sections are measured within in a fiducial volume and unfolded to particle level. The results are compared to a selection of theoretical predictions for a Standard Model Higgs boson.

Presenter: QUEITSCH-MAITLAND, Michaela (University of Manchester (GB))

Session Classification: Higgs studies

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

The Evolution of the Region of Interest Builder in the ATLAS Experiment

Wednesday, 4 March 2015 17:17 (1 minute)

ATLAS is a general purpose particle detector at the Large Hadron Collider (LHC) at CERN designed to measure the products of proton collisions. Given their high interaction rate (1GHz), selective triggering in real time is required to reduce the rate to the experiment's data storage capacity (1KHz). To meet this requirement, ATLAS employs a combination of hardware and software triggers to select interesting collisions for physics analysis. The Region of Interest Builder (RoIB) is an integral part of the ATLAS detector Trigger and Data Acquisition (TDAQ) chain where the coordinates of the regions of interest (RoIs) identified by the first level trigger (L1) are collected and passed to the High Level Trigger (HLT) to make a decision. While the current custom RoIB operated reliably during the first run of the LHC, it is desirable to have the RoIB more operationally maintainable in the new run, which will reach higher luminosities with an increased complexity of L1 triggers. We are responsible for migrating the functionality of the multi-card VME based RoIB into a single PCI-Express card in a commodity PC. In our testbed, we are reading out 12 channels with fragment size of 128 32 bit words at 150 KHz.

Presenter: RIFKI, Othmane (University of Oklahoma (US))

Session Classification: Detector upgrades and R&D

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

Dijet resonance searches with the ATLAS detector at 14 TeV LHC

Wednesday, 4 March 2015 17:35 (1 minute)

Presenter: GUESCINI, Francesco (Universite de Geneve (CH))

Session Classification: BSM searches

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

Novel methods and expected run II performance of ATLAS track reconstruction in dense environments

Wednesday, 4 March 2015 18:20 (1 minute)

Detailed understanding and optimal track reconstruction performance of ATLAS in the core of high pT objects is paramount for a number of techniques such as jet energy and mass calibration, jet flavour tagging, and hadronic tau identification as well as measurements of physics quantities like jet fragmentation functions. These dense environments are characterized by charged particle separations on the order of the granularity of ATLAS's inner detector. With the insertion of a new innermost layer in this tracking detector, which allows measurements closer to the interaction point, and an increase in the centre of mass energy, these difficult environments will become even more relevant in Run II, such as in searches for heavy resonances. Novel algorithmic developments to the ATLAS track reconstruction software targeting these topologies as well as the expected improved performance will be presented.

Presenter: JANSKY, Roland (University of Innsbruck (AT))

Session Classification: Physics performance etc

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

Measurements of the W production cross section in association with jets and of the ratio of the production cross sections for W and Z bosons in association with jets with the ATLAS detector

Wednesday, 4 March 2015 17:02 (1 minute)

The cross sections for the production of a W boson in association with jets and the ratio of the production cross section of V + jets (Rjets) have been measured in proton-proton collision at sqrt(s) = 7 TeV with the ATLAS experiment at the LHC with the data sample accumulated in 2011, corresponding to an integrated luminosity of 4.6 fbˆ(-1).
W + jets production cross section and Rjets are measured as a function of many observables and the results are compared to several Monte Carlo generators and with next-to-leading order pQCD predictions.

Presenter: CALACE, Noemi (Universite de Geneve (CH))

Session Classification: Jets and QCD studies

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

Real-time flavour tagging selection in ATLAS

Wednesday, 4 March 2015 18:21 (1 minute)

In high-energy physics experiments, online selection is crucial to identify the few interesting collisions from the large data volume processed. In the overall ATLAS trigger strategy, b-jet triggers are designed to identify heavy-flavor content in real-time and, in particular, provide the only option to efficiently record events with fully hadronic final states containing b-jets. In doing so, two different, but related, challenges are faced. The physics goal is to optimise as far as possible the rejection of light jets from QCD processes, while retaining a high efficiency on selecting jets from beauty, while maintaining affordable trigger rates without raising jet energy thresholds. This maps into a challenging computing task, as charged tracks and their corresponding vertexes must be reconstructed and analysed for each jet above the desired threshold, regardless of the increasingly harsh pile-up conditions. The performance of b-jet triggers during the LHC Run 1 data-taking campaigns is presented, together with an overview of the new online b-tagging strategy and algorithms, designed to face the above mentioned challenges, which will be adopted during Run 2.

Presenter: BOGAVAC, Danijela (University of Belgrade (RS))

Session Classification: Physics performance etc

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

Electron Identification and Efficiency Measurements in 2012 with the ATLAS detector

Wednesday, 4 March 2015 18:22 (1 minute)

Presenter: BRENDLINGER, Kurt (University of Pennsylvania (US))

Session Classification: Physics performance etc

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

Two–particle Bose–Einstein Correlations in pp–collisions at $\sqrt{s}$ = 0.9 and 7 TeV measured with the ATLAS detector

Wednesday, 4 March 2015 17:03 (1 minute)

Studies of one–dimensional Bose–Einstein Correlations for pairs of like–sign charged particles measured in the kinematic range p_T > 100 MeV and $|\eta|$ < 2.5 in pp–collisions at $\sqrt{s}$ = 0.9 and 7 TeV with the ATLAS detector at the CERN Large Hadron Collider, are presented. The integrated luminosities are about 7 μb^{-1}, 190 μb^{-1} and 12.4 nb^{-1} for 0.9 TeV, 7 TeV minimum–bias and 7 TeV high–multiplicity data samples, respectively. The multiplicity dependence of the BEC parameters characterizing the correlation strength λ and the correlation source size R are investigated at charged–particle multiplicities of up to 240. A saturation effect in the multiplicity dependence of the correlation source size R is observed using the high–multiplicity 7 TeV data sample. The dependence of the BEC parameters on the average transverse momentum of the particle pair k_T is also investigated.

Presenter: PLOTNIKOVA, Elena (Joint Institute for Nuclear Research (RU))

Session Classification: Jets and QCD studies

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

Missing Transverse Momentum Measurement using the ATLAS Detector

Wednesday, 4 March 2015 18:23 (1 minute)

Presenter: LIU, Bo (Academia Sinica (TW)/Shandong University(CN))

Session Classification: Physics performance etc

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

Determination of the Jet Energy Scale and Jet Energy Resolution using data collected by the ATLAS detector in 2012

Wednesday, 4 March 2015 18:24 (1 minute)

Jets are collimated sprays of hadrons coming from the fragmentation of quarks and gluons. They are formed from topologically related energy deposits in calorimeter cells (topo-clusters). The input topo-clusters can be calibrated either at the electromagnetic scale (EM) or with the local cluster weighting scheme (LCW), which tries to correct for the differences between electromagnetic and hadronic shower responses. Further corrections are applied in multiple steps using techniques driven by both Monte Carlo simulations and data. The Jet Energy Scale(JES) and Resolution(JER), and corresponding uncertainties are then evaluated

Presenters: DATTAGUPTA, Aparajita (Indiana University (US)); DATTAGUPTA, Aparajita (Indiana University (US))

Session Classification: Physics performance etc