Lepton-Photon 2009 Posters

Report of Contributions

https://indico.desy.de/e/1965

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

Direct photons and hadrons at forward rapidities at LHC and saturation effects

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

We investigate direct photons and hadrons production at the energies of RHIC and LHC, at different rapidities employing various color-dipole models. The direct photon cross-section peaks at very forward rapidities due to the abelian dynamics of photon radiation. This opens new opportunities for measurement of direct photons at forward rapidities, where the background from radiative hadronic decays is strongly suppressed. Our model calculations show that photon and hadron production are sensitive to the gluon saturation effects, and strongly depends on the value of the anomalous dimension. We discuss implication of various saturation models for the upcoming LHC data.

Primary author: Dr REZAEIAN, Amir (Universitaet Regensburg/Santa Maria Universidad)

Co-authors: Prof. SCHÄFER, Andreas (Universitaet Regensburg); Prof. KOPELIOVICH, Boris (Santa Maria Universidad); Prof. LEVIN, Eugene (Tel Aviv); Prof. SCHMIDT, Ivan (Santa Maria Universidad)

Presenter: Dr REZAEIAN, Amir (Universitaet Regensburg/Santa Maria Universidad)

Session Classification: Poster Session

Track Classification: Poster Session

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

Strong Scaling Ansatz of flavor neutrino mass matrix and normal mass hierarchy

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

To uncover hidden structure of flavor neutrino mass matrix, we study properties of flavor neutrino mass obeying the strong scaling Ansatz (SSA) that predicts non maximal $\nu_2 - \nu_3$ mixing, vanishing U_{e3} and inverted mass hierarchy.
However, we find another possibility of SSA that tiny deviation from this Ansatz permits us to realize normal mass hierarchy and tiny value of θ_{13} which allows Dirac CP violation.
We can clarify correlations of mass parameter and CP violating phases and compare these dependences of CP violating phases on mass parameters in the case of the normal mass hierarchy with these of the inverted mass hierarchy.

Primary author: Mr BABA, Teppei (Tokai University)

Presenter: Mr BABA, Teppei (Tokai University)

Session Classification: Poster Session

Track Classification: Poster Session

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

Observation of the doubly strange b baryon Ω_b^-

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

We report the observation of the doubly strange b baryon Ω_b^- in the decay channel $\Omega_b^- \to J/\psi\Omega^-$, with $J/\psi \to \mu^+\mu^-$ and $\Omega^- \to \Lambda K^- \to (p\pi^-)K^-$, in $p\bar{p}$ collisions at $\sqrt{s} = 1.96$ TeV.

Using approximately 1.3 fb^{-1} of data collected with the D0 detector at the Fermilab Tevatron Collider, we observe 17.8 $\pm$ 4.9 (stat) $\pm$ 0.8 (syst) Ω_b^- signal events at a mass of 6.165 $\pm$ 0.010 (stat) $\pm$ 0.013 (syst) GeV. The significance of the observed signal is 5.4 σ, corresponding to a probability of 6.7×10^{-8} of it arising from a background fluctuation.

Primary author: Mr ORDUNA, Jesus (CINVESTAV Mexico)

Presenter: Mr ORDUNA, Jesus (CINVESTAV Mexico)

Session Classification: Poster Session

Track Classification: Poster Session

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

Topological phase in two flavor neutrino oscillations

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

We show that the phase appearing in neutrino flavor oscillation formulae has a geometric and topological contribution. We identify a topological phase appearing in the two flavor neutrino oscillation formula using Pancharatnam's prescription of quantum collapses between nonorthogonal states. Such quantum collapses appear naturally in the expression for appearance and survival probabilities of neutrinos. Our analysis applies to neutrinos propagating in vacuum or through matter. For the minimal case of two flavors with CP conservation, our study shows for the first time that there is a geometric interpretation of the neutrino oscillation formulae for the detection probability of neutrino species.

Primary author: Dr MEHTA, POONAM (RAMAN RESEARCH INSTITUTE)

Presenter: Dr MEHTA, POONAM (RAMAN RESEARCH INSTITUTE)

Session Classification: Poster Session

Track Classification: Poster Session

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

Renormalization of fermion flavour mixing

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

We present an explicit on-shell framework to renormalize the fermion flavour mixing matrices in the Standard Model (SM) and its extensions, at one-loop level. It is based on a novel procedure to separate the external-leg mixing corrections into gauge-parameter-independent self-mass and gauge-parameter-dependent wave-function renormalization contributions. An important property is that this formulation complies with ultraviolet finiteness and gauge parameter independence, and also preserves the basic structure of the theory. On the basis of the above renormalization scheme we then study the implications of quark mixing renormalization effects on the determination of the Cabibbo-Kobayashi-Maskawa (CKM) parameters. We find that, the inclusion of these effects does not alter the most precise unitarity test of the CKM matrix and that it remains an impressive test of the SM at the level of its quatntum corrections. In fact, it is worth remembering that the electroweak corrections in this test amount to roughly 4%. Thus, if they were neglected, the unitarity test of the CKM matrix would fail by about 66 standard deviations!

Primary author: Dr ALMASY, Andrea Amalia (II. Institut fuer Theoretische Physik, Universitaet Hamburg)

Presenter: Dr ALMASY, Andrea Amalia (II. Institut fuer Theoretische Physik, Universitaet Hamburg)

Session Classification: Poster Session

Track Classification: Poster Session

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

Gamma+jet Final State as a Probe of q* at the LHC

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The quest to know the structure of matter has resulted in various theoretical speculations wherein additional colored fermions are postulated. Arising either as Kaluza-Klein excitations of ordinary quarks, or as excited states in scenarios wherein the quarks themselves are composites, or even in theories with extended gauge symmetry, the presence of such fermions (q*) can potentially be manifested in γ + jet final states at the LHC. Using unitarized amplitudes and the CMS setup, we demonstrate that in the initial phase of LHC operation (with an integrated luminosity of 200 pb-1) at √s = 14 TeV, one can discover such states for a mass upto 2.0 TeV. The discovery of a q* with a mass as large as ~5 TeV can be achieved for an integrated luminosity of ~140 fb-1. We also comment on the feasibility of mass determination.

Primary author: Dr BHATTACHARYA, Satyaki (University of Delhi, India)

Co-authors: Prof. CHOUDHARY, Brajesh (University of Delhi, India); Prof. CHOUDHURY, Debajyoti (University of Delhi, India); Mr CHAUHAN, Sushil Singh (University of Delhi, India)

Presenter: Mr CHAUHAN, Sushil Singh (University of Delhi, India)

Session Classification: Poster Session

Track Classification: Poster Session

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

On magnetic monopoles in *pp* collisions

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Now the favored model for monopole production has been Drell-Yan mechanism. So, this model was used at Tevatron and LEP. In paper \cite{mon} two-photon production of monopole-antimonopole pair was suggested. Here, we would like to compare both mechanisms for LHC condition. It is shown that two-photon production is the leading mechanism for direct monopole searches at LHC.

Primary author: SHOUKAVY, Dzmitry (Institute of Physics, National Academy of Sciences of Belarus)

Presenter: SHOUKAVY, Dzmitry (Institute of Physics, National Academy of Sciences of Belarus)

Session Classification: Poster Session

Track Classification: Poster Session

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

Yukawaon Model and Unified Description of Quark and Lepton Mass Matrices

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

In the so-called "yukawaon" model, where the effective Yukawa coupling constants Y_f^{eff} ($f = e, \nu, u, d$) are given by vacuum expectation values (VEVs) of gauge singlet scalars (yukawaons) Y_f with 3×3 flavor components, i.e. $Y_f^{eff} = (y_f/\Lambda)\langle Y_f \rangle$ (Λ is an energy scale of an effective theory), it is tried to give a unified description of quark and lepton mass matrices. VEV structures of the yukawaons are obtained from SUSY vacuum conditions for a superpotential. As a result, we obtain we obtain the following quark mass matrices M_u and M_d and neutrino mass matrix M_ν: $M_u^{1/2} = c_u M_e^{1/2}(X + a_u \mathbf{1})M_e^{1/2}$, $M_d = c_d M_e^{1/2}(X + a_d \mathbf{1})M_e^{1/2}$ and $M_\nu = c_\nu \left(M_e^{-1}M_u^{1/2} + M_u^{1/2}M_e^{-1} + xi_0\mathbf{1}\right)^{-1}$, respectively, where X is a democratic matrix. We can obtain reasonable values not only for quark mass ratios but also for quark mixing matrix (CKM matrix) with few parameters $a_u \simeq -0.58$ and $a_d \simeq -0.63e^{i2^\circ}$. Besides, the model can give reasonable neutrino mixings. (Refs:Y.Koide, arXiv:0904.1644; Phys.~Lett. {\bf B665}, 227 (2008).

Primary author: Prof. KOIDE, Yoshio (Osaka University)

Presenter: Prof. KOIDE, Yoshio (Osaka University)

Session Classification: Poster Session

Track Classification: Poster Session

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

High mass SM Higgs boson searches at CDF

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

We present a search for Standard Model (SM) Higgs to WW production in dilepton plus missing transverse energy final states using approximately 5.0 fb-1 of integrated luminosity. In order to maximize sensitivity, the multivariate discriminants used to separate signal from background in the opposite-sign dilepton event sample have been independently optimized for final states with either zero, one, or two or more identified jets. All significant Higgs boson production modes (gluon fusion, associated production with either a W or Z boson, and vector boson fusion) are considered in determining potential signal contributions. We also incorporate a separate analysis of the same-sign dilepton event sample which can potentially contain additional signal events originating from the associated Higgs boson production mechanisms. Cross section limits relative to the combined SM prediction are presented for a range of different Higgs mass hypothesis between 110 and 200 GeV/c^2.

Primary author: Dr JAMES, Eric (Fermilab)

Presenter: Dr JAMES, Eric (Fermilab)

Session Classification: Poster Session

Track Classification: Poster Session

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

Observation of Single Top Quark Production with the D0 detector

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

We report the first observation of the electroweak production of single top quarks in ppbar collisions at sqrt(s) = 1.96
TeV based on 2.3 fb-1 of data collected by the D0 detector at the Fermilab Tevatron Collider. Using events containing an isolated electron or muon and missing transverse energy, together with jets originating from the fragmentation of b quarks, we measure a cross section of sigma(ppbar -> tb + X, tqb + X) = 3.94 +- 0.88 pb. The probability to measure a cross section at this value or higher in the absence of signal is 2.5 x 10-7, corresponding to a
5.0 standard deviation significance for the observation. The measurement of the single top production cross section is used to derive a direct measurement of the CKM matrix element |Vtb|.

Primary author: Dr SHABALINA, Elizaveta (Uni Gottingen)

Presenter: Dr SHABALINA, Elizaveta (Uni Gottingen)

Session Classification: Poster Session

Track Classification: Poster Session

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

Measurement of the longitudinal proton structure function at HERA

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The reduced cross sections for ep deep inelastic scattering have been measured with the ZEUS detector at HERA at three different centre-of-mass energies, 318, 251 and 225 GeV. From the cross sections, measured double differentially in Bjorken x and the virtuality, Q2, the proton structure functions F_L and F_2 have been extracted in the region 0.0005<x<0.007 and 20<Q2<130 GeV^2.

Primary authors: GREBENYUK, Julia (DESY); ZEUS COLLABORATION, Monica Turcato (Hamburg University)

Presenter: GREBENYUK, Julia (DESY)

Session Classification: Poster Session

Track Classification: Poster Session

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

Measurement of charm and beauty production in deep inelastic ep scattering from decays into muons at HERA

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The production of charm and beauty quarks in ep interactions has been measured with the ZEUS detector at HERA for squared four-momentum exchange Q^2>20 GeV^2, using an integrated luminosity of 126 pb^-1. Charm and beauty quarks were identified through their decays into muons. Differential cross sections were measured for muon transverse momenta p_T^{mu}>1.5 GeV and pseudorapidities -1.6<eta^{mu}<2.3, as a function of p_T^{mu}, eta^{mu}, Q^2 and Bjorken x. The charm and beauty contributions to the proton structure function F_2 were also extracted. The results agree with previous measurements based on independent techniques and are well described by QCD predictions.

Primary authors: BINDI, Marcello (INFN Bologna); ZEUS COLLABORATION, Monica Turcato (Hamburg University)

Presenter: BINDI, Marcello (INFN Bologna)

Session Classification: Poster Session

Track Classification: Poster Session

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

Measurement of beauty photoproduction from inclusive secondary vertexing at HERAII

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Photoproduction of beauty quarks in events with two jets has been measured with the ZEUS detector at HERA using an integrated luminosity of 128 pb-1. The beauty content has been extracted using the decay length significance of the B hadrons and the invariant mass of the decay vertices. Differential cross sections in p_T^jet and eta^jet are compared to leading order plus parton shower and next-to-leading order QCD predictions. Furthermore, the differential cross section as a function of eta^jet is compared to a previously published HERA I result.

Primary authors: ZEUS COLLABORATION, Monica Turcato (Hamburg University); SCHOENBERG, Verena (Bonn University)

Presenter: SCHOENBERG, Verena (Bonn University)

Session Classification: Poster Session

Track Classification: Poster Session

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

Electron and photon measurement with the CMS detector

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Electrons and Photons play a crucial role at LHC in several fields. They are essential in at least two of the Higgs decay channels, they can be signatures of the decay of new heavy bosons, they play a role in supersymmetry and are of course central in the reconstruction of electroweak and QCD processes. Clean identification and excellent energy and momentum resolution where given high priority in the design of the CMS detector. The instrument, featuring a finely grained, high-resolution electromagnetic calorimeter and excellent tracking performances, is well equipped for the task of measuring these particles with high precision. In this contribution we will describe the CMS electron and photon identification and reconstruction capabilities.

Primary author: Dr ARGIRO, Stefano (University of Torino and INFN)

Presenter: Dr ARGIRO, Stefano (University of Torino and INFN)

Session Classification: Poster Session

Track Classification: Poster Session

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

Impact of the NLO Hadronic Effects on the Lepton-Nucleon Scattering

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Multi-loop effects in electroweak interactions play a crucial role in tests of the Standard Model, and require careful theoretical evaluation. We extended computational packages such as FeynArts and FormCalc for the evaluation of one-loop electroweak radiative corrections for lepton–nucleon scattering and obtained numerical results in good agreement with the current experimental data. In lepton-nucleon interactions, it is important to include hadronic sector as well. So far, the best candidate for the phenomenological description of low-energy QCD processes has been Chiral Perturbation Theory.

In Chiral Perturbation Theory, determining the range of valid and contributing degrees of freedom to a given problem is still often a challenge. However, the recent developments in the automatization of the Next-to-Leading Order calculations in perturbative field theory gives us the possibility to apply these methods to Chiral Perturbation Theory as well. This paper discusses the computational techniques by using hadronic radiative corrections for lepton-nucleon scattering as an example.

Primary authors: Dr ALEKSEJEVS, Aleksandrs (SWGC, Memorial University); Dr BARKANOVA, Svetlana (Acadia University)

Presenters: Dr ALEKSEJEVS, Aleksandrs (SWGC, Memorial University); Dr BARKANOVA, Svetlana (Acadia University)

Session Classification: Poster Session

Track Classification: Poster Session

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

Drift velocity and pressure monitoring of the CMS muon drift chambers

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The drift velocity in drift tubes of the CMS muon chambers is a key parameter for the muon track reconstruction and trigger. It needs to be monitored precisely in order to detect any deviation from its nominal value. A change in absolute pressure, a variation of the gas admixture or a contamination of the chamber gas by air affect the drift velocity. Furthermore the temperature and magnetic field influence its value. First data, taken with a dedicated Velocity Drift Chamber (VDC) built by RWTH Aachen IIIA are presented. Another important parameter to be monitored is the pressure inside the muon drift tube chambers because the drift velocity depends on it. Furthermore the differential pressure must not exceed a certain value and the absolute pressure has to be kept slightly above ambient pressure to prevent air from entering into the muon drift tube chambers in case of a leak. Latest pressure monitoring results are discussed.

Primary author: Dr SONNENSCHEIN, Lars (RWTH Aachen IIIA)

Co-authors: Dr HEIDEMANN, Carsten (RWTH Aachen IIIA); Dr TEYSSIER, Daniel (RWTH Aachen IIIA); Dr REITHLER, Hans (RWTH Aachen IIIA); Dr FRANGENHEIM, Jens (RWTH Aachen IIIA); Prof. HEBBEKER, Thomas (RWTH Aachen IIIA)

Presenter: Dr SONNENSCHEIN, Lars (RWTH Aachen IIIA)

Session Classification: Poster Session

Track Classification: Poster Session

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

CMS: Cosmic muons in simulation and measured data

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

A dedicated cosmic muon Monte-Carlo event generator CMSCGEN has been developed for the CMS experiment. The simulation makes use of parameterisations of the muon energy and the incidence angle, based on measured and simulated data of the cosmic muon flux, taking the energy dependence of the incidence angle into account. The geometry and materiel density of the CMS cavern and access shafts are taken into account, too. The event generator is integrated in the complete CMS detector simulation chain. Cosmic muons can be generated on earth's surface as well as for the detector located underground. Many million cosmic muon events have been generated and compared to measured data, taken with the CMS detector at its nominal magnetic field of 3.8 T during commissioning.

Primary author: Dr SONNENSCHEIN, Lars (RWTH Aachen IIIA)

Co-authors: Dr HOEPFNER, Kerstin (RWTH Aachen IIIA); Dr BIALLASS, Philipp (RWTH Aachen IIIA); Prof. HEBBEKER, Thomas (RWTH Aachen IIIA)

Presenter: Dr SONNENSCHEIN, Lars (RWTH Aachen IIIA)

Session Classification: Poster Session

Track Classification: Poster Session

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

The charged Higgs boson of the two Higss doublet model type III

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Recently the D0 collaboration reports a direct search for a charged Higgs boson produced by $q\bar{q}$ annihilation and decaying to $t\bar{b}$ final state, in the $180 \leq M_{H^+} \leq 300$ GeV mass range, using 0.93 fb^{-1} of data collected at center-of-mass energy $\sqrt{s} = 1.96$ TeV . The analysis lead to upper limits on the production cross section in the two Higgs doublet model types I, II and III . We discuss different scenarios for the two Higgs doublet model type III taking into account the previous bounds obtained in the literature on the parameter space of the model. We simulate three different scenarios and we compare them with the data reported by D0 collaboration. Also, searches in the charged Higgs boson mass smaller than top quark mass region have been performed, using the production cross section of top quark pairs at the Tevatron and we discuss the possible limits on the charged Higgs boson masss obtained from measurements of the ratio $R_\sigma = \sigma^{l+jets}_{t\bar{>}>t}/\sigma^{dileptons}_{t\bar{t}}$ within the framework of the two Higgs doublet model type III.

Primary author: Dr RODRIGUEZ, Jairo Alexis (Universidad Nacional de Colombia)

Presenter: Dr RODRIGUEZ, Jairo Alexis (Universidad Nacional de Colombia)

Session Classification: Poster Session

Track Classification: Poster Session

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

Calibration of the CMS magnetic field using cosmic muon tracks

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

During the Cosmic Run At Four Tesla (CRAFT) in 2008 many millions of cosmic muons were recorded in CMS with nominal magnetic field and the CMS detector closed in the final underground configuration. By analyzing in detail the local curvature of muon tracks crossing the detector, it was possible to probe the magnetic field locally in the iron elements of the barrel return yoke. The excellent precision of the measurements allowed a significant improvement in the magnetic field map used for simulation and track reconstruction. The model for the magnetic field simulation as well as the measurement of the magnetic field from cosmic data is described and the final calibration results before pp collisions are reported.

Primary author: Dr BOLOGNESI, Sara (CERN)

Presenter: Dr BOLOGNESI, Sara (CERN)

Session Classification: Poster Session

Track Classification: Poster Session

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

Search for the Standard Model Higgs Boson at CMS

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Abstract: The prospects for the search of the Standard Model Higgs boson in various decay channels (H->WW, H->ZZ, H->gammagamma, H->tautau) with the CMS experiment at the LHC are presented. The analyses rely on a full simulation of the detector response and emphasis is put on data driven methods for the measurement of experimental and background wherever possible. The monte carlo generators that are used in the studies are NLO. The discovery reach is presented as a function of the Higgs mass. A new complete strategy is presented for the early searches and for the control of systematics at very low luminosities. Latest projections show that CMS should be able to observe an excess in several different searches with 100/pb-1/fb of integrated luminosity.

Primary author: Dr MERKEL, Petra (Purdue University)

Presenter: Dr MERKEL, Petra (Purdue University)

Session Classification: Poster Session

Track Classification: Poster Session

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

Prospects for the first ttbar cross section measurement in the semileptonic channel at CMS

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The top quark was discovered at the Tevatron in 1995. For the last decade the study of its properties has been a major theme in the worldwide experimental high energy physics program. The advent of the LHC opens up a new era in top quark physics; because of the large ttbar cross-section and the high luminosity, the LHC can be thought of as a top factory.

Here we report on studies of top quark pair production with the CMS detector. Special emphasis is given to the early cross section measurement in the channel where the W boson from one top quark decays into lepton (electron/muon) and neutrino, while the other decays into quark and anti-quark.

Primary author: Ms KIEFER, Jasmin (Universität Karlsruhe / KIT)

Presenter: Ms KIEFER, Jasmin (Universität Karlsruhe / KIT)

Session Classification: Poster Session

Track Classification: Poster Session

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

Search for the Higgs Boson in $WW^{(*)} \to l^+l'^-$ Decays in ppbar Collisions at sqrt(s)=1.96 TeV

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

We present a search for the Standard Model Higgs boson produced via the $H \to WW^{(*)} \to l^+l'^-$ (l,l' = e,μ,τ) process at a center-of-mass energy of $\sqrt{s}$ =1.96~TeV with the D0 detector at the Fermilab Tevatron collider. A Higgs particle with a mass greater than 140 GeV primarily decays into a pair of W-bosons and the leptonic decay channels of the W provide a clear signature. This channel provides the greatest sensitivity to the Higgs at the Tevatron, and sensitivity to the Standard Model Higgs is expected with this data set. As well as the inclusion of the full data set, up to 5~fb^{-1}, recent improvements to the sensitivity will be discussed.

Primary author: Ms NAYYAR, Ruchika (University of Delhi, India)

Presenter: Ms NAYYAR, Ruchika (University of Delhi, India)

Session Classification: Poster Session

Track Classification: Poster Session

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

Observation of Single Top Quark Production at DØ using Bayesian Neural Networks.

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

We present the observation of the electroweak production of single top quarks in 2.3 fb^-1 of data using Bayesian Neural Networks (BNNs) at the Fermilab Tevatron proton-antiproton collider at 1.96 TeV center-of-mass energy. The cross section of single top quark production for the combined tb+tqb channels is 4.70 + 1.18 - 0.93 pb using the BNN method. The probability to measure a cross section at this value or higher in the absence of signal is 3.2 x 10^-8, corresponding to a 5.4 standard deviation significance for the observation.

Primary author: Ms JOSHI, Jyoti (Panjab University, Chandigarh, India)

Co-author: Prof. BERI, Suman (Panjab University, Chandigarh, India)

Presenter: Ms JOSHI, Jyoti (Panjab University, Chandigarh, India)

Session Classification: Poster Session

Track Classification: Poster Session

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

Prospects for measuring Top Pair Production cross-section at ATLAS in 10 TeV p-p Collisions

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Due to the large top quark production cross section at the LHC, the ATLAS experiment is expected to have enough statistics to measure top quark cross section even at initial luminosities. Recent studies performed in ATLAS on the development of top quark pair cross section measurements will be discussed. An emphasis will be on measurements with data that will be collected in the first year of the LHC run. The potential of using the top quark events for b-tagging calibration will also be briefly discussed.

Primary author: Mr JANA, Dilip (University of Oklahoma)

Presenter: Mr JANA, Dilip (University of Oklahoma)

Session Classification: Poster Session

Track Classification: Poster Session

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

Low mass Higgs boson searches at CDF

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

We present searches for standard model Higgs boson production for Higgs masses between 100 and 135 GeV/c^2 using approximately 4 fb-1 of data collected by the CDF detector at the Fermilab Tevatron. Precision electroweak fits of the standard model combined with direct searches prefer a Higgs boson mass close to, but greater than 114 GeV/c^2. Tevatron experiments are currently the only experiments capable of searching in this mass region. To achieve the best sensitivity for masses less than 135 GeV/c^2, we search for Higgs bosons decaying into b quarks, in association with a vector boson decaying into leptons. These analyses rely on advanced tools for b-quark jet, charged lepton, and neutrino identification, as well as background discrimination using multivariate approaches. We will present results from the main analyses of WH -> lvbb, ZH->vvbb, ZH->llbb, as well as secondary analyses, and will present the result of combining the individual analyses to achieve improved limits on standard model Higgs production.

Primary author: Dr KILMINSTER, Ben (Fermilab)

Presenter: Dr KILMINSTER, Ben (Fermilab)

Session Classification: Poster Session

Track Classification: Poster Session

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

Degenerate neutrinos and maximal mixing

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

At the zeroth order, degenerate neutrino mass matrices can be considered as a sum of hierarchial and inverse hierarchial sub matrices. This holds true irrespective of the kind of mixing present in each sub matrix. Such decomposition is natural in Type I and Type III seesaw mechanisms. We show that in two generations, the degeneracy requirement can ensure maximal mixing even if the individual sub matrices contain only small mixing. In three generations, a straight forward extension of this 'degeneracy induced large mixing' can lead to maximally symmetric mixing matrix with three large mixing angles. A more suitable decomposition with two sub matrices is presented where this mechanism can be used to generate one large mixing while keeping another small. On the other hand, the proposed mechanism can have realizations in terms of hybrid seesaws i.e., where there is more than one seesaw mechanism at work. The left right symmetric model where both Type I and Type II are simultaneously present provides a natural setting for realization of the above mechanism.

Primary author: Dr MEHTA, POONAM (RAMAN RESEARCH INSTITUTE, Bangalore)

Co-authors: Prof. JOSHIPURA, ANJAN S (PHYSICAL RESEARCH INSTITUTE, Ahmedabad); Mr CHAKRABORTTY, JOYDEEP (HRI, Allahabad); Prof. VEMPATI, SUDHIR K (CHEP, IISc., Bangalore)

Presenter: Dr MEHTA, POONAM (RAMAN RESEARCH INSTITUTE, Bangalore)

Session Classification: Poster Session

Track Classification: Poster Session

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

Soft supersymmetry breaking terms from A4 lepton flavor symmetry

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Recent experiments of the neutrino oscillation go into the new phase of precise determination of mixing angles and mass squared differences. Those indicate the tri-bimaximal mixing for three flavors in the lepton sector. Indeed, various types of models leading to the tri-bimaximal mixing have been proposed, e.g. by assuming several types of non-Abelian flavor symmetries.
One of natural models realizing the tri-bimaximal mixing has been proposed based on the non-Abelian finite group A4. On the other hand, the supersymmetric extension of the standard model is one of interesting candidates for physics beyond the weak scale. Within the framework of supersymmetric models, flavor symmetries constrain not only quark and lepton mass matrices, but also mass matrices of their superpartners, i.e., squarks and sleptons. That is, flavor symmetries realizing realistic quark/lepton mass matrices would lead to specific patterns of squark and slepton mass matrices as their predictions, which could be tested in future experiments.

We study the supersymmetric model with the A4 lepton flavor symmetry, in particular soft supersymmetry breaking terms, which are predicted from the A4 lepton flavor symmetry. We evaluate soft slepton masses and A-terms within the framework of supergravity theory. Constraints due to experiments of flavor changing neutral current processes are examined.

Primary authors: Dr ISHIMORI, Hajime (Niigata University); Prof. TANIMOTO, Morimitsu (Niigata University); Prof. KOBAYASHI, Tatsuo (Kyoto University); Dr OMURA, Yuji (Kyoto University/INFN, Padova)

Presenter: Dr OMURA, Yuji (Kyoto University/INFN, Padova)

Session Classification: Poster Session

Track Classification: Poster Session

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

Commissioning the CMS pixel detector with cosmic rays

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The new energy frontier that is going to be attained by the LHC machine requires the experiments to gather as much information as possible from each collision. To achieve such a challenging goal in the innermost, radiation hostile region, the high–precision and low–background tracking of the CMS experiment is based on the pixel detector. After almost 10 years of design and construction the CMS pixel detector has been installed and commissioned. The pixel detector consists of 66M pixels of 100x150um^2 area, and is designed to exploit the shape of the actual charge sharing among adjacent pixels to gain hit resolution down to 12um. Results from cosmic ray studies with the CMS pixel detector will be presented, including the current status in calibration, alignment, data quality monitoring and track reconstruction. Implication on physics performance will also be discussed.

Primary author: Dr DINARDO, Mauro E. (University of Colorado at Boulder, USA)

Presenter: Dr DINARDO, Mauro E. (University of Colorado at Boulder, USA)

Session Classification: Poster Session

Track Classification: Poster Session

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

First Alignment of the CMS Tracker and Implications for the First Collision Data

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

We present the first results of the full CMS Silicon Tracker alignment based on several million reconstructed tracks from the cosmic data taken during the commissioning runs with the detector in its final position. Implication for CMS physics performance is discussed. The all-silicon design of the tracking system of the CMS experiment is expected to provide 1-2% resolution for 100 GeV tracks and an efficient tagging of b-jets. To achieve optimal performance the position and orientation of each of the 15148 silicon strip and 1440 silicon pixel modules need to be determined with a precision of several micrometers. For the modules well illuminated by cosmic ray particles, the ultimate precision has been achieved with data from the silicon modules traversed in-situ by charged muons used in combination with survey measurements. The achieved resolution in all five track parameters is controlled with data-driven validation of the track parameter measurements near the interaction region, and tested against prediction with detailed detector simulation. Outlook for expected tracking and physics performance with the first collisions is given.

Primary author: Mr HAUK, Johannes (Deutsches Elektronen-Synchrotron DESY)

Presenter: Mr HAUK, Johannes (Deutsches Elektronen-Synchrotron DESY)

Session Classification: Poster Session

Track Classification: Poster Session

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

Search for Associated Production of Z and Higgs Bosons in $llbb$ Final States in ppbar Collisions at sqrt(s)=1.96 TeV.

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Abstract: We present a search for a low-mass Standard Model Higgs boson produced in association with a Z boson decaying to charged leptons at a center-of-mass energy of $\sqrt{s}$ =1.96~TeV with the D0 detector at the Fermilab Tevatron collider. The search is performed in events containing two opposite-sign leptons (electron, muon, tau) and one or two b-tagged jets with up to 5~fb^{-1} of data. As well as the inclusion of the full data set, recent improvements to the sensitivity will be discussed, including increased lepton acceptance.

Primary author: Mr BACKUSMAYES, John (University of Washington)

Presenter: Mr BACKUSMAYES, John (University of Washington)

Session Classification: Poster Session

Track Classification: Poster Session

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

Combined Upper Limit on Standard Model Higgs Boson Production at D0 in ppbar Collisions at sqrt(s)=1.96 TeV

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Abstract: We present the combination of the searches for the Standard Model Higgs boson at a center-of-mass energy of $\sqrt{s}$ =1.96~TeV, using up to 5~fb^{-1} of data collected with the D0 detector at the Fermilab Tevatron collider. The major contributing processes include associated production ($WH \to l\nu bb$, $ZH \to \nu\nu bb$, $ZH \to llbb$, and $WH \to WWW^{(*)}$) and gluon fusion ($gg \to H \to WW^{(*)}$). The significant improvements across the full mass range resulting from the larger data sets, improved analyses and inclusion of additional channels are discussed; we expect sensitivity to a Higgs boson with a mass around 160 - 170 GeV with this data set.

Primary author: Dr BERNHARD, Ralf (University of Freiburg)

Presenter: Dr BERNHARD, Ralf (University of Freiburg)

Session Classification: Poster Session

Track Classification: Poster Session

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

Radiative decays of B hadrons at LHCb

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Flavour physics is an excellent probe of New Physics, as it offers the possibility to measure effects from virtual heavy particles, much above the current experimental reach in terms of direct production. Radiative penguin decays take place due to the b to s quark transition along with the emission of a photon. Various measurements, like decay rates, asymmetries and angular distributions can be made, and compared with theory predictions. Also of interest are measurements which are sensitive to the contribution of a right handed coupling in the b to sgamma transition.
LHCb is well positioned to exploit the high luminosity and large statistics of B hadrons available at LHC, to make very competitive measurements in various radiative decays like B0 -> K*0 gamma, Bs -> phi gamma, lambda_b -> labmda_0 gamma and B+ -> phi K+ gamma. For example, the direct CP asymmetry in K*gamma decay can be measured to the level of 1.8%, much better than the current experimental accuracy, with only 100 inverse pb.

Primary author: Ms SOOMRO, Fatima (Imperial College London)

Presenter: Ms SOOMRO, Fatima (Imperial College London)

Session Classification: Poster Session

Track Classification: Poster Session

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

A Large TPC Prototype for an ILC Detector

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

A Time Projection Chamber (TPC) is a candidate for the central tracker of the future International Linear Collider (ILC) detectors. TPCs have already demonstrated very good performance in past collider experiments. However the tracking system of the ILC should have a very good track momentum resolution (Delta(1/pt) ~ 5 10-5 /GeV/c), which is an order of magnitude more precise than in previous experiments. To achieve this resolution, the Linear Collider TPC (LCTPC) groups are pursuing R&D activities to determine the best state-of-the-art technology for the TPC using Micro Pattern Gas Detectors (MPGD) readout instead of the Multiwire Proportional Chamber (MWPC) readout.

The MPGDs under investigation are the Gas Electron Multiplier (GEM) and the Micromesh Gaseous (MICROMEGAS) detectors as well as a new concept combining a gas amplification on top of a CMOS pixel readout chip (TimePix). To study these technologies, a Large Prototype TPC (LPTPC) has been built, with a diameter of about 750 mm and a length of about 600 mm, which allows to measure tracks with up to 125 space points with pad readout. Since end of 2008, the LPTPC has been inserted into a 1.25 Tesla superconducting magnet, installed in a DESY test beam area. The LPTPC, alternatively equipped with the GEM or the MICROMEGAS readout, is exposed to an electron beam of up to 6 GeV. With both technologies the preliminary results look very promising. A first TimePix endplate module, consisting of 8 chips and a triple-GEM stack has also been tested in June 2009 at the LPTPC.

The LPTPC is not only a testing bed for several readout techniques based on MPGDs it is also an opportunity to understand the issues which arise when constructing such a large TPC. In this presentation, we will report on the setup, the production and the commissioning of the LPTPC as well as the first results of the test beams with the different readout technologies.

Primary author: TIMMERMANS, Jan (NIKHEF/DESY)

Co-author: CONLEY, Patrik (University of Victoria)

Session Classification: Poster Session

Track Classification: Poster Session

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

Baryonium in confining gauge theories

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

We show a new class of embedding solutions of D5 brane,which wraps on S^5 in the AdS_5 * S^5 space time and contains fundamental strings as U(1) flux to form a baryon vertex. The new solution is different from the baryon vertex since it consists of two same side(north or south) poles of S^5 as cusps, which are put on different points in our three dimensional space.
This configulation is regarded as a D5-anti D5 bound state, and we propose this as the vertex of a baryonium state, which is made of a baryon and an anti-baryon. By attaching quarks and anti-quarks to the two cusps ob this vertex, it is possible to construct a realistic baryonium.

Primary author: Prof. TOYODA, Fumihiko (Kinki University)

Presenter: Prof. TOYODA, Fumihiko (Kinki University)

Session Classification: Poster Session

Track Classification: Poster Session

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

Searching for tetraquarks on the lattice

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Some properties of the lowest lying scalar mesons are in conflict with the conventional $\bar{q}q$ assignment and can be naturally explained if these are tetraquark states. We present a search for possible existence of light scalar tetraquarks on the lattice. The spectrum of physical states with a given isospin and J^PC=O^++ is determined using a large number of tetraquark interpolators at the source and the sink. In the I=0 channel, we unavoidably find discrete two-pion states, but we also find an additional light state which could be possibly related to the sigma resonance with a strong tetraquark component. In the exotic I=2 channel, where no resonance is expected, we find no light state in addition to two-pion states.

Primary author: PRELOVSEK, sasa (University of Ljubljana)

Co-authors: Prof. LANG, Christian (University of Graz); MOHLER, Daniel (University of Graz); Prof. LIU, Keh-Fei (University of Kentucky); LIMMER, Marcus (University of Graz); Prof. MATHUR, Nilmani (Tata Institute, India); Prof. DRAPER, Terry (University of Kentucky)

Presenter: PRELOVSEK, sasa (University of Ljubljana)

Session Classification: Poster Session

Track Classification: Poster Session

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

Analytic calculation of two-loop QCD corrections to b\to s\ell^+\ell^- in the high q^2 region

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

We present our results for the NNLL virtual corrections to the matrix elements of the operators O_1 and O_2 for the inclusive process b\to s\ell^+\ell^- in the kinematical region q^2>4m_c^2, where q^2 is the invariant mass squared of the lepton-pair. This is the first analytic two-loop calculation of these matrix elements in the high q^2 region. We give the matrix elements as an expansion in m_c/m_b and keep the full analytic dependence on q^2. Making extensive use of differential equation techniques, we fully automatize the expansion of the Feynman integrals in m_c/m_b. To this end we invented a new method based on sector decomposition and Mellin-Barnes techniques, which allows to obtain the coefficients of the expansion in terms of finite integrals.
Finally we confirmed the results of an earlier numerical calculation from Ghinculov et al. which are not publicly available as a function of m_c/m_b and q2.

Primary authors: Mr SCHÜPBACH, Christof (Institute for Theoretical Physics); Prof. GREUB, Christoph (Institute for Theoretical Physics); Dr PILIPP, Volker (Institute for Theoretical Physics)

Presenter: Dr PILIPP, Volker (Institute for Theoretical Physics)

Session Classification: Poster Session

Track Classification: Poster Session

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

Search for TeV top resonances into jets plus muon with the CMS experiment

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Many physics models beyond the Standard Model predict heavy new particles preferentially decaying to top pairs. The first long physics run of LHC is expected to take place at a center-of-mass energy of 10 TeV, and to go on until an integrated luminosity of 200/pb has been collected. We search for resonances in the muon+jets channel of the top pairs mass spectrum for such a scenario. Due to the heavily boosted top quarks from these high-mass resonances, the standard top pair muon+jets selection fails and we present new methods for the selection and reconstruction of those events.

Primary author: Mr PEIFFER, Thomas (University of Karlsruhe)

Co-authors: Dr YUMICEVA DEL POZO, Francisco Xavier (FNAL); Dr WAGNER-KUHR, Jeannine (University of Karlsruhe); Mr OTT, Jochen (University of Karlsruhe); Dr CHIERICI, Roberto (Institut de Physique Nucleaire de Lyon); Prof. MUELLER, Thomas (University of Karlsruhe)

Presenter: Mr PEIFFER, Thomas (University of Karlsruhe)

Session Classification: Poster Session

Track Classification: Poster Session

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

Search for Neutral Supersymmetric Higgs Bosons in ppbar Collisions at sqrt(s)=1.96 TeV

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

We present a search for Higgs bosons at a center-of-mass energy of $\sqrt{s}$ =1.96~TeV using up to 5~fb^{-1} of data collected with the D0 detector at the Fermilab Tevatron collider. In Supersymmetric models, Higgs boson production cross sections can be significantly enhanced compared to the Standard Model. The search includes the $\tau\tau$, b$\tau\tau$ and bbb(b) final states. Over much of the parameter space the dominant decay process is $\rightarrow bbar$ but the tau final states provide better background suppression. The di-tau channels also complement the hb associated production modes through reduced dependence on the details of the Supersymmetric model under test. Significant improvements resulting from the larger data sets and improved analyses will be presented. The sensitivity is further increased by the combination of the three channels and this will also be presented.

Primary author: Dr HERNER, Kenneth (University of Michigan)

Presenter: Dr HERNER, Kenneth (University of Michigan)

Session Classification: Poster Session

Track Classification: Poster Session

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

Test Beam Performance of CALICE Electromagnetic Calorimeter Physics Prototypes

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Prototypes of proposals for a highly granular electromagnetic calorimeter for the experimentation at the ILC have been exposed to
electron and hadron test beams at DESY, CERN and FNAL. Both prototypes comprise a large number of readout units confined in a
volume of about 18x18x30cm3. One variant, composed of Silicon and Tungsten, exhibits a signalover noise ratio of 7.5 compared with the goal of 10 as envisaged for an ILC detector. The energy resolution of approximately 17%/sqrt{E[GeV] is well within specifications. The energy resoluion of the second variant, composed of Scintillating strips and Tungsten, was found tobe 14%/sqrt{E[GeV] with an excellent reconstruction of pi0 produced in the
test beams. With the extracted linearity of approximately 1% for both variants the proof-of-principle is given that these high granular calorimeters can be operated successfully under beam conditions. Additionally, the angular resolution and shower profiles are under study. The data will be further analysed in terms of exploiting the unprecedented high granularity which allows for instance the tracking of individual particles within hadronic cascades. The latter constitutes an important input to the tuning of existing hadronic shower models as available within the simulation toolkit GEANT4.

Primary author: Prof. WARD, David (University of Cambridge)

Presenter: Prof. WARD, David (University of Cambridge)

Session Classification: Poster Session

Track Classification: Poster Session

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

Design of a Large Scale Prototype for a SiW Electromagnetic Calorimeter for the ILC - EUDET Module

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The CALICE collaboration is preparing large scale prototypes for highly granular calorimeters for detectors
to be operated at the International Linear Collider, ILC. During the years 2009-2011 a prototype of a SiW electromagnetic calorimeter will be assembled which in terms of dimensions and layout meets already most of the requirements given by the ILC Physics Program and hence the detector design. In particular the Very Front End electronics will have to fit within alveolar layers with less than 1\,cm in height. In this contribution the design of the protoype is presented and the steps towards the realisation will be presented. First results on thermal dissipation and mechanical stress the module will suffer from can be reported. These results have been obtained with a first version of the module during spring 2009.

Primary author: Prof. WARD, David (University of Cambridge)

Presenter: Prof. WARD, David (University of Cambridge)

Session Classification: Poster Session

Track Classification: Poster Session

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

Combined Limits on Anomalous Couplings at the D0 experiment

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

We present the direct measurement of trilinear gauge boson couplings in the WW+WZ -> lnujj final state at a proton-anti-proton collisions at sqrt(s)=1.96 TeV. Analysed data correspond to ~1.1 /fb of integrated luminosity collected with the D0 detector at the Fermilab Tevatron. The 95% C.L. limits are set using two different relation between the anomalous Z and gamma exchange terms in WW/WZ production. In addition we combine the result from the lnujj final state with other D0 results from fully leptonic final states in Wgamma, WW and WZ production.

Primary author: Dr SEKARIC, Jadranka (Florida State University)

Presenter: Dr SEKARIC, Jadranka (Florida State University)

Session Classification: Poster Session

Track Classification: Poster Session

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

Beam Test Results with Highly Granular Hadron Calorimeters for the ILC

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

To evaluate technologies for ILC calorimetry, the CALICE collaboration has constructed a prototype of a highly granular analogue hadron sampling calorimeter with small scintillator cells, individually read out by silicon photomultipliers. This detector has been tested extensively in particle beams at DESY, at CERN and at Fermilab. A digital hadron calorimeter based on RPC read-out, is currently under construction, with first test beam results from small prototypes already available. The imaging capabilities of these calorimeters provide three dimensional information of hadronic showers with unprecedented resolution and will thus help to constrain hadronic shower models in simulation codes. The high granularity also opens up the possibility for improved energy resolution achieved with energy weighting algorithms and allows for novel calibration methods using minimum ionizing tracks identified within hadronic showers. We present results from the analysis of electromagnetic and hadronic events. Studies ranging from longitudinal and transverse shower profiles, compared to simulations with a variety of different models, to the investigation of the energy resolution and the linearity of the detector response, will be discussed.

Primary author: Prof. WARD, David (University of Cambridge)

Presenter: Prof. WARD, David (University of Cambridge)

Session Classification: Poster Session

Track Classification: Poster Session

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

Meson-Baryon Couplings, SU(3) Symmetry and QCD Sum rules

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

SU(3) symmetry allows one to relate various meson-baryon coupling to each other. Using this symmetry, octet-baryon octet-meson couplings can all be expressed in terms of two parameters only. But in nature SU(3) symmetry is broken due to the large strange quark mass. In this work, using light cone QCD sum rules, we show that even if one considers SU(3) violation, meson baryon coupling constants can be written in terms of a few functions of the quark properties.

Primary author: Dr OZPINECI, Altug (METU)

Co-authors: Prof. SAVCI, Mustafa (METU); Prof. ALIEV, Takhmasib (METU); Prof. ZAMIRALOV, Valery (Moscow State University)

Presenter: Dr OZPINECI, Altug (METU)

Session Classification: Poster Session

Track Classification: Poster Session

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

Engineering Prototypes of the CALICE Hadron Calorimeters - EUDET Modules

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

A new prototype of a tile hadron calorimeter (HCAL) for the International Linear Collider detector is currently being developed within the CALICE collaboration. The aim is to improve the energy resolution by measuring details of the shower development and combining them with the data of the tracking chamber (particle flow). The prototype is based on scintillating tiles that are read out by novel Silicon-Photomultiplier. This new prototype will take into account all design aspects that are demanded by the intended operation at the ILC. It will contain about 2200 detector channels. We also outline plans for the construction of a hadronic calorimeter with digital readout based on gaseous active layers and with a granularity of 1x1cm^2.

The main focus of this contribution will be the mechanical and electrical integration of the front-end electronics into the calorimeter absorber structure maintaining a high-density calorimeter. Integration aspects and scalability to a ILC detector will be discussed.

For the analogue calorimeter the proposal of an integrated light-calibration system for calibration and gain monitoring will be presented, addressing temperature and bias dependence of the Silicon Photomultiplier gains. This is the first calorimeter design which makes full use of the high integration potential of the novel photo-sensor technology.

Primary author: Prof. WARD, David (University of Cambridge)

Presenter: Prof. WARD, David (University of Cambridge)

Session Classification: Poster Session

Track Classification: Poster Session

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

Time Projection Chamber with Triple GEM and Highly Granulated Pixel Readout

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Future experiments in high energy physics, e. g. at the International Linear Collider, put stringent requirements on all detector subsystems. In particular the tracking detectors should allow not only precise track reconstruction but also good multi-track resolution, excellent efficiency and a reliable particle identification. Micro Pattern Gas Detectors (MPGDs) such as Gas Electron Multipliers (GEMs) have many favorable properties for fulfilling these requirements. Especially the high granularity, intrinsic suppression of ion backflow, high rate capability and almost no distortions due to E x B effects make the use of MPGDs in Time Projection Chambers (TPCs) very attractive. To fully exploit the small structure size of the gas amplification stage, it is advantageous to use the metalized pads of a highly granulated pixel readout chip such as the Timepix ASIC to pick up the charge released by the gas amplification stage.

We have constructed two test chambers with a triple GEM and Timepix readout. On the one hand a small prototype with a maximum drift distance of 26 cm and a single ASIC readout was used to study the performance of this concept with cosmic rays, with an electron test beam and in high magnetic fields. In a second project we have designed and constructed a readout module for the Large Prototype (LP) of the LCTPC-Collaboration. The LP was constructed in the EUDET framework and is set up at the electron test beam facility at DESY. The test facility is composed of a fieldcage with up to 60 cm drift distance, a magnetic field of 1 T, an up to 6 GeV electrons test beam and the infrastructure necessary to operate the detector. Our readout module was equipped with 8 ASICs featuring a total of 0.525 million readout channels and placed in the endcap. Typical operation parameters such as beam energy, gas gain and incident angle were varied. First results will be presented.

Primary author: KAMINSKI, Jochen (University of Bonn)

Co-authors: Mr BREZINA, Christoph (University of Bonn); Mr KLÖCKNER, Frederik (University of Bonn); Prof. DESCH, Klaus (University of Bonn); Prof. SCHUMACHER, Markus (University of Freiburg); Dr KILLENBERG, Martin (University of Bonn); Mr KRAUTSCHEID, Thorsten (University of Bonn); Mr RENZ, Uwe (University of Freiburg)

Presenter: KAMINSKI, Jochen (University of Bonn)

Session Classification: Poster Session

Track Classification: Poster Session

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

The EUDET Pixel Beam Telescope

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

A high resolution (\sigma<3 \mu m) beam telescope based on monolithic active pixel sensors (MAPS) has been built within the EUDET collaboration. EUDET is a coordinated detector R&D programme for a future linear collider providing test beam infrastructure to detector R&D groups. The telescope consists of six sensor planes with a pixel pitch of either 10 or 30 micrometer for the demonstrator, or 18.4 micrometer for the final telescope. These are located on two arms, between which a device under test may be positioned. A general purpose cooling and positioning infrastructure is available, along with a custom-made trigger logic unit, a flexible data acquisition system based on dedicated VME readout boards, a platform-independent, lightweight DAQ framework, and a data analysis tool based on the standard ILC software framework.

Since the first installation of a demonstrator telescope in 2007, the DAQ system has been continuously improved and adapted to new sensor types, and has been used by a total of about ten groups over the summers of 2008 and 2009 as a reference system for tests at DESY and the high energy hadron test beam facility at CERN. In 2008 the sensors were upgraded to the high-resolution Mimosa18 chips, providing the user with the option of enhanced resolution, at the expense of readout speed. In parallel with the 2009 test beam campaign, the final sensors will be tested, allowing the commissioning of the final telescope soon afterwards.
In this presentation an overview on the pixel telescope, its data acquisition system and its performance will be given. First result from the final telescope chip, the Mimosa26 will be given.

Primary author: Dr GREGOR, Ingrid-Maria (DESY)

Presenter: Dr GREGOR, Ingrid-Maria (DESY)

Session Classification: Poster Session

Track Classification: Poster Session

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

The forward CASTOR calorimeter of the CMS

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The CASTOR calorimeter is designed for the very forward region (pseudorapidity range from 5.1 to 6.6) in the CMS experiment at LHC. It will be operated in the low luminosity period of pp-collisions up to 2x10^33 cm^-2s^-1 and in heavy-ion-collisions.

The design of the calorimeter is determined by space constraints inside a shield for radiation and for magnetic field and restricted to materials which tolerate a high radiation level. Therefore the calorimeter surrounds the beam pipe as a very compact sampling structure of Tungsten and Quartz plates with a depth of 10 hadronic interaction lengths. In the Quartz plates Cherenkov light is emitted by particles in the core of the electromagnetic and hadronic showers. Optimal oriented Quartz plates and air filled pyramids guide the light to photo multipliers converting the light into electrical signals. The granularity of 16 transversal segments and 14 longitudinal sections allows to reconstruct shower profiles, to separate electrons/photons from hadrons and to search for phenomena with anomalous hadronic energy depositions as expected from strangelets. With test beam measurements the main parameters of this calorimeter have been studied and results for shower profiles and energy response will be presented.

The full CASTOR calorimeter was constructed in spring 2009 and installed in June 2009. First operation experiences will be reported as well as the prospects for physics results. The physics analysis topics, which can be studied with the CASTOR calorimeter span a broad range of QCD themes. One candidate for very early physics results is the small-x evolution of the parton density functions of the proton, which will have strong impact on the LHC measurements. With the CASTOR calorimeter also the underlying event as well as the contribution to multi-parton interaction can be studied and reduce the systematic uncertainty in precision measurements as well as in searches for new physics signals. These two examples will be adressed in the poster.

Primary author: KATKOV, Igor (DESY)

Presenter: KATKOV, Igor (DESY)

Session Classification: Poster Session

Track Classification: Poster Session

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

The Belle-II Pixel Vertex Tracker at the SuperKEKB Flavor Factory

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Building on the success of the current KEKB flavor factory and the Belle experiment, which helped to firmly establish the CKM picture of quark mixing and CP violation in the Standard Model, a luminosity upgrade of the machine is planned. This new super flavor factory, SuperKEKB, will deliver a luminosity of 8 x 10^35 / cm^2s, a factor of 40 increase over the present luminosity world record. With these increased statistics, precision measurements in the flavor sector are possible which can probe new physics well beyond the scales accessible to direct observations.

The increased luminosity also requires upgrades of the Belle detector. Of critical importance here is a new silicon pixel vertex tracker, which will significantly improve the decay vertex resolution, crucial for time dependent CP violation measurements. This new detector will consist of two layers of DEPFET pixel sensors close to the interaction point. These sensors combine particle detection and amplification of the signal by embedding a field effect transistor into fully depleted silicon, providing very high signal to noise ratios and excellent spatial resolution with 50 μm thick silicon. This technology satisfies the requirements of extremely low material in the active region and high radiation tolerance at Belle-II. The poster will outline key physics objectives and describe the sensor technology as well as the overall concept of the pixel vertex tracker upgrade.

Primary author: Dr SIMON, Frank (Max-Planck-Institute for Physics)

Co-authors: MOLL, Andreas (Max-Planck-Institute for Physics); WASSATSCH, Andreas (Max-Planck-Institute for Physics); REISERT, Burkhard (Max-Planck-Institute for Physics); KIESLING, Christian (Max-Planck-Institute for Physics); HELLER, Claudio (Max-Planck-Institute for Physics); MOSER, Hans-Guenther (Max-Planck-Institute for Physics, Semiconductor Laboratory); NINKOVIC, Jelena (Max-Planck-Institute for Physics, Semiconductor Laboratory); ACKERMANN, Karlheinz (Max-Planck-Institute for Physics); PROTHMANN, Kolja (Max-Planck-Institute for Physics); ANDRICEK, Ladislav (Max-Planck-Institute for Physics, Semiconductor Laboratory); RITTER, Martin (Max-Planck-Institute for Physics); RICHTER, Rainer (Max-Planck-Institute, Semiconductor Laboratory); RUMMEL, Stefan (Max-Planck-Institute for Physics, Semiconductor Laboratory)

Presenter: Dr SIMON, Frank (Max-Planck-Institute for Physics)

Session Classification: Poster Session

Track Classification: Poster Session

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

New distinguishing feature of a matter and an antimatter: asymmetry in the cooling of charged leptons and antileptons by means of neutrino pairs emission in a magnetic field

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

We present analytic formulae for the differential probability of the neutrino pairs emission by charged lepton (antilepton) gas and for the energy loss by charged leptons (antileptons) by means of neutrino pairs emission in hot stellar magnetic fields with allowance for the longitudinal polarizations of the initial and final charged leptons (antileptons). In general, the gas consisting of only the charged leptons having a left-hand (right-hand) circular polarization and the gas consisting of only the charged antileptons having a left-hand (right-hand) circular polarization are cooled at the expense of neutrino pairs emission by the charged leptons (antileptons) in hot stellar magnetic fields asymmetrically. The obtained result for the asymmetry of the cooling of charged lepton gas and charged antilepton gas by neutrino pairs emission shows that a matter and an antimatter are cooled at the expense of neutrino pairs emission asymmetrically. It is a new distinguishing feature of a matter and antimatter. The analyses of the asymmetry of cooling of electron gas and positron gas at the expense of neutrino pairs emission in stellar medium show that dominant contribution to the asymmetry of the cooling of the collapsing stellar core is determined with the electron neutrino pairs emission by the electrons having a left-hand circular polarization and with the electron neutrino pairs emission by the positrons having a right-hand circular polarization. When electron neutrino pairs are emitted by the electrons and positrons having a left-hand circular polarization, the process of electron neutrino pairs emission by electrons can contribute to the cooling of the collapsing stellar core more essentially than the process of electron neutrino pairs emission by positrons. When electron neutrino pairs are emitted by the electrons and positrons having a right-hand circular polarization, the process of electron neutrino pairs emission by positrons can contribute to the cooling of collapsing stellar core more essentially than the process of electron neutrino pairs emission by electrons. All these effects could contribute to asymmetry of the cooling of the collapsing stellar core.

Primary authors: Dr GASIMOVA, Rasmiyya (Nakhchivan State University); Dr HUSEYNOV (GUSEINOV), Vali (Nakhchivan State University;Nakhchivan Department of Azerbaijan National Academy of Sciences)

Co-author: Mrs SHUKUROVA, Yagut (Nakhchivan State University)

Presenter: Dr HUSEYNOV (GUSEINOV), Vali (Nakhchivan State University;Nakhchivan Department of Azerbaijan National Academy of Sciences)

Session Classification: Poster Session

Track Classification: Poster Session

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

Divergences and resonances in particle processes in intense external fields

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The study of fundamental interactions in intense external fields is a broad, interesting and incomplete area of study. Intense external fields are present in the charged bunch collisions at accelerators, being responsible for the beamstrahlung, pair background processes and potentially affecting all collider physics processes. Pair annihilation in the intense fields near the surfaces of magnetars maybe responsible for intense gamma ray bursts. The intense Coulomb fields present in heavy ion collisions are also known to affect physics processes. The general QFT with intense external fields is examined with attention paid to the cancellation of IR divergences, and whether resonances are present in the cross-sections of the second order process cross-sections in the bound interaction picture.

Primary author: Dr HARTIN, Anthony (DESY)

Presenter: Dr HARTIN, Anthony (DESY)

Session Classification: Poster Session

Track Classification: Poster Session

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

Very Forward Detectors for ILC and LHC

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

For the very forward region of an ILC detector special calorimeters are needed. They will be hit by a large fraction
of e+/e- pairs stemming from beamstrahlung. Sensors have to withstand a very high levels of ionizing dose.
Similar conditions will be faced at the LHC for detectors near the beam-pipe. Radiation hard sensors and examples
of their applications are presented.

Primary author: Dr SCHUWALOW, Sergej (DESY Zeuthen)

Presenter: Dr SCHUWALOW, Sergej (DESY Zeuthen)

Session Classification: Poster Session

Track Classification: Poster Session

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

Polarization effects in neutrino pairs production by electrons (positrons) in hot stellar magnetic fields

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

We present the analytic formula for the differential probability of the neutrino pairs emission by electrons (positrons) in hot stellar magnetic fields with allowance for the longitudinal polarizations of the initial and final electrons (positrons). It is shown that the differential probabilities of the considered processes are sensitive to the spin variable of the initial and final electrons (positrons) and to the direction of the emitted neutrino pairs momenta. We also investigate the energy loss by electrons (positrons) having the different polarization states by means of neutrino pairs emission in hot stellar magnetic fields with allowance for the longitudinal polarizations of the initial and final electrons (positrons). In general, the gas consisting of only the electrons (positrons) having a left-hand circular polarization and the gas consisting of only the electrons (positrons) having a right-hand circular polarization are cooled at the expense of neutrino pairs emission by the electrons (positrons) in hot stellar magnetic fields asymmetrically. In the cooling process of the electron (positron) gas at the expense of neutrino pairs emission by the electrons (positrons) in hot stellar magnetic fields the dominant role belongs to the electron neutrino pairs emission process compared with the contribution of the muon (tauon) neutrino pairs emission process. The asymmetry of the cooling in the process of electron neutrino pairs emission by electrons is 8 times more than that one in the process of muon neutrino pairs emission by electrons or in the process of tauon neutrino pairs emission by electrons. The asymmetry of cooling in the process of electron neutrino pairs emission by positrons is 4 times more than that one in the process of muon neutrino pairs emission by positrons or in the process of tauon neutrino pairs emission by positrons.

Primary authors: Dr GASIMOVA, Rasmiyya (Nakhchivan State University); Dr HUSEYNOV (GUSEINOV), Vali (Nakhchivan State University; Nakhchivan Depatrment of Azerbaijan National Academy of Sciences)

Co-author: Ms SHUKUROVA, Yagut (Nakhchivan State University)

Presenter: Dr GASIMOVA, Rasmiyya (Nakhchivan State University)

Session Classification: Poster Session

Track Classification: Poster Session

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

Searches for leptonic B decays at BaBar

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Measurements of the branching fractions of purely leptonic decays of B-
mesons translate into constraints in the plane of the charged Higgs mass versus tan beta which are relatively insensitive to the particular model. Using the full BaBar dataset of 450 million B-decays
we search for these decays.
No significant signal is found in the decays into electrons or muons and we set upper limits on the branching fractions of the order of a few times 10^-6 at 90% confidence level.

Primary author: Dr NELSON, Silke (SLAC)

Presenter: Dr NELSON, Silke (SLAC)

Session Classification: Poster Session

Track Classification: Poster Session

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

INSPIRE - The Next-Generation HEP Information System

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

CERN, DESY, Fermilab and SLAC have joined efforts to build INSPIRE, the next-generation HEP information platform which will empower scientists with innovative tools for information discovery and communication.

INSPIRE represents a natural community-based evolution of the successful SPIRES database, maintained for decades by DESY, Fermilab and SLAC, by moving its features and trusted curated content to the modern digital library platform Invenio developed at CERN. It will provide fast access to the entire body of HEP literature. As a subject repository it will host the fulltexts of preprints and Open Access journal articles as well as additional material like conference slides and multimedia to enable novel text- and data mining applications. New metrics will be developed to assess the impact of articles and authors. In the spirit of Web2.0 INSPIRE will also offer tools for collaboration and user-enriched content.

INSPIRE will continue and develop further the role that SPIRES has played as THE reference HEP scientific information platform worldwide, providing a vision for information management in other fields of science.

Primary author: Dr HOLTKAMP, Annette (DESY)

Co-author: Dr AKOPOV, Zaven (DESY)

Presenter: Dr HOLTKAMP, Annette (DESY)

Session Classification: Poster Session

Track Classification: Poster Session

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

ILC @ DESY

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

An overview of the ILC related activities at DESY is presented. With a focus on the high-gradient cavity development DESY strives to improve the yield of cavities operating at 31.5MV/m by standardizing processing during manufacture and enhanced quality assessment. The synergies with the existing FLASH operation and the planned XFEL are key to the success of this programme.

Primary authors: Dr ELSEN, Eckhard (DESY); Dr WALKER, Nicholas (DESY)

Presenter: Dr ELSEN, Eckhard (DESY)

Session Classification: Poster Session

Track Classification: Poster Session

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

Studies with an Energy Weighting Method for the Upgrade of the Hadronic Barrel Calorimeter of CMS

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

CMS is one of the general purpose experiments of the Large Hadron Collider (LHC). The parameters of the particles of the collisions will be measured there with high precision. The purpose of the hadronic calorimeter (hcal) is mainly the determination of the energy of hadronic particles. It is a sampling calorimeter which implies a worsening of its linearity and energy resolution.
For the CMS detector upgrade a longitudinal segmentation of the hcal towers is planned. Therefore it is possible to resolve single parts of particle showers. This allows to establish a weighting method with the goal to distinguish between electromagnetic a hadronic energy depositions and thereby to improve its linearity and energy resolution by an adequate weighting. The energy density (energy per volume) is thereby the criteria for the differentiation between electromagnetic or rather hadronic energy depositions. Electromagnetic energy depositions e.g. tend to higher energy densities and would consequently get smaller weights.
Here studies of a method based on tabulated weights are presented. Weights as a function of the energy density have been obtained for simulated test beam data with several energies. These weights are applied to simulated data to investigate the improvement of the linearity and energy resolution of the upgraded CMS barrel calorimeter. By this means different readout designs can be examined to find the optimal configuration of the planned segmentation. The investigation of shower profiles and the fraction of electromagnetic and hadronic energy depositions helps to understand and to establish the method.

Primary author: Mr STEIN, Matthias (CMS)

Co-authors: Dr MELZER-PELLMANN, Isabell (CMS); Dr BORRAS, Kerstin (H1/ LPI); Dr ANDREEV, Vladimir (H1/ LPI)

Presenter: Mr STEIN, Matthias (CMS)

Session Classification: Poster Session

Track Classification: Poster Session

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

High-Gradient SRF Research at DESY

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Gradients exceeding 40MV/m have been multiply demonstrated in 9-cell SRF cavities that are foreseen for the International Linear Collider. The mass production of such cavities however remains a challenge. A new, in situ method for optical inspection, developed at KEK/Kyoto University allows to correlate surface features with e.g. quench locations. This and other tools are presented that enable a systematic approach to understanding the gradient limiting features in SRF cavities. Results from the large sample investigated at DESY are shown.

Primary authors: Dr RESCHKE, Detlef (DESY); Mr ADERHOLD, Sebastian (DESY)

Presenter: Mr ADERHOLD, Sebastian (DESY)

Session Classification: Poster Session

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

Structure Functions Measurements at HERA

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Recent structure function results from H1 and ZEUS are presented.
The measurements cover a wide kinematic range of squared
four-momentum transfers Q2, from 0.2Gev2 to 30000Gev2,
and Bjorken x between ~5*10-6 and 0.65. The data are compared
with a new QCD analyses.

Primary author: Mr PETRUKHIN, Alexey (DESY / ITEP)

Presenter: Mr PETRUKHIN, Alexey (DESY / ITEP)

Session Classification: Poster Session

Track Classification: Poster Session

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

Searches at HERA

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

HERA, the worlds only ep collider, provided a unique opportunity to search for new physics beyond the Standard Model (BSM). This poster presents some of the results from BSM searches by the H1 and ZEUS experiments. Most of them use the full HERA data sample corresponding to about 0.5 fb-1 per experiment. Shown are results on multi-lepton and isolated lepton production, a general search for new physics, searches for excited fermions, for squarks in RPV susy and for contact interactions.

Primary author: Dr BRANDT, Gerhard (DESY)

Presenter: Dr BRANDT, Gerhard (DESY)

Session Classification: Poster Session

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

Jets and alpha_s measurements in DIS

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The production of jets is studied in neutral current deep-inelastic electron/positron proton
scattering (NC DIS) at negative four momentum transfer squared 5 < Q2 < 100 GeV2 (low
Q2) and 150 < Q2 < 15000 GeV2 (high Q2). The jet production at low Q2 has been analysed using HERA data taken in 1999-2000
corresponding to an integrated luminosity of 43.5 pb-1, and at high Q2 - using HERA data
taken in 1999-2007 with an integrated luminosity of 395 pb-1. The jet finding is performed in
the Breit frame in which jet transverse momentum stems mainly from QCD process and jets
are well separated from the proton remnant. Inclusive jet cross sections at low Q2 and the inclusive jet, 2-jet and 3-jet cross sections normalised to the NC DIS cross sections at high Q2 are measured as function of Q2 and jet
transverse momentum. The measurements are well described by perturbative NLO QCD calculations, corrected for
hadronization effects, and the strong coupling constant is extracted.
The theoretical uncertainties of about 4% are dominating the systematic uncertainty, while the the experimental accuracy reaches 0.6% at high Q2 and 1.3% at low Q2.

Primary author: Dr BAGHDASARYAN, Artem

Presenter: Dr BAGHDASARYAN, Artem

Session Classification: Poster Session

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

Final States measurements at HERA

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The poster summarizes new measurements of the hadronic final state in photoproduction and neutral current deep inelastic scattering (DIS) data collected with the H1 detector at HERA. The photoproduction analyses cover measurements of prompt photon cross-sections, production of light mesons (rho(770)0, K^*(892)0 and phi(1020)), and a study of the underlying event based on charge particle multiplicities in jet data. In low Q2 DIS, strangeness production is studied through the production of K*, K0 and Lambda baryons. A first measurement of the charge asymmetry in the hadronic final state in high Q2 DIS is presented. The different measurements are compared to Monte Carlo models with parton showers as well as fixed order calculations.

Primary author: Dr KNUTSSON, Albert (DESY)

Presenter: Dr KNUTSSON, Albert (DESY)

Session Classification: Poster Session

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

Heavy Flavour Measurements at a HERA

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The poster summarizes new measurements of the hadronic final state in photoproduction and neutral current deep inelastic scattering (DIS) data collected with the H1 detector at HERA. The photoproduction analyses cover measurements of prompt photon cross-sections, production of light mesons (rho(770)0, K^*(892)0 and phi(1020)), and a study of the underlying event based on charge particle multiplicities in jet data. In low Q2 DIS, strangeness production is studied through the production of K*, K0 and Lambda baryons. A first measurement of the charge asymmetry in the hadronic final state in high Q2 DIS is presented. The different measurements are compared to Monte Carlo models with parton showers as well as fixed order calculations.

Primary author: Dr STEDER, Michael (DESY)

Presenter: Dr STEDER, Michael (DESY)

Session Classification: Poster Session

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

Top cross-section measurements with ATLAS

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Top quarks are expected to be produced copiously at the LHC, both in pairs and singly. The distinctive signatures of top-pair events, including leptons, high jet multiplicity, b-jets and missing energy mean that they should be easily observed in the first year of running, and also offer an excellent tool to understand and calibrate the initial detector performance. Single top events suffer from smaller cross-sections and larger background, so sophisticated analysis techniques and larger data samples are required to establish the signal. The prospects for early ATLAS measurements in both areas will be shown.

Primary author: Dr POGGIOLI, Luc (LAL Orsay, France)

Presenter: Dr POGGIOLI, Luc (LAL Orsay, France)

Session Classification: Poster Session

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

Top properties with ATLAS

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The top quark is unique in the Standard Model by virtue of its large mass, possible role in electroweak symmetry breaking, and rapid decay without forming bound states. Precise measurements of its properties offer both sensitive tests of the Standard Model and possible pathways to discovering new physics, and are an important and challenging part of the ATLAS physics program. The prospects for precise measurements of the top quark mass, top quark decay properties such as polarisation, spin correlations and anomalous couplings, and rare top decays signalling beyond-Standard Model physics, will be described.

Primary author: Dr POGGIOLI, Luc (LAL Orsay, France)

Presenter: Dr POGGIOLI, Luc (LAL Orsay, France)

Session Classification: Poster Session

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

SM Higgs search in 4-lepton final state with ATLAS

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The discovery potential of the ATLAS detector at the LHC for a neutral SM Higgs boson decaying to purely leptonic final states, that is H-> ZZ(*)-> 4 leptons (electrons or muons), is presented. The signal is characterized by the presence of isolated leptons associated to the main pp interaction vertex in the events, and constitutes the most promising channel for SM Higgs discovery in the mass region 130<mH<700 GeV at LHC. Analysis techniques for the signal reconstruction and for the background rejection are discussed

Primary author: Dr POGGIOLI, Luc (LAL Orsay, France)

Presenter: Dr POGGIOLI, Luc (LAL Orsay, France)

Session Classification: Poster Session

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

Performance of the ATLAS Transition Radiation Tracker

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

A central component of modern collider experiments is the detection of charged particles and the reconstruction of their trajectories and momenta. The ATLAS experiment is designed to operate under the challenging conditions from high energy proton collisions at extremely high instantaneous luminosities at the CERN Large Hadron Collider. The ATLAS charged particle tracking system includes a transition radiation tracker, which consists of 350,000 straws of radius 2 mm filled with a Xenon-C02 gas mixture. For charged particles with pseudo-rapidity below 1.6, approximately 35 measurements of the trajectory are provided between 0.5 m and 1.1 m in radius from the axis defined by the proton beam. Electron identification is provided by detection of transition radiation, which is excited from high velocity particles when they pass through the many polymer fibers that fill the spaces between the straws. The transition radiation is absorbed by the Xenon gas inside the straws, leading to ionization two orders of magnitude larger than expected from the passage of minimum ionizing particles.

In advance of proton collisions, the TRT has been successfully commissioned with data collected from the passage of cosmic ray muons. This poster will present the operational status of the detector, the performance in terms of charged particle track reconstruction, the status of the alignment, and contributions to the ATLAS trigger system. As very high momentum muons can also produce transition radiation, the detection of transition radiation will also be presented as well as the expected improvement in electron identification.

Primary author: Dr POGGIOLI, Luc (LAL Orsay, France)

Presenter: Dr POGGIOLI, Luc (LAL Orsay, France)

Session Classification: Poster Session

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

Tau trigger and identification commissioning and first physics in ATLAS

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Tau leptons, and particularly their hadronic decays, will play an important role at the LHC. They will not only be invaluable for understanding the performance of the ATLAS detector but will also be of great importance in searches for the Higgs Boson and supersymmetric particles.
A key component of the overall tau selection is the tau trigger, which will provide a rejection of 10^6 against low-energy jets and an overall efficiency of 80% with respect to hadronic tau leptons identified by the offline algorithms. In the initial running it will be used standalone for high energy items (typically for E_T above 60 GeV) and in combination with missing E_T, electrons, muons or jets for lower E_T values.
Several offline identification strategies are being developed, some of them using advanced multivariate techniques. The commissioning of both trigger and identification algorithms has started with cosmics and first beam data.
Feasibility studies for analyses which can be envisaged with an integrated luminosity of 100 pb^{-1} are presented. W->tau nu events will provide the first relatively clean sample of tau leptons, allowing studies of the performance of the tau trigger and identification. Z->tau tau events with one tau decaying leptonically and one hadronically will help to understand efficiencies of the tau trigger, identification and mis-tagging. In addition they will allow for the in-situ determination of the tau energy scale and of the missing transverse energy scale. Events from ttbar processes with one W decaying to a tau lepton will be used to understand the reconstruction and identification performance of taus in a busier environment, more relevant to the future discovery physics program in ATLAS.

Primary author: Dr POGGIOLI, Luc (LAL Orsay, France)

Presenter: Dr POGGIOLI, Luc (LAL Orsay, France)

Session Classification: Poster Session

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

Estimation of top background to SUSY searches from data in ATLAS

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The Standard Model process of ttbar production is one of the most important backgrounds to searches for Supersymmetry (SUSY) at the Large Hadron Collider (LHC) at CERN. We describe the methods to estimate the contributions of semileptonic and di-leptonic top events in SUSY searches with zero, one or two isolated leptons, multi-jets and large missing transverse energy with the first 200 pb-1 data of the ATLAS experiment. The performance of these methods is evaluated with 10 TeV simulated data.

Primary author: Dr POGGIOLI, Luc (LAL Orsay, France)

Presenter: Dr POGGIOLI, Luc (LAL Orsay, France)

Session Classification: Poster Session

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

Tagging b-jets in ATLAS

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The ability to identify jets containing b-hadrons is important for the high-pT physics program of a general-purpose experiment at the LHC such as ATLAS. This is in particular useful to select very pure top samples, to search and/or study Standard Model or supersymmetric Higgs bosons which couple preferably to heavy objects or are produced in association with heavy quarks, to veto the large dominant ttbar background for several physics channels and finally to search for new physics: SUSY decay chains, heavy gauge bosons, etc. After a review of the algorithms used to identify b-jets, their anticipated performance is discussed as well as the impact of various critical ingredients such as the residual misalignments in the tracker. The prospects to measure the b-tagging performance in the first few hundreds pb-1 of data with di-jet events and ttbar events are then discussed. Finally three different use cases are discussed: the top mass measurement, the search for a low-mass Higgs boson produced in association with a top quark pair and decaying to bbbar, and the specific challenges of tagging very high-pT (TeV) jets for exotics search

Primary author: Dr POGGIOLI, Luc (LAL Orsay, France)

Presenter: Dr POGGIOLI, Luc (LAL Orsay, France)

Session Classification: Poster Session

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

Observation of resonances in the Lb->Lc+ pi- pi+ pi- decay mode at CDF II

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

CDF II has reconstructed a signal of about 900 Lb->Lc+ pi-pi+pi- decays from a data sample of 2.4 fb-1 of ppbar collisions at sqrt(s)~2TeV collected with the displaced vertex trigger. Several resonant decay modes have been observed for the first time, including
Lb->Lc(2595)+[Lc pi+pi-]pi-,
Lb->Lc(2625)+[Lc pi+pi-]pi-,
Lb->Sigma(2455)++[Lc pi+]pi-pi-,
and Lb->Sigma(2455)0[Lcpi-]pi+pi-.
We present the Lb->Lc+ pi-pi+pi- signal extraction and the preliminary measurement of the relative branching fractions of the above resonant Lb decay modes.

Primary author: Dr DONATI, Simone (University Pisa)

Co-authors: Dr VATAGA, Elena (INFN - Pisa); Dr CIOCCI, Maria Agnese (University of Siena); Dr AZZURRI, Paolo (SNS - Pisa); Dr BARRIA, Patrizia (University of Siena)

Presenter: Dr DONATI, Simone (University Pisa)

Session Classification: Poster Session

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

Probing the Physics of W's and b's from the Tevatron to the LHC

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

Collider signatures containing W bosons and b quarks are particularly interesting. The top quark decays to a W and a b nearly 100% of the time; hence studies of top, through both single top and top pair production, rely on an intimate knowledge of the final state containing W's and b's.
In the low-mass hypothesis (M_H < 130 GeV/c^2), the standard model Higgs boson is predicted to decay predominantly to a pair of b quarks. At the Tevatron the most sensitive Higgs production mechanism is for Higgs production in association with a W boson, producing a signature containing a W and 2 b jets. Additionally, several models of physics beyond the standard model contain signatures containing W's and b's. Measurements and searches with this signature rely on innovative particle identification techniques and precise knowledge of the processes that contribute to this sample. Here we will present an overview of the physics of the W+b final state, using CDF Tevatron results as a guide to what to look for at the LHC.

Primary author: Prof. NEU, Christopher (University of Virginia)

Presenter: Prof. NEU, Christopher (University of Virginia)

Session Classification: Poster Session

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

R&D on the Next Generation of Large Area Silicon Tracking at the Future Linear Collider

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The goal of the SiLC (Silicon tracking for the Linear Collider) international R&D Collaboration is to develop the next generation of large area Silicon tracking systems for the Future Linear Collider. Both the ILC and the CLIC cases are considered with a synergy with the LHC upgrades. Higher performances, easy to build and lower material budget are among the main objectives. The R&D topics include new Silicon microstrips sensors (active edge planar, larger size, smaller pitch and thinner), strixels (short strips) 3D technology based and 3D pixels for certain cases. Direct connection of the FE readout electronics onto the sensors is addressed with 3D vertical interconnection as final goal. A mixed mode deep submicron electronics is developed with fully digitized signal processing, a sophisticated control system allowing full functioning programmability, high flexibility and fault tolerance, time stamping, integrated calibrations and power cycling. Alignment, cooling and integration issues are studied. The advances on these various fronts and the related test beam results performed in the framework of the EUDET E.U project are presented in this poster.

Primary author: Dr SAVOY-NAVARRO, Aurore (LPNHE-CNRS/IN2P3)

Co-authors: Dr CHARPY, Alexandre (LPNHE-CNRS-IN2P3); Dr GARCIA FERNANDEZ, Marcos (IFCA-University of Cantabria)

Presenter: Dr SAVOY-NAVARRO, Aurore (LPNHE-CNRS/IN2P3)

Session Classification: Poster Session

Track Classification: Poster Session

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

The Project NICA/MPD at JINR: Search for the Mixed Phase of Strongly Interacting Matter at Nuclotron-based Ion Collider fAcility

Tuesday 18 August 2009 14:00 (1 minute)

Please give a brief summary of your poster

The Joint Institute for Nuclear Research (JINR) in Dubna is an international research organization established in accordance with the intergovernmental agreement of eleven countries in 1956. At the present time, eighteen countries are the JINR Member States and six countries, having the associated-member status. The JINR basic facility for high-energy physics research is represented by the 6AGeV Nuclotron which has replaced the old weak focusing 10GeV proton accelerator Synchrophasotron. The first relativistic nuclear beams with an energy of 4.AGeV were obtained at the Synchrophasotron in 1971. Since that time the study of relativistic heavy ion physics problems has been one of the main directions of the JINR research program. The new flagship of the Joint Institute for Nuclear Research is the NICA/MPD project. The main goal of the project is to start in the coming years experimental study of hot and dense strongly interacting QCD matter at the new JINR facility.

This goal is proposed to be reached by:
1) development of the existing Nuclotron accelerator facility as a basis for generation of intense beams over atomic mass range from protons to uranium and the polarized ions;
2) design and constraction of heavy ion collider (NICA) with maximum collision energy of sqrt (S_{NN}) =11 GeV and averaged luminosity 10^{27} cm^{-2} s^{-1} and
3) design and construction of multipurpose particle detector (MPD) at intersecting beams.

Realization of the project will lead to unique conditions for the world community research activity. The NICA energy regions is of major interest because the highest nuclear (barionic) density under laboratory conditions can be reached there. Generation of the intense polarized light nuclear beams aimed at investigation of polarization phenomena at the Nuclotron is foreseen.

Primary author: Prof. SISSAKIAN, Alexei (Joint Institute for Nuclear Research (JINR))

Co-author: Prof. SORIN, Alexander (Joint Institute for Nuclear Research (JINR))

Presenter: Dr SKACHKOV, Nikolay (JINR)

Session Classification: Poster Session

Track Classification: Poster Session

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

Electron-Nucleon Scattering at the Tera Scale (LHeC)

Please give a brief summary of your poster

A poster summary is presented of the status of an ongoing workshop, held under the auspieces of CERN, ECFA and NuPECC, on the accelerator options, the detector design and the physics potential of a TeV energy electron-proton and electron-ion collider, the Large Hadron Electron Collider (LHeC). The poster summarises the work towards the Conceptual Design Report of the LHeC, which is under consideration as a possible upgrade to the LHC. The CDR will be delivered in 2010.

Primary author: Prof. KLEIN, Max (University of Liverpool)

Presenter: Prof. KLEIN, Max (University of Liverpool)