

Abstracts of Posters

HCP2011

Poster session

2011/11/17 (Thursday)

17:00 – 19:00

List of Posters with shortened title

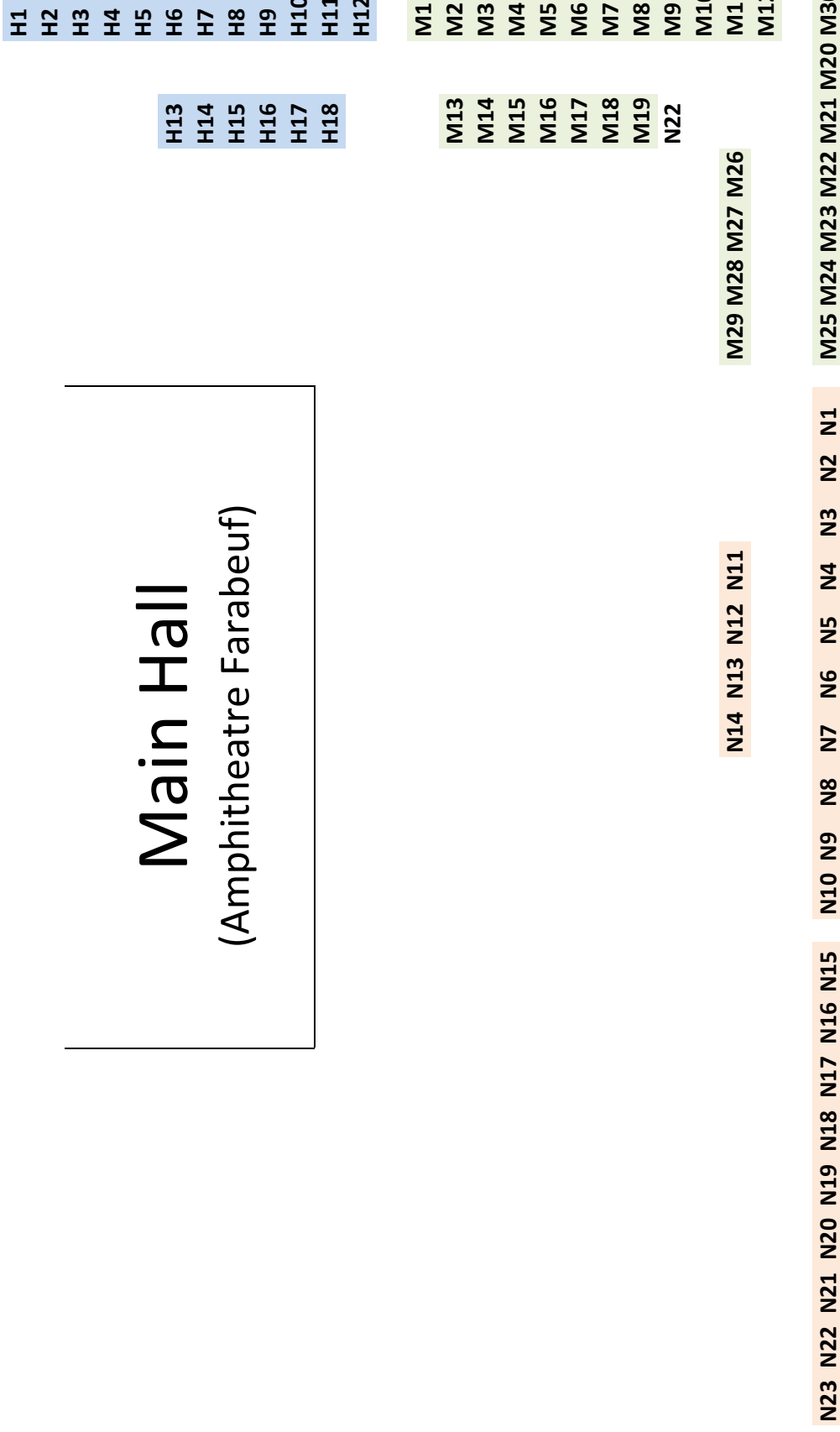
(Poster session: Thursday 17th, 17:00-19:00)

	Location	Exp/Theo	Shortened Title	First name	Last name	Institution
1	H1	ATLAS	Measurement of dijet production	Pauline	Bernat	(Univ. College London)
2	H2	ATLAS	Refined MET measurement	Marianna	Testa	(LNF-INFN)
3	H3	CMS	SM Higgs H->ZZ->2l2v	Arun	Kumar	(Univ. of Delhi)
4	H4	ATLAS	Search for SM Higgs with H->WW->lvlv	Xiao	Meng	(CEA Saclay)
5	H5	CMS	SM Higgs search in 4 lepton	Alberto	Graziano	(INFN-Torino)
6	H6	ATLAS	SM Higgs H->ZZ->4l	Jerome	Odier	(CPPM Marseille)
7	H7	CMS	SM Higgs H->ZZ-> 2l2j	Roberto	Castello	(Torino/Louvain)
8	H8	CMS	Higgs in gamma gamma search	Hugues	Brun	(IPN Lyon)
9	H9	CMS	Photon Energy scale	Olivier	Bondu	(IPN Lyon)
10	H10	ATLAS	Search for SM Higgs in two photon	Olivier	Davignon	(LPNHE Paris)
11	H11	ATLAS	Search for charged Higgs bosons	Daniel	Pelikan	(Uppsala Univ.)
12	H12	CMS	VH, H->bb	Michele	De Gruttola	(Univ. of Florida)
13	H13	CMS	bID algorithms	Cristina	Ferro	(IPHC)
14	H14	DZero	Search for SM Higgs with WH->lvbb	Florian	Miconi	(IPHC, Strasbourg)
15	H15	ATLAS	SM Higgs Search in VH, H->bb	Alberto	Palma	(LIP Lisbon)
16	H16	ATLAS	Track based Alignment of Inner Detector	Ana	Ovcharova	(LBNL)
17	H17	ATLAS	Measurement Z+jet Xsec	Evelin	Meoni	(IFAE Barcelona)
18	H18	ATLAS	W+ b jet X sec measurement	Heather	Gray	(CERN)
19	M1	ATLAS	Exclusive B-Decays in ATLAS	Adam	Barton	(Lancaster)
20	M2	ATLAS	Standard Model WZ results	Peter	Loscutoff	(Berkeley LBL)
21	M3	ATLAS	Measurement of ZZ production	Nicholas	Edwards	(University of Glasgow)
22	M4	ATLAS	Measurement of charge assym. in ttbar	Rachik	Soualah	(Udine)
23	M5	CMS	Measurement top charge asymm.	Christian	Boser	(Karlsruhe)
24	M6	CMS	Top mass from Xsec measurement	Maria	Martin	(DESY)
25	M7	ATLAS	Luminosity measurement	Samir	Arfaoui	(CPPM Marseille)
26	M8	CMS	Top Xsec in all hadronic channel	Antonio	Tropiano	(INFN- Firenze)
27	M9	CMS	Single top in dilepton	Jochen	Ott	(KIT-Karlsruhe)
28	M10	ATLAS	Measurement of muon recon. Efficiencies	Nicola	Orlando	(INFN Lecce)
29	M11	ATLAS	Muon momentum resolution	Antonio	Salvucci	(Nijmegen & NIKHEF)
30	M12	CMS	Bs-> mumu	Luca	Martini	(INFN Pisa)
31	M13	ATLAS	Di-muon trigger efficiency for B-Phys.	Attilio	Picazio	(U. Genève)
32	M14	CMS	Trigger on electron at high luminosity	Alexandre	Zabi	(Ecole Polytech.)
33	M15	ATLAS	Study of muon isolation	Alexssandro	Manfredini	(MPI Munich)
34	M16	ATLAS	Alignment of Muon spectrometer	Nayanka	Boinet	(CEA Saclay)
35	M17	Other	Speculative Reading, Speculative Physics	Clarissa	Lee	(Duke University)
36	M18	LHCb	Search for CP violation in B0->J/PsiKs	Murilo	Rangel	(Rio de Janeiro)
37	M19	LHCb	Measu. ratio of BR(B->K*g)/BR(Bs->Phi g)	Daria	Savrina	(ITEP)
38	M20	LHCb	Measurement of the gamma angle	Alexandra	Martin Sanchez	(LAL Orsay)
39	M21	LHCb	B->ppbar K	Roberta	Cardinale	(INFN Genova)
40	M22	LHCb	b->s gamma with B->K*ll	Michelle	Nicol	(LAL Orsay)
41	M23	Theory	Pair correlation of neutral meson	Valery	Lyuboshitz	(Dubna)
42	M24	Theory	Effect in Lambda pair at heavy ion collosion	Valery	Lyuboshitz	(Dubna)
43	M25	ALICE	D+s prduction	Gian Michele	Innocenti	(INFN Torino)
44	M26	ATLAS	Quarkonium Production	Darren	Price	(Indiana University)
45	M27	ATLAS	Tile Calorimeter performance	Federico	Bertolucci	(INFN Pisa)
46	M28	CDF	A novel Z mass reconstruction in WZ/ZZ	Caterina	Vernieri	(INFN Pisa)
47	M29	ATLAS	Search for same sign top pair	Alejandro	Diaz	(Lund University)
48	M30	ATLAS	Search for heavy Majorana neutrinio	Joany	Manjarresa	(CEA-Saclay)
49	N1	CMS	BSM search in hadronic final state	HannsJorg	Weber	(ETH Zurich)
50	N2	ATLAS	Search for ttbar resonance in dilepton	Stephen	Swedish	(TRIUMF)
51	N3	CMS	Squarks and Gluinos search	Alex	Mott	(California Inst. of Tech.)
52	N4	ATLAS	Search for FCNC in ttbar	Arey	Cortes Gonzalez	(U.I. Urbana-Champaign)
53	N5	CMS	SUSY search in jet+MET	Marco	Buchmann	(ETH Zurich)
54	N6	ATLAS	Non-collision backgrounds	David	Salek	(CERN)
55	N7	ALTAS	Search for NP in monojet + MET	Mario	Martinez-Perez	(IFAE Barcelona)
56	N8	Theory	E6SSM vs MSSM gluino phenomenology	Patrik	Svantesson	(Southampton)
57	N9	Theory	Self-Consistent Model in SU(N)	Andrey	Koshelkin	(Moscow)
58	N10	ATLAS	Search for 1st Gen Leptoquarks	John	Stupak	(SUNY Stony Brook)
59	N11	CMS	NP search with dilepton and MET	Daniel	Sprenger	(RWTH, Aachen)
60	N12	Theory	Analytical Calc. in Multiperipheral model	Andrii	Tykhonov	(Ljubljana)
61	N13	ATLAS	Search for Extra Dimension in diphoton	Quentin	Buat	(LPSC Grenoble)
62	N14	CMS	SUSY search with 2 lepton incl. tau	Matthias	Edelhoff	(RWTH Aachen)
63	N15	ATLAS	Tau reconstruction and identification	Felix	Friedrich	(TU Dresden)
64	N16	ATLAS	Triggering on hadronic tau	Marcus	Morgenstern	(TU Dresden)
65	N17	ATLAS	Search for New heavy particles	Frederic	Brochu	(Cambridge)
66	N18	CMS	Model Unspecific Search	Shivali	Malhotra	(Univ. of Delhi)
67	N19	ATLAS	Search for heavy resonance in dilepton	Daniel	Hayden	(Royal Holloway)
68	N20	Theory	Gravity on Dirac and Majorana neutrinos	Ali	Alavi	(Iran)
69	N21	Theory	Higgs phenom. of M-U-Extra Dimensions	Matthew	Brown	(Southampton)
70	N22	Theory	Unified description of fundamental forces	Hans-Peter	Morsch	(Jeulich)
71	N23	ATLAS	Upgrade for the HL-LHC	Peter	Vankov	(DESY)

Location of Posters

Main Hall

(Amphitheatre Farabeuf)



Location: H1

ATLAS Measurement of dijet production
Pauline Bernat (University College London)

Title

Measurement of dijet production with a veto on additional central jet activity in pp collisions at $\sqrt{s}=7$ TeV using the ATLAS detector

A measurement of jet activity in the rapidity interval bounded by a dijet system is presented. Events are vetoed if a jet with transverse momentum greater than 20 GeV is found between the two boundary jets. The fraction of dijet events that survive the jet veto is presented for boundary jets that are separated by up to six units of rapidity and with mean transverse momentum $50 < p_T(\text{avg}) < 500$ GeV. The mean multiplicity of jets above the veto scale in the rapidity interval bounded by the dijet system is also presented as an alternative method for quantifying perturbative QCD emission. The data are compared to a next-to-leading order plus parton shower prediction from the POWHEG-BOX, an all-order resummation using the HEJ calculation and the PYTHIA, HERWIG++ and ALPGEN event generators. The measurement was performed using pp collisions at $\sqrt{s}=7$ TeV using data recorded by the ATLAS detector in 2010.

Location: H2

ATLAS Refined MET measurement
Marianna Testa (LNF-INFN)

Title

Refined reconstruction and calibration of the missing transverse energy in the ATLAS detector

The measurement of the missing transverse energy (E_{miss}) is fundamental for many analyses at LHC. Good E_{miss} resolution and calibration are essential for searches of new physics as well as precise measurements. We describe a refined reconstruction and calibration of E_{miss} developed by ATLAS and its performances on events containing Z and W bosons. The data sample was collected in proton-proton collisions at a center-of-mass energy of 7 TeV, and corresponds to an integrated luminosity of about 36 pb^{-1} . The determination of the absolute scale of the E_{miss} , fundamental for determining systematic uncertainties in all analysis involving E_{miss} measurements, is also presented.

Location: H3

CMS SM Higgs $H \rightarrow ZZ \rightarrow 2l2\nu$
Arun Kumar (Univ. of Delhi)

Title

Search for the SM Higgs boson using the $H \rightarrow ZZ \rightarrow 2l2\nu$ decay mode at the CMS

A search for the Standard Model Higgs boson in the decay channel $H \rightarrow ZZ \rightarrow 2l2\nu$ in pp collisions at 7 TeV center of mass energy with the CMS detector is presented. The data driven techniques are used to estimate the background and the systematic uncertainties. No evidence for the Higgs boson signal is found and upper limits at 95% C.L. are obtained on the cross section times branching ratio for a Standard Model-like Higgs boson.

Location: H4

ATLAS Search for SM Higgs with $H \rightarrow WW \rightarrow l\nu l\nu$
Xiao Meng (CEA Saclay)

Title

Search for the Standard Model Higgs boson in the $H \rightarrow WW(*) \rightarrow l\nu l\nu$ decay mode using 1.7 fb of data collected with the ATLAS detector at $\sqrt{s} = 7$ TeV

A Higgs boson search in the $H \rightarrow WW(*) \rightarrow l\nu l\nu$ ($l = e, \mu$) decay mode has been performed using 1.7 fb $^{-1}$ of proton-proton collisions at a centre-of-mass energy of 7 TeV collected with the ATLAS detector. No significant evidence of a Standard Model Higgs boson is found. An upper bound is placed on the Higgs boson production cross-section as a function of m_H . A Higgs boson with a mass in the range from 154 GeV to 186 GeV is excluded at 95% Confidence Level, while the expected exclusion range is $135 \leq m_H \leq 196$ GeV.

Location: H5

CMS SM Higgs search in 4 lepton
Alberto Graziano (INFN-Torino)

Title

Analysis strategy for the SM Higgs boson search in the four-lepton final state with the CMS detector

The current status of the searches for the SM Higgs boson in the $H \rightarrow ZZ(*) \rightarrow 4l$ decay channel with the CMS experiment is presented. The selection cuts for suppressing the backgrounds while keeping very high signal efficiencies are described, along with the data-driven algorithms implemented to estimate the background yields and the systematic uncertainties. With an integrated luminosity of 1.66/fb, upper limits at 95% CL on the SM-like Higgs cross section \times branching ratio exclude cross sections from about one to two times the expected value from the Standard Model in the range $150 < m_H < 420$ GeV. No evidence for the existence of the SM Higgs boson has been found so far.

Location: H6

ATLAS SM Higgs $H \rightarrow ZZ \rightarrow 4l$
Jerome Odier (CPPM Marseille)

Title

Search for Standard Model Higgs boson in the four-lepton channel with ATLAS

The latest results on the search for the Standard Model Higgs boson in the decay channel $H \rightarrow ZZ \rightarrow 4l$, where $l = e, \mu$ are presented. Proton-proton collision data at $\sqrt{s}=7$ TeV recorded with the ATLAS detector are compared to the Standard Model expectations and upper limits on the production cross section of a Standard Model like Higgs boson with a mass between 110 and 600 GeV are derived.

Location: H7

CMS SM Higgs $H \rightarrow ZZ \rightarrow 2l2j$
Roberto Castello (Torino/Louvain)

Title

Search for the SM Higgs boson using the $H \rightarrow ZZ \rightarrow 2l2j$ decay mode at the CMS

A search for the standard model Higgs boson decaying to two Z bosons with subsequent decay to a final state with two leptons and two quark-jets is presented. Data corresponding to an integrated luminosity of 1.6 /fb of LHC proton-proton collisions at the center-of-mass energy of 7 TeV were collected and analyzed by the CMS experiment. The selection to discriminate between signal and background events is based on kinematic and topological quantities, which include the angular spin correlations of the decay products. The events are classified according to probability of the jets to originate from quarks of light or heavy flavor or from gluons. No evidence for a Higgs boson is found and upper limits on the Higgs boson production cross section are set in the range of masses between 226 GeV and 600 GeV

Location: H8

CMS Higgs search in gamma gamma
Hugues Louis Brun (IPN Lyon)

Title

Higgs in gamma gamma search in CMS

A search for a Higgs boson decaying into two photons in pp collisions at the LHC at a center-of-mass energy of 7 TeV is presented. The search strategy is applied to 1.66 fb^{-1} of data collected by the CMS detector in 2011. Limits on the production cross sections of a Standard Model Higgs boson and of a Fermiophobic Higgs boson are presented.

Location: H9

CMS Photon Energy scale
Olivier Bondu (IPN Lyon)

Title

Photon energy scale determination and commissioning with radiative Z decays

The CMS electromagnetic calorimeter (ECAL) is composed of 75848 lead-tungstate scintillating crystals. It has been designed to be fast, compact, and radiation-hard, with fine granularity and excellent energy resolution. Obtaining the design resolution is a crucial challenge for the SM Higgs search in the two photon channel at the LHC, and more generally good photon calibration and knowledge of the photon energy scale is required for analyses with photons in the final state. The behavior of photons and electrons in the calorimeter is not identical, making the use of a dedicated standard candle for photons, complementary to the canonical high-yield Z decay to electrons, highly desirable.

The use of Z decays to a pair of muons, where one of the muons emits a Bremsstrahlung photon, can be such a standard candle. These events, which can be cleanly selected, are a source of high-purity, relatively high-pt photons. Their kinematics are well-constrained by the Z boson mass and the precision on the muon momenta, and can be used for numerous calibration and measurement purposes. This poster presents the event selection method and the results of the photon energy scale measurement via $Z \rightarrow \mu\mu\gamma$ events as well as their use in evaluating the efficiency of photon identification requirements, based on data recorded by the CMS experiment in 2010.

Location: H10

ATLAS Search for SM Higgs in two photon
Olivier Davignon (LPNHE Paris)

Title

Search for Standard Model Higgs boson in the two-photon final state in ATLAS

Latest results on the search for low mass standard model Higgs boson decaying into two photons are presented. The event selection, the background composition extraction methods and the evaluation of systematics are detailed. The proton-proton collisions data at $\sqrt{s}=7$ TeV recorded with the ATLAS detector are compared with the expected Standard Model Higgs boson inclusive production cross-section, for a mass range between 100 and 160 GeV/c². Upper limits on the production cross-section obtained from the available LHC integrated luminosity will be presented. Particular emphasis will be given on ATLAS photon trigger capability studies and also on potential analysis improvements using exclusive signatures.

Location: H11

ATLAS Search for charged Higgs bosons
Daniel Pelikan (Uppsala Univ.)

Title

Search for charged Higgs bosons in ATLAS

Charged Higgs bosons are predicted in several extensions of the Standard Model, where there is more than one doublet of complex scalars in the Higgs sector, for instance Two-Higgs-Doublet Models (2HDM), which is also the case in the Minimal Supersymmetric Standard Model (MSSM). For $m(H^+) < m(\text{top})$, the dominant production mode for charged Higgs bosons at the LHC is via the decay $t \rightarrow bH^+$ of one of the top quarks in $t\bar{t}$ events. We present results on the search for such light charged Higgs bosons in the ATLAS experiment, with emphasis on the decays $H^+ \rightarrow \tau\nu$.

Location: H12

CMS VH, $H \rightarrow bb$
Michele De Gruttola (Univ. of Florida)

Title

Search for the Standard Model Higgs Boson Decaying to Bottom Quarks and Produced in Association with a W or a Z Boson

A search for the standard model Higgs boson is presented in the associated production channel with decay to bb pairs. A data sample of approximately 1.1 1/fb has been analyzed in all five primary modes: $W(\mu\nu)H$, $W(e\nu)H$, $Z(\mu\mu)H$, $Z(ee)H$, $Z(\nu\nu)H$, and 95% C.L. upper limits derived for five mass points from 110 to 135 GeV.

Location: H13

CMS bID algorithms
Cristina Ferro (IPHC)

Title
b-tag algorithms in CMS

The identification of the b-jet is a crucial issue to study and characterize various channels like top quark events and many new physics scenarios. Different b-taggers are defined in CMS which benefit from the long life time, high mass and large momentum fraction of the b-hadron produced in quark jet. Efficient algorithms have been developed based on the measure of b-hadron secondary vertex or on tracks with a large impact parameter. 2011 collision data are used to estimate both the b-tagging efficiency and the mistag rate from light flavour jets. These results are applied to several measurements, as top quark pair production, searches for the Higgs boson and for new physics.

Location: H14

DZero Search for SM Higgs with $WH \rightarrow l\nu b\bar{b}$
Florian Miconi (IPHC, Strasbourg)

Title
Search for WH associated production at DZERO Tevatron

The Higgs mechanism introduced in 1964 gives a satisfactory solution to a major problem of the standard model of elementary particles: the origin of the mass. It predicts the existence of the Higgs scalar boson, which has not been discovered experimentally yet. The Tevatron, a hadron accelerator based at Fermi National Accelerator Laboratory near Chicago, has delivered data with its two multi-purpose detectors CDF and DZERO since 1983 up to september 2011. Leaving us about 12 fb⁻¹ of data to analyze. Associated production of a Higgs boson and vector gauge boson W or Z is the main search channel for a light standard Higgs boson (i.e below 135 GeV/c²). Using data collected by DZERO, we are looking for this production mode taking advantage of sophisticated techniques to improve the signal sensibility as b-jet identification and multivariate discriminants. In the end, a statistical approach allows us to set an upper limit on the ratio between the observed (resp. expected) Higgs production cross section and its theoretical cross section. The latest result obtained in the WH channel using 7.5fb⁻¹ at DZERO is 4.6 (resp. 3.5) for a 115 GeV/c² Higgs boson.

Location: H15

ATLAS SM Higgs Search $VH, H \rightarrow b\bar{b}$
Alberto Palma (LIP Lisbon)

Title
Search for SM Higgs boson with VH associated production with ATLAS detector

The search of the Standard Model Higgs boson is one of the important goals of the Large Hadron Collider physics program. The poster summarizes the results of the ATLAS detector search for the Higgs boson, in the mass range 110 < m_H < 130 GeV, when produced in association with a W or Z boson and decaying to a pair of bottom quarks. No evidence for the Higgs boson production is observed in a dataset of 7 TeV proton-proton collisions, corresponding to 1.04 fb⁻¹ of integrated luminosity, recorded by the ATLAS experiment in 2011.

Location: H16

ATLAS Track based Alignment of Inner Detector
Ana Ovcharova (LBNL)

Title
Track based Alignment of the Inner Detector of ATLAS

We will present the results of the alignment of the ATLAS tracker using data recorded during 2010 and 2011 using the LHC proton-proton collision runs at 7 TeV. Validation of the alignment was performed by measuring the alignment observables as well as many other physics observables, notably resonance invariant masses in a wide mass range (K⁰s, J/ψ and Z decays in to μμ) and the effect of detector systematic distortions (curl, twist, etc) on their invariant mass and p momentum. Also the E/p distributions for electrons from Z → e+e- and W → eν are carefully checked. The systematic errors due to the alignment that may affect physics results are under study. The systematic distortion may as well bias impact parameter values, affecting thus to the B-tagging observables. The results of the alignment with real data reveal that the attained precision of the alignment constants is approximately 5 microns.

Location: H17

ATLAS Measurement Z+jet Xsec
Evelin Meoni (IFAE Barcelona)

Title
Measurement of the production cross section for Z/γ* in association with jets in pp collisions at sqrt(s)=7 TeV with the ATLAS Detector

We present results on the production of jets of particles in association with a Z/γ* boson, in proton-proton collisions at sqrt(s) = 7 TeV with the ATLAS detector. The analysis includes the full 2010 data set, collected with a low rate of multiple proton-proton collisions in the accelerator, corresponding to an integrated luminosity of 36 pb⁻¹. Inclusive jet cross sections in Z/γ* events, with Z/γ* decaying into electron or muon pairs, are measured for jets with transverse momentum p_T(jet) > 30 GeV and jet rapidity in the region |η_{jet}| < 4.4. The measurements are compared to next-to-leading-order perturbative QCD calculations, and to predictions from different Monte Carlo generators implementing leading-order matrix elements supplemented by parton showers.

Location: H18

ATLAS W+ b jet X sec measurement
Heather Gray (CERN)

Title
Measurement of the b-jet cross-section with associated vector boson production with the ATLAS experiment at the LHC

A measurement of the cross-section for vector boson production in association with jets containing B-hadrons is presented using 35 pb⁻¹ of data collected by the ATLAS experiment in 2010. Such processes are large, irreducible backgrounds to searches for the a low mass Higgs decaying to a pair of b-quarks produced in association with a vector boson. Theoretical predictions of the V+B production rate have large uncertainties and previous measurements have reported discrepancies. The inclusive and differential cross-sections in both the electron and muon channels will be shown. Comparisons will be made to recent theoretical predictions at the next-to-leading order.

Location: M1

ATLAS Exclusive B-Decays in ATLAS
Adam Barton (Lancaster)

Title
Exclusive B-Decays in ATLAS

The ATLAS B physics program relies on exclusive decays, in particular involving a J/psi. ATLAS capabilities to reconstruct the properties of B-hadrons in exclusive decay modes will be demonstrated and prospects for future measurements highlighted. Studies of the most important backgrounds are also presented.

Location: M2

ATLAS Standard Model WZ results
Peter Loscutoff (Berkeley LBL)

Title
ATLAS Standard Model WZ results

This note presents a measurement of WZ production in 1.02 fb^{-1} of pp collision data at $\sqrt{s} = 7 \text{ TeV}$ collected by the ATLAS experiment in 2011. A total of 71 candidates with a background expectation of $10.5^{+0.8(\text{stat})+2.9-2.1(\text{syst})}$ events were observed for purely leptonically decaying bosons with electrons, muons and missing transverse energy in the final state. The total cross section has been determined to be $\sigma^{\text{tot}}_{\text{WZ}} = 21.1^{+3.1-2.8(\text{stat})+1.2-1.2(\text{syst})+0.9-0.8(\text{lumi})} \text{ pb}$, in agreement with the Standard Model expectation of $17.2^{+1.2-0.8} \text{ pb}$. Limits on anomalous triple gauge boson couplings have been derived.

Location: M3

ATLAS Measurement of ZZ production.
Nicholas Charles Edwards (University of Glasgow)

Title
Measurement of the ZZ Production Cross Section in Proton-Proton Collisions at $\sqrt{s} = 7 \text{ TeV}$ with the ATLAS Detector, and limits on triple gauge couplings

We present a measurement of the ZZ production cross section in proton-proton collisions at $\sqrt{s} = 7 \text{ TeV}$, using data collected by the ATLAS experiment at the LHC. Events are selected that contain two candidate Z bosons in their decays to electrons or muons. The poster discusses in detail the event selection, the data-driven background estimation technique and the systematic uncertainties to the analysis, and presents the first measurement of the ZZ production cross section at the LHC. In addition, limits are set on anomalous neutral triple gauge couplings.

Location: M4

ATLAS Measurement of charge asym. in $t\bar{t}$
Rachik Soualah (Udine)

Title
The measurement of the charge asymmetry in top-antitop production using data at $\sqrt{s} = 7 \text{ TeV}$ collected by the ATLAS detector.

We present a measurement of the charge asymmetry in top-antitop production using data collected by the ATLAS detector. The top pair events decaying in the lepton+jets channel to either an electron or muon, missing transverse energy and at least four jets are selected. The reconstruction of the $t\bar{t}$ events was performed using a kinematic likelihood approach. The difference of absolute values of top and antitop rapidities is used to define the charge asymmetry: $A_c = (N(|y| > 0) - N(|y| < 0)) / (N(|y| > 0) + N(|y| < 0))$. To allow comparisons with theory calculations, a Bayesian unfolding technique is applied to correct the measured $|y|$ distributions for acceptance and detector effects.

Location: M5

CMS Measurement top charge asymm.
Christian Boser (Karlsruhe)

Title
Measurement of the Charge Asymmetry in Top Quark Pair Production with the CMS Experiment

We present a measurement of the charge asymmetry in top quark pair production using an integrated luminosity of $1.09/\text{fb}$ collected with the CMS detector. Top quark pairs with a signature of one electron or muon and four or more jets, at least one of them b tagged, are selected. At LHC a small charge asymmetry in the rapidity distributions of top and antitop quarks is predicted. Therein slightly broader rapidity distributions for top quarks are expected, while antitop quarks are produced more centrally and possess narrower rapidity distributions. We determine the charge asymmetry based on two different sensitive variables and the results are compared with the most precise standard model theory predictions using a dedicated unfolding technique.

Location: M6

CMS Top mass from Xsec measurement
Maria Aldaya Martin (DESY)

Title
Top quark mass extraction from cross section measurement

The top quark mass in the pole and $\overline{\text{MS}}$ definition is determined based on the measured cross section in the dilepton channel compared to three different approximate NNLO QCD calculations. The analysed dataset corresponds to an integrated luminosity of 1.14 fb^{-1} collected by the CMS experiment in 2011 in pp collisions at \sqrt{s} of 7 TeV.

Location: M7

ATLAS Luminosity measurement
Samir Arfaoui (CPPM Marseille)

Title

Luminosity measurement in ATLAS

This poster presents how the ATLAS luminosity is extracted using several detectors with varying efficiencies and acceptances. Different methods, such as inclusive - or coincidence - event counting and calorimeter integrated current measurements, are calibrated and cross-compared to provide the most accurate luminosity determination. The absolute calibration of the luminosity is performed via beam separation or van der Meer - scans, and is estimated to have a systematic error of 3.7% in 2011. This error includes uncertainties on the LHC beam currents measurements as well as long-term and internal consistency. As this uncertainty still dominates many cross-section measurements in ATLAS, details on its estimation will be discussed.

Location: M8

CMS top Xsec in all hadronic channel
Antonio Tropiano (INFN- Firenze)

Title

Measurement of the top quark pair production cross section at 7 TeV in the all-hadronic channel

The first measurement of the top quark pair production cross section in the fully hadronic decay channel at a center-of-mass energy of 7 TeV is presented. The measurement has been performed using an integrated luminosity of 1.09 fb^{-1} , collected with the CMS detector. The cross section is determined from an unbinned maximum likelihood fit to the reconstructed top quark mass. The reconstruction of $t\bar{t}$ candidates is performed after a cut-based event selection using a kinematic fit. A data-driven technique is used to estimate the dominant background from QCD multijet production. The cross section measurement yields $\sigma(t\bar{t}) = 136^{+20}(\text{stat.})^{+40}(\text{sys.})^{+8}(\text{lumi.}) \text{ pb}$. This result is consistent with measurements in other decay channels and with the Standard Model prediction.

Location: M9

CMS single top in dilepton
Jochen Ott (KIT-Karlsruhe)

Title

Search for single top tW associated production in the dilepton decay channel

We present a first study of the single top W -associated production (tW) in proton-proton collisions at the LHC at a centre-of-mass energy of 7 TeV, using data collected with the CMS experiment during the year 2011. The search is performed in the dileptonic final states with a selection based on the kinematics of the signal, jet multiplicity and b -tagging. The contribution of the Z +jets processes to the background is estimated from data and two control regions are used to constrain the normalization of top pair production in the signal region. First indications of the tW signal are observed and the measured tW cross section is compared with the most precise standard model theory prediction.

Location: M10

ATLAS Measurement of muon recon. Efficiencies
Nicola Orlando (INFN Lecce)

Title

Measurement of the muon reconstruction efficiencies

The ATLAS detector is designed for excellent muon reconstruction performance. The measurement of the muon reconstruction efficiency in a wide momentum range is important. $J/\psi \rightarrow \mu\mu$ decays give access to transverse momenta below about 15 GeV. Dimuon decays of Z bosons cover the momentum range between 15 GeV and about 100 GeV. The assessment of the reconstruction efficiency for $p_T > 100$ GeV requires Monte-Carlo simulations and measurements addressing the reliability of the Monte-Carlo simulations. The poster presents the status of the efficiency measurements based on $>200/\text{pb}$ of pp collisions data recorded with the ATLAS detector in 2011.

Location: M11

ATLAS Muon momentum resolution
Antonio Salvucci (Nijmegen & NIKHEF)

Title

Measurement of the muon momentum resolution

The ATLAS detector has been designed for good muon momentum resolution up to momenta in the TeV range. The muon momentum resolution of the ATLAS spectrometer has been measured with pp collisions data recorded in 2011. The measurement combines the dimuon mass resolution in $J/\psi \rightarrow \mu\mu$ and $Z \rightarrow \mu\mu$ decays with measurements of the alignment accuracy of the detector based on straight muon tracks acquired with special runs without magnetic field in the ATLAS detector. The latest results of the resolution measurements are presented in the poster.

Location: M12

CMS $B_s \rightarrow \mu\mu$
Luca Martini (INFN Pisa)

Title

Search for $B_s \rightarrow \mu\mu$ and $B_0 \rightarrow \mu\mu$ decays in CMS

A search for the rare decays $B_s \rightarrow \mu\mu$ and $B_0 \rightarrow \mu\mu$ performed in pp collisions at $\sqrt{s} = 7$ TeV is presented. The data sample, collected by the CMS experiment at the LHC, corresponds to an integrated luminosity of 1.14 fb^{-1} . In both cases the number of events observed after all selection requirements is consistent with expectations from background and standard model signal predictions. The resulting upper limits on the branching fractions are $\text{BF} < 1.9\text{E-}8$ for $B_s \rightarrow \mu\mu$ and $\text{BF} < 4.6\text{E-}9$ for the $B_0 \rightarrow \mu\mu$, at 95% confidence level. Furthermore, the combination of the results of the search for the decay $B_s \rightarrow \mu\mu$ by the CMS and LHCb experiments is presented. The upper limit is $\text{BF} < 1.1\text{E-}8$ at 95% CL.

Location: M13

ATLAS di-muon trigger efficiency for B-Phys.
Attilio Picazio (U. Genève)

Title

A measurement of the ATLAS di-muons trigger efficiency in proton-proton collisions at $\sqrt{s} = 7$ TeV

The B physics programme of the ATLAS experiment includes the study of the production cross sections, the searches for rare b decays signatures (which are sensitive to new physics at the TeV energy scale) and the measurements of CP violation effects in B-events, such as $B_s \rightarrow J/\psi \phi$ and $B_d \rightarrow J/\psi K_s$. The key to the detection of these B signals in ATLAS is to achieve a high trigger efficiency for low-pT di-muons events, keeping an acceptable trigger rate. Atlas developed two separate approaches for triggering on di-muon events from a resonance such as J/ψ and Υ . The first approach is to start from a di-muon trigger selected by the Level-1 trigger while the second is based on dedicated Level-2 algorithm. The performance of di-muons trigger has been studied using collision data at $s = 7$ TeV in 2011 data. Results are shown and compared to MonteCarlo predictions.

Location: M14

CMS Trigger on electron at high luminosity
Alexandre Zabi (Ecole Polytech.)

Title

Triggering on electron at high luminosity with CMS

The CMS high-resolution electromagnetic calorimeter (ECAL) comprises 75848 lead tungstate (PbWO₄) crystals and is optimized for the discovery of the SM Higgs boson in its two-photon decay mode. With the unprecedented collision rate at the Large Hadron Collider (LHC), the electron/photon (EG) Trigger plays a major role in selecting the collisions most likely to yield something new and interesting. Since start of physics in March 2010 the LHC instantaneous luminosity has increased by six orders of magnitude to more than 10^{33} cm⁻² s⁻¹ today, presenting a major challenge for the stability of the trigger system. This poster presents the performance of the EG trigger based on data recorded by the CMS detector in 2011.

Location: M15

ATLAS Study of muon isolation
Alessandro Manfredini (MPI Munich)

Title

Study of the muon isolation as a function of pile-up

LHC has recently switched to 50 ns bunch spacing collisions, each bunch collects nowadays of the order of 10^{14} protons, this means a mean value of 14 different interactions per bunch crossing and is expected to reach 20-25 for the end of the year. This is a challenging situation for what concerns pile-up. Muon isolation is a quantity extensively used in many kind of analysis and it's influenced by pile-up because of the energy deposit around the muon from secondary interactions (in time pile-up), or signals in the calorimeter that comes from previous bunch crossing (out of time pile-up). The influence of pile-up on muon isolation variables in the ATLAS detector has been studied and compared with Monte Carlo prediction in case of highly isolated muon, as the Z dimuon events, and in case of non isolated muon as in heavy quarks dijet events.

Location: M16

ATLAS Alignment of Muon spectrometer
Nayanka Boinet (CEA Saclay)

Title

Muon alignment

A good measurement of high momentum muons is very important for the search for new high mass resonances. The ATLAS Muon Spectrometer is designed to achieve a momentum resolution of 10% for muons with a transverse momentum of 1 TeV. In this momentum range, the main source of uncertainty originates from the misalignments between the chambers of the spectrometer. The curvature of such muons amounts to about 500 micrometers in the ATLAS toroidal magnetic field. It is thus necessary to determine the positions of the chambers with a precision better than 50 micrometers. The alignment system of the ATLAS muon spectrometer relies on measurements given by optical sensors placed on the chambers combined with track-based algorithms in order to provide a reference geometry. In year 2011, dedicated collision runs have been recorded for the validation of the alignment. Performances close to nominal have been obtained in most parts of the detector. This poster exposes the strategies developed for the alignment, the validation methods and the performances reached.

Location: M17

Speculative Reading, Speculative Physics
Clarissa Ai Ling Lee (Duke University)

Title

Speculative Reading, Speculative Physics

The poster aims to illustrate the hermeneutics of reading against the highly image-dependent (rather than object-oriented) world of experimental particle physics. Reading becomes the medium for mediating between the real and the virtual when constructing physical knowledge. "Virtual" particles, produced through material inter-course between machine and nature, are productive for re-thinking the virtual/real entanglement. Reading enables a process of deconstructing and re-naturalizing microphysical trails, objects, and movements 'transformed' into machine code, post-detector. The process of reading is therefore the 'detection,' 'observation,' 'measurement,' 'abduction,' and 'interpretation' of coded information and knowledge; deciphered through data 'selected' for analysis, extrapolated as evidence for the confirmation/re-orientation of theoretical predictions, and included for the re-envisioning and revising of foundational explanations and structures of modern physics.

Location: M18

LHCb Search for CP violation in $B_0 \rightarrow J/\psi K_S$
Murilo Rangel (Rio de Janeiro)

Title

Search for CP violation in $B_0 \rightarrow J/\psi K_S$ decays with first LHCb data

We report a measurement of the well-established CP violation in $B_0 \rightarrow J/\psi K_S$ decays. We perform a time-dependent analysis of the decays reconstructed in 35/pb of LHCb data that was taken in 2010. We measure the CP asymmetry parameter $S_{J/\psi K_S}$, which is connected to the CKM angle β through $S_{J/\psi K_S} = \sin 2\beta$, neglecting CP violation in B_0 - B_0 bar mixing and decay. We find $S_{J/\psi K_S} = 0.53 \pm 0.28 - 0.29(\text{stat}) \pm 0.05(\text{sys})$.

Location: M19

LHCb Meas. ratio of BR(B->K*gamma)/BR(Bs->Phi g)
Daria Savrina (ITEP)

Title

Measurement of the ratio of branching fractions
BR(B->K*gamma)/BR(Bs->phi gamma) at LHCb

Rare radiative decays of the B-mesons may provide a good test for the Standard Model. Being forbidden at tree level, such processes may only occur due to loop diagrams involving FCNC and thus become very sensitive to the impact of new non-standard particles. This impact may be discovered through different observables, like branching fractions, isospin asymmetries, photon polarization etc., and the accuracy of the theoretical predictions for such decays makes them attractive from the experimental point of view.

Having started to take data at an energy of $\sqrt{s} = 7$ TeV since 2010, by mid-summer of 2011 LHCb has collected 340 pb^{-1} of integrated luminosity. With these data clear signals for $B_d \rightarrow K^* \gamma$ and $B_s \rightarrow \phi \gamma$ have been observed. The ratio of branching fractions of these decays has been measured with good accuracy and it is consistent with the theoretical predictions and previous experimental results.

Location: M20

LHCb Measurement of the gamma angle
Alexandra Martin Sanchez (LAL Orsay)

Title

Measurement of the gamma angle at LHCb

An overview of plans for the measurement of γ at the LHCb experiment will be shown. The γ angle is the parameter of the CKM unitary triangle that is known least well. The LHCb experiment at the CERN LHC aims to perform precision b-physics and CP violation measurements, including improving the knowledge of γ . Focus will be put on methods where B mesons decay at the tree level, within the Standard Model framework. The early data recorded by the experiment, from pp collisions at $\sqrt{s} = 7$ TeV, has allowed observations of the first signals of the B decay modes that will be used to perform this measurement.

Location: M21

LHCb B->ppbar K
Roberta Cardinale (INFN Genova)

Title

Study of the $B^+ \rightarrow p \text{ anti}(p) K^+$ decay channel at LHCb

The study of the $B^\pm \rightarrow p\bar{p}K^\pm$ decay channel at LHCb is of great interest since it gives the possibility to study different aspects of the Standard Model and possibly Beyond Standard Model physics.

A measurement of the direct CP asymmetry can be performed. Moreover intermediate states such as charmonium and "charmonium-like" resonances in the $p\bar{p}$ final state can be observed and studied along with their characteristics.

A multivariate selection has been implemented. The selection has a high signal efficiency and high background rejection capability.

The ratios of the branching fractions of the $B^\pm \rightarrow p\bar{p}K^\pm$ decay channel, of the charmless component with $M_{p\bar{p}} < 2.85 \text{ GeV}/c^2$ and of the charmonium contribution $\eta_c, \mathcal{B}(B^\pm \rightarrow \eta_c K^\pm) \times \mathcal{B}(\eta_c \rightarrow p\bar{p})$, relative to the J/ψ contribution, $\mathcal{B}(B^\pm \rightarrow J/\psi K^\pm) \times \mathcal{B}(J/\psi \rightarrow p\bar{p})$, have been measured and the results will be shown.

Location: M22

LHCb b->s gamma with B->K*II
Michelle Nicol (LAL Orsay)

Title

Photon polarization in b->s gamma using B->K* II.

Although the branching ratio of b->s/gamma has been measured to be consistent with that predicted by the Standard Model, new physics could still be present and detectable through analysing details of the decay process. In particular, the photon from the b is predominantly left handed in the SM, whereas additional right handed currents can arise in certain classes of new physics models. Access to the polarisation information is available via an angular analysis of B->K*II. Hadronic form factors render theoretical predictions over the whole q^2 (the dilepton invariant mass squared) range difficult. However, it has been shown that at low q^2 , certain asymmetries providing information on the photon polarisation can be formed, where these uncertainties are controllable. This poster will present an overview of the method to measure the photon polarisation at the LHCb experiment at CERN by performing an angular analysis of B->K*II at low q^2 .

Location: M23

Theory Pair correlation of neutral meson
Valery Lyuboshitz (Dubna)

Title

On the pair correlations of Neutral K, D, B, and Bs mesons with close momenta produced in inclusive multiparticle processes

The phenomenological structure of inclusive cross sections of the production of two neutral K mesons in hadron-hadron, hadron-nucleus and nucleus-nucleus collisions is investigated taking into account the strangeness conservation in strong and electromagnetic interactions. Relations describing the dependence of the correlations of two short lived and two long lived neutral kaons $K_S^0 K_L^0$ and the correlations of "mixed" pairs $K_S^0 K_L^0$ at small relative momenta upon the space-time parameters of the generation region of K^0 and \bar{K}^0 mesons have been obtained. These relations involve the contributions of Bose statistics and S wave strong final state interaction of two K^0 (\bar{K}^0) mesons as well as of a K^0 meson with a \bar{K}^0 meson, and also the contribution of transitions $K^0 K^0 \rightarrow K^+ K^-$, and they depend upon the relative fractions of produced pairs $K^0 K^0$, $K^0 \bar{K}^0$ and $\bar{K}^0 \bar{K}^0$. It is shown that under the strangeness conservation the correlation functions of the pairs $K_S^0 K_L^0$ and $K_L^0 K_S^0$, produced in the same inclusive process, coincide, and the difference between the correlation functions of the pairs $K_S^0 K_S^0$ and $K_L^0 K_L^0$ is conditioned by the production of the pairs of non-identical neutral kaons $K^0 \bar{K}^0$.

Analogous correlations for the pairs of neutral heavy mesons D^0, D^{\pm} and B^0, B^{\pm} , generated in multiple processes with the charm (beauty) conservation, are analyzed, and differences from the case of neutral K mesons are discussed.

Location: M24

Theory Effect in Lambda pair at heavy ion collision
Valery Lyuboshitz (Dubna)

Title

Possible Effect of Mixed Phase and Deconfinement upon spin correlation in the Lambda Lambda-bar pairs produced in relativistic heavy ion collisions

Spin correlations for the $\Lambda\Lambda$ and $\Lambda\bar{\Lambda}$ pairs, generated in relativistic heavy ion collisions, and related angular correlations at the joint registration of hadronic decays of two hyperons, in which space parity is not conserved, are analyzed. The correlation tensor components can be derived from the double angular distribution of products of two decays by the method of "moments". The properties of the "trace" of the correlation tensor (a sum of three diagonal components), determining the relative fractions of the triplet states and singlet state of respective pairs, are discussed. Spin correlations for two identical particles ($\Lambda\Lambda$) and two non-identical particles ($\Lambda\bar{\Lambda}$) are considered from the viewpoint of the conventional model of one-particle sources. In the framework of this model, correlations vanish at sufficiently large relative momenta. However, under these conditions, in the case of two non-identical particles ($\Lambda\bar{\Lambda}$) a noticeable role is played by two-particle annihilation (two-quark, two-gluon) sources, which lead to the difference of the correlation tensor from zero. In particular, such a situation may arise when the system passes through the "mixed phase".

Location: M25

ALICE D+s production
Gian Michele Innocenti (INFN Torino)

Title

The D+s production in pp collision at 7 TeV measured in the ALICE central barrel.

The measurement of the charm production cross section in pp collisions allows to test the perturbative QCD predictions in the new energy regime of the LHC. In addition, it provides a reference for the study in Pb-Pb collisions in which heavy quarks are expected to be fundamental probes for the properties of the medium.

We will present the the p_t differential cross section in pp of the D_s^+ meson measured in the mid-rapidity region of ALICE through the $D_s^+ \rightarrow K^+ K^- \pi^+$ decay channel with an integrated luminosity of 4.8 nb^{-1} . In addition, the comparison with the D^0, D^+, D^{*+} cross sections, also measured in ALICE, will be shown.

Location: M26

ATLAS Quarkonium Production
Darren Price (Indiana University)

Title

Quarkonium Production in ATLAS

The production of Quarkonium is an important testing ground for QCD calculations. The J/psi and Upsilon production cross-sections are measured in proton-proton collisions at a center-of-mass energy of 7 TeV with the ATLAS detector at the LHC. Differential cross sections as a function of transverse momentum and pseudorapidity will be presented. The fraction of J/psi produced in B-hadron decays was also measured and the differential production cross-sections of prompt and non-prompt J/psi determined separately. Results are compared to predictions from perturbative QCD calculations.

Location: M27

ATLAS Tile Calorimeter performance
Federico Bertolucci (INFN Pisa)

Title

The ATLAS Tile Calorimeter performance at LHC in pp collisions at 7 TeV

The Tile Calorimeter (TileCal), the central section of the hadronic calorimeter of the ATLAS experiment, is a key detector component to detect hadrons, jets and taus and to measure the missing transverse energy. Due to the very good muon signal to noise ratio it assists the muon spectrometer in the identification and reconstruction of muons. TileCal is built of steel and scintillating tiles coupled to optical fibers and read out by photomultipliers. The calorimeter is equipped with systems that allow to monitor and to calibrate each stage of the read-out system exploiting different signal sources: laser light, charge injection and a radioactive source. It also uses the minimum bias current integrated over thousands of LHC collisions to monitor the response stability and the LHC luminosity.

The performance of the calorimeter has been measured and monitored using calibration data, random triggered data, cosmic muons, splash events and more importantly LHC collision events. The results presented assess the absolute energy scale calibration precision, the energy and timing uniformity and the synchronization precision. The results demonstrate a very good understanding of the performance of the Tile Calorimeter that is well within the design expectations.

Location: M28

CDF A Novel Z mass reconstruction in WZ/ZZ.
Caterina Vernieri (INFN Pisa)

Title

A Novel Technique to reconstruct the Z mass in WZ/ZZ events with lepton, missing transverse energy and three jets

Observing WZ/ZZ production at the Tevatron in a final state with a detected lepton, missing transverse energy and hadron jets is extremely difficult because of the low signal rate and the huge background. In an attempt to increase the acceptance we study the sample with a lepton, missing ET and 3 jets, where about 1/3 of the process is expected to end. Rather than choosing the two ET -leading jets to detect a Z signal, we make use of the information carried by all jets. To qualify the potential of our method, we estimate the probability of observing an inclusive diboson signal at the 3 standard deviations level (P3) to be about four times larger than when using the two leading jets only. Aiming at applying the method to the search for the exclusive WZ/ZZ \rightarrow lqq channel in the three jets sample, we analyzed separately the sample with at least one b-tagged jet and the sample with no tags. We observe a modest improvement in sensitivity over the option of building the Z-mass from the two leading jets in ET. Studies for improving the method further are on-going.

Location: M29

ATLAS Search for same sign top pair
Alejandro Alonso Diaz (Lund University)

Title

Search for Same-Sign Top Pairs and Fourth Generation Bottom-like Quarks in Same-Sign Dilepton Final States with 1 /fb of Data

We present a search for same-sign top quark pairs and fourth generation bottom-like quarks (b') in pp collisions at $\sqrt{s} = 7 \text{ TeV}$ using data recorded with the ATLAS detector at the Large Hadron Collider. Events are selected with two isolated leptons (e or μ) having the same electric charge, large missing transverse energy and at least two jets. Using a data sample of 1.04 /fb , we set 95% CL limits on same-sign top quark production cross section and on the b' mass.

Location: M30

ATLAS Anode-resistive Micromegas for HL-LHC
Joany Manjarres (CEA-Saclay)

Title

Performances of Anode-resistive Micromegas for HL-LHC

- Micromegas technology is a promising candidate to replace ATLAS forward muon chambers -tracking and trigger- for future HL-LHC upgrade of the experiment. The LHC accelerator luminosity will be ten times the nominal one, increasing background and pile-up event probability in the same proportion. This requires detector performances which are currently under studies in intensive RD activities. We studied performances of four different resistive Micromegas detectors and with different readout strip pitches. These chambers were tested using $\sim 120 \text{ GeV}$ momentum pions with rates from 25 up to 250 kHz/cm^2 , at H6 CERN-SPS beam line in autumn 2010. We find that the resolution suffers if the strip pitch is too wide with respect to the charge distribution at the readout plane due to insufficient charge sharing. We propose a cluster reconstruction algorithm in order to reduce the systematic effects of the charge sharing. For narrow strip pitch $500 \mu\text{m}$ we measure a resolution of $88.1 \mu\text{m}$ and an efficiency of $\sim 98\%$. The track angle effect on the efficiency is also studied. Our results show that resistive techniques induce no degradation on the efficiency or resolution with respect to the standard Micromegas, and in some configuration the resistive coating is able to reduce the discharge currents at least by a factor of 100 and no HV breakdown was observed.

Location: N1

CMS BSM search in hadronic final state
Hannsjoerg Weber (ETH Zurich)

Title

Search for BSM physics in hadronic final states with MT2

We present the results of a search for physics beyond the Standard Model (BSM) using data of 1.1 fb⁻¹ integrated luminosity collected by the CMS experiment at the LHC. Fully hadronic final states were selected based on the "stransverse" mass variable MT2 and interpreted in various models of supersymmetry (SUSY). Two complementary analyses were performed targeting different areas of the SUSY phase space. All backgrounds were estimated using both simulation and data-driven methods. As no excess of events over the expected background was observed, exclusion limits were derived.

Location: N2

ATLAS Search for ttbar resonance in dilepton
Stephen Swedish (TRIUMF)

Title

A Search for ttbar resonances in the Dilepton Channel in 1.04/fb of pp Collisions at sqrt(s) = 7 TeV

This poster presents the first ATLAS result on a search for a high mass top pair resonance in the subset of events where both W bosons from the top decays decay to either electron or muon. The analysis was performed on 1.04 fb⁻¹ of pp collisions at sqrt(s) = 7 TeV. Numerous models predict the production of new massive particles that decay preferentially to a top-anti-top pair, including Randall-Sundrum models where the observation of the Kaluza Klein gluon may be the first indication of the existence of an extra spatial dimension. In the analysis presented, a simple observable, sensitive to resonance mass, was formed by summing the missing transverse energy, and the transverse momenta of the selected jets and the two candidate leptons. A deviation from the Standard Model prediction for this observable was searched for using Bayesian statistical methods that compared the yields, and shapes, of the Standard Model background and signal predictions for KK-gluons with masses between 500 and 1600 GeV. No excess over the Standard Model was observed and 95% credibility interval upper limits were set on the production cross-section times branching ratio to top quarks for KK-gluon-like resonances. The results of the analysis exclude Randall-Sundrum KK-gluons with masses less than 840 GeV.

Location: N3

CMS Squarks and Gluinos search
Alex Mott (California Inst. of Tech.)

Title

Inclusive Search for Squarks and Gluinos using the Razor Kinematic Variable

A search is performed for heavy particle pairs produced in 7 TeV proton-proton collisions with data collected by the CMS experiment in 2011 at the CERN Large Hadron Collider. The search is sensitive to generic supersymmetry models provided superpartner particles are kinematically accessible, with minimal assumptions on properties of the lightest superpartner particle. The kinematic consistency of the selected events is tested against the hypothesis of heavy particle pair production using the dimensionless razor variable R, related to the missing transverse. The new physics signal is characterized by a broad peak in the distribution of MR, an event-by-event indicator of the heavy particle mass scale. After background modeling based on data no significant deviation is observed from the Standard Model expectation. The results are interpreted in the context of the Constrained Minimal Supersymmetric Standard Model.

Location: N4

ATLAS Search for FCNC in ttbar
Arely Cortes Gonzalez (U.I. Urbana-Champaign)

Title

Search for flavor-changing neutral currents in top quark decays at ATLAS

ATLAS results are presented on a search for flavor-changing neutral currents (FCNC) in top quark decays. Events are searched for where a pair of top quarks is produced and one decays through the Standard Model t->Wb mode while the other decays through the FCNC mode t->qZ. Leptonic final states are used in which both the W and Z bosons decay leptonically, yielding final states with three leptons and two jets. The observed events are consistent with the expected backgrounds from Drell-Yan and diboson production and a limit on the FCNC branching fraction of top quarks to qZ is set.

Location: N5

CMS SUSY search in jet+MET
Marco Andrea Buchmann (ETH Zurich)

Title

Search for supersymmetry in events with a Z boson, jets and missing energy

We present a search for Physics beyond the Standard Model (SM) in final states with a Z boson, jets and missing transverse energy, using a data sample collected in 2011 by the CMS detector at the Large Hadron Collider corresponding to an integrated luminosity of 2.1 fb⁻¹. This final state is predicted in several models of Physics beyond the SM, including supersymmetry. A novel analysis method is exploited, the Jet-Z Balance method, and a precise determination of the total SM background is obtained using a control sample from data. In the absence of any significant excess beyond the SM background, upper limits are set on simple models of supersymmetry, and further information is provided to allow confrontation of other models to these results.

Location: N6

ATLAS Non-collision backgrounds
David Salek (CERN)

Title

Non-collision backgrounds in ATLAS

Non-collision backgrounds in the ATLAS experiment can be beam-induced or caused by cosmic particles. A specific class of bunch-crossings - the so-called 'unpaired bunches' where only one beam passes through the detector - is analysed in order to study general properties of beam-induced backgrounds and monitor their levels during the first year of data-taking. Beam-induced backgrounds can leave significant energy deposits in the calorimeters and produce fake jets and therefore also missing transverse momentum. Events with fake jets can therefore have similar signatures to new-physics signals. This poster describes the main characteristics of the beam backgrounds and possible ways to identify and remove them from physics samples.

Location: N7

ALTAS Search for NP in monojet + MET
Mario Martinez-Perez (IFAE Barcelona)

Title

Search for New Phenomena in Monojet plus Missing Transverse Momentum Final States in ATLAS

We report preliminary results on a search for new phenomena in an event sample with monojets and large missing transverse momentum in the final state. The analysis uses data collected in 2011 with the ATLAS detector. The results are translated into improved limits on a model with Large Extra Dimensions.

Location: N8

Theory E6SSM vs MSSM gluino phenomenology
Patrik Svantesson (Southampton)

Title

E6SSM vs MSSM gluino pheno

The E6SSM is a promising model based on the $SU(3) \times SU(2) \times U(1) \times U(1)'$ subgroup of E_6 . It gives a solution to the MSSM μ -problem without introducing massless axions, gauge anomalies or cosmological domain walls. The model contains three families of complete 27 's of E_6 , giving a richer phenomenology than the MSSM. This poster presents a study of typical gluino decays. The E6SSM generically has gluino cascade decay chains which are about 2 steps longer than the MSSM's due to the presence of several light neutralino states. This implies less missing (and more visible) transverse momentum in collider experiments and kinematical distributions such as M_{eff} and m_{T2} are different. Scans of parameter space and MC analysis suggest that current SUSY search strategies and exclusion limits has to be reconsidered.

Location: N9

Theory Self-Consistent Model in $SU(N)$
Andrey Koshelkin (Moscow)

Title

The Non-Perturbative Self-Consistent Model in $SU(N)$ Gauge Field Theory

The non-perturbative quasi-classical model in a gauge theory with the Yang-Mills field is developed. The self-consistent solutions of the Dirac equation in the $SU(N)$ gauge field, which is in the eikonal approximation, and the Yang-Mills equations containing the external fermion current are solved. It shown that the developed model has the self-consistent solutions of the Dirac and Yang-Mills equations at $N > 2$. In this way, the solutions take place provided that the fermion and gauge fields exist simultaneously, so that the fermion current completely compensates the current generated by the gauge field due to self-interaction of it. The applications of the obtained solutions to QCD are considered in the context of the processes in the matter generated in collisions of heavy ions of high energies. The bosonisation process is studied.

Location: N10

ATLAS Search for 1st Gen Leptoquarks
John Stupak (SUNY Stony Brook)

Title

Search for Leptoquarks of 1st Generation Using the ATLAS Detector

Leptoquarks are hypothetical particles which carry both quark and lepton flavor, and thus, unlike any known particle, decay to both a quark and a lepton. Leptoquarks are predicted by many BSM theories. This analysis looks for pair-production of leptoquarks, where at least one leptoquark decays to an electron, which includes the final states $eejj$ and $enujj$. No excess of events is observed, thus limits are presented as a function of the branching fraction of the leptoquark decay to an electron and a quark.

Location: N11

CMS NP search with dilepton and MET
Daniel Sprenger (RWTH, Aachen)

Title

Search for new physics in events with opposite-sign dileptons and missing transverse energy with the CMS experiment

The results of a search for new physics in events with two opposite-sign isolated electrons or muons, hadronic activity, and missing transverse energy in the final state are presented. The results are based on analysis of a data sample with a corresponding integrated luminosity of 0.98 fb^{-1} produced in pp collisions at a center-of-mass energy of 7 TeV collected by the CMS experiment at the LHC. No evidence for an event yield beyond Standard-Model expectations is found, and constraints on supersymmetric models are deduced from these observations.

Location: N12

Theory Analytical Calculation in Multiperipheral model
Andrii Tykhonov (Ljubljana)

Title

ANALYTICAL CALCULATIONS IN MULTIPERIPHERAL MODEL

Recently, the new method for the calculation of inelastic scattering cross-section, which doesn't require the use of any additional Regge-like assumptions and accurately accounts for energy-momentum conservation law, was developed. The method is based on the existence of the constrained maximum point of scattering amplitude.

The work represents the latest developments in the method. Namely, the analytical approach for taking into account the interference contributions at high multiplicity of final state particles is presented. Moreover, the concise analytical expression for scattering amplitude in the point of constrained maximum is found. Altogether this results in the fact that the dependence of proton-proton total and inelastic scattering cross-sections on energy can be qualitatively reproduced by fitting only one single parameter of the model.

This is in contrary to the standard approaches, when one usually deals with the assumption of multi-Regge kinematics and subsequently neglects the role of longitudinal momenta in hadron-hadron scattering.

Location: N13

ATLAS Search for Extra Dimension in diphoton
Quentin Buat (LPSC Grenoble)

Title

Search for extra dimension in the diphoton final state with ATLAS

The search for evidence of extra dimensions in the diphoton final states from pp collision at $\sqrt{s} = 7$ TeV at the Large Hadron Collider, carried out by the ATLAS experiment, is presented. The various analysis steps, from the event selection and the efficiency estimation, to the evaluation of the reducible and irreducible backgrounds as well as the statistical treatment are discussed. The data sample analysed allows to improve the current limits on the mass of the lightest Randall-Sundrum graviton and on the parameters of the ADD large extra dimension scenario

Location: N14

CMS SUSY search with 2 lepton incl. tau
Matthias Edelhoff (RWTH Aachen)

Title

Search for supersymmetry in events with two leptons including a tau

The result of searches for new physics in events with hadronic jets, missing transverse energy, and two leptons of which at least one is a hadronically decaying tau is presented. The result is based on a data sample corresponding to an integrated luminosity of 1 fb^{-1} at a center-of-mass energy of 7 TeV by the CMS experiment at the LHC. No significant excess with respect to the standard model predictions is found.

Location: N15

ATLAS Tau reconstruction and identification
Felix Friedrich (TU Dresden)

Title

Tau reconstruction and identification in ATLAS

Tau leptons play an important role in the physics program at the LHC. They are used in searches for new phenomena like the Higgs boson or Supersymmetry and in electroweak measurements. They can also be used for detector related studies like the determination of the missing transverse energy scale. Identifying hadronically decaying tau leptons requires good understanding of the detector performance, combining the calorimeter and tracking detectors. We present the current status of the tau reconstruction and identification at the LHC with the ATLAS detector. The identification efficiencies are measured using $W \rightarrow \tau\nu$ and $Z \rightarrow \tau\tau$ events, and compared with the predictions from Monte Carlo simulations. The misidentification probability is also estimated in jet-enriched data samples from multi-jets, γ +jets and other samples.

Location: N16

ATLAS Triggering on hadronic tau
Marcus Morgenstern (TU Dresden)

Title

Triggering on hadronic tau decays: a challenge met by ATLAS

Hadronic tau decays play a crucial role in taking Standard Model measurements as well as in the search for physics beyond the Standard Model. However, hadronic tau decays are difficult to identify and trigger on due to their resemblance to QCD jets. Given the large production cross section of QCD processes, designing and operating a trigger system with the capability to efficiently select hadronic tau decays, while maintaining the rate within the bandwidth limits, is a difficult challenge. The impressive increase in instantaneous luminosity provided by the LHC has posed a constant threat to the capabilities of ATLAS to trigger on tau leptons.

This contribution will summarize the status and performance of the ATLAS tau trigger system during the 2011 data taking period, emphasizing the key elements of the online selection and the physics goals. Different methods that have been explored to obtain the trigger efficiency curves from data that will be shown. In light of the vast statistics collected in 2011, future prospects for triggering on hadronic tau decays in this exciting new period of increased instantaneous luminosity will be presented.

Location: N17

ATLAS Search for New heavy particles
Frederic Brochu (Cambridge)

Title

Search for displaced vertices arising from decays of new heavy particles in 7 TeV pp collisions in ATLAS

We present the results of a search for neutralinos decaying at a significant distance from their production point into charged hadrons and a high momentum muon, forming displaced vertices. The analysis was performed with 33 pb^{-1} of pp collision data collected by the ATLAS experiment in 2010 at $\sqrt{s} = 7$ TeV.

Location: N18

CMS Model Unspecific Search
Shivali Malhotra (Univ. of Delhi)

Title:

Model Unspecific Search In CMS

We present the results of a model independent analysis, which systematically scans the data taken by CMS for deviations from the Standard Model predictions. Due to the minimal theoretical bias this approach is sensitive to a variety of models for new physics. Events with at least one electron or muon are classified according to their content of reconstructed objects (muons, electrons, photons, jets and missing transverse energy). A broad scan of three kinematic distributions in those classes is performed by identifying deviations from Standard Model expectations, accounting for systematic uncertainties.

Location: N19

ATLAS Search for heavy resonance in dilepton
Daniel Hayden (Royal Holloway)

Title

Search for heavy resonances in the dilepton channel

Many extensions to the standard model of particle physics predict the addition of a U(1) symmetry, and/or extra spatial dimensions, which give rise to new high mass resonances such as the Z' and Randall-Sundrum Graviton. The LHC provides a unique opportunity to explore the TeV scale where these phenomena may become apparent, and can be searched for using the precision tracking and high energy resolution calorimetry of the ATLAS Detector. This search was done with the $\sim 1\text{fb}^{-1}$ dataset from 2011 at a centre of mass energy of $\sqrt{s}=7\text{TeV}$.

Location: N20

Theory Gravity on Dirac and Majorana neutrinos.
S. A. Alavi (Iran)

Title

Gravity can not distinguish Dirac and Majorana neutrinos

The interaction of neutrinos with gravitational fields in the weak field regime at 1-loop to leading order has been studied in Ref[1]. They deduce some theoretical differences between the Majorana and Dirac neutrinos. Then they prove that in spite of the theoretical differences between the two cases, as far as experiments are considered, they would be virtually indistinguishable. In this paper we study the interaction of neutrinos with weak gravitational fields to the second order (at 2-loops). After heavy calculations we show that there appear new neutrino gravitational form factors which were absent in the first order calculations, so from theoretical point of view there are more differences between the two kind of neutrinos than the first order but surprisingly we show that like the first order they are indistinguishable experimentally. Our results may be useful in searching for the origin of neutrino mass at LHC.
[1] A. Menon., Arun M. Thalapillil, Phys.Rev.D78:113003,2008

Location: N21

Theory Higgs phenom. of MU-Extra Dimensions
Matthew Brown (Southampton)

Title

Higgs phenomenology of Minimal Universal Extra Dimensions at the LHC

The minimal model of Universal Extra Dimensions (MUED) is summarised. Higgs phenomenology is explored in the context of Higgs production and decay at the LHC. Gluon-gluon fusion is the dominant production mode at the LHC even though the leading order contribution involves a quark loop. Similarly, the most promising signal for a SM Higgs in the intermediate mass range is the quark and W boson loop-mediated decay to two photons. The effect of KK modes running in these loops increases the Higgs production cross section and the cross section to two photons over those of the Standard Model. Higgs searches are thus a good way of constraining the MUED parameter space. In this poster the effects of bulk and orbifold corrections to the KK masses (neglected in previous analyses) are included, changing the previous results by several per cent. The effect of KK modes on the $G, G \rightarrow H \rightarrow W, W$ channel is also considered.

Location: N22

Theory Unified description of fundamental forces
Hans-Peter Morsch (Juelich)

Title

Unified description of fundamental forces including gravitation

A generalisation of QED including scalar coupling of boson fields (designed to describe mass by binding effects) has been found to lead to a unified description of all fundamental forces. The building blocks of the model are only two mass-less fermions (quantons, charged and non-charged) with electric and magnetic coupling to gauge bosons. For each coupling we obtain a sequence of (hadronic and leptonic) bound states and one sub-threshold solution, related to atomic and gravitational bound states, respectively.
We find that the 'Standard Model of Particle Physics' is not unique: concerning QCD the running coupling constant $s(Q)$ as well as the gluon propagator of lattice gauge theory are equally well described in the present model. Further, the weak interaction can be replaced by the spin-spin force of elementary fermions.
In the poster the non-uniqueness of QCD, the hadron structure in the 'top' region, neutrino masses and - as an example for gravitation - the rotation of galactic systems will be presented together with implications for particle- and astrophysical observations.

Location: N23

ATLAS Upgrade for the HL-LHC
Peter Vankov (DESY)

Title

ATLAS Upgrade for the HL-LHC: meeting the challenges of a five-fold increase in collision rate

With the LHC successfully collecting data at 7 TeV, plans are actively advancing for a series of upgrades leading eventually to about five times the LHC design-luminosity some 10 years from now in the high luminosity LHC (HL-LHC) project. The goal is to extend the data set from about 300 fb⁻¹ proposed for LHC running to 3000 fb⁻¹ by around 2030. Coping with the high instantaneous and integrated luminosity will require many changes to the ATLAS detector. The designs are developing rapidly for an all-new inner-tracker, big changes in the calorimeter and muon systems, as well as improved triggers. This talk summarises the environment expected at the HL-LHC and the status of various improvements to the ATLAS detector.