

XXVII Workshop on Recent Developments in High Energy Physics and Cosmology

Abstracts book

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Abstract ID : 0

Detecting long-lived supersymmetric particles at LHC

Content :

In certain supersymmetry-breaking scenarios, characteristic signatures can be expected which would not necessarily be found in generic SUSY searches for events containing high- p_T multi-jets and large missing transverse energy. In this talk, I will present the expected response of the ATLAS and CMS detectors to signatures involving high- p_T photons which may not appear to point back to the primary collision vertex and long-lived charged sleptons and R-hadrons. Such processes often have the advantage of small Standard Model backgrounds and their observation could provide unique constraints on the different SUSY breaking scenarios. Using these signatures discovery potentials are estimated for either Gauge-Mediated Supersymmetry Breaking or Split-Supersymmetry scenarios. These studies have been performed using Monte Carlo samples of SUSY and background processes corresponding to integrated luminosity of about one inverse femtobarn, corresponding to the first year of LHC running.

Primary authors : Dr. MITSOU, Vasiliki (Instituto de Física Corpuscular (IFIC), CSIC - Univ. Valencia)

Co-authors :

Presenter : Dr. MITSOU, Vasiliki (Instituto de Física Corpuscular (IFIC), CSIC - Univ. Valencia)

Track classification :

Contribution type : --not specified--

Submitted by : Dr. MITSOU, Vasiliki

Submitted on Thursday 16 April 2009

Last modified on : Thursday 16 April 2009

Comments :

The talk is a 30-min review talk presented on behalf of the ATLAS and CMS Collaborations.

Status : SUBMITTED

Track judgments :

Abstract ID : 1

Collider Physics and Cosmology: Strong Model Dependence

Content :

I review the situation concerning the dark sector of our Universe and how the latter can be constrained/understood by means of both astrophysical and particle (collider and non-accelerator) physics experiments. I emphasize the strong theoretical model dependence of any information on the energy budget of the Universe extracted from astrophysical or particle physics experiments. To illustrate the above point I discuss and compare the results on the nature of the dark sector of the standard cosmological constant -cold dark matter model (LambdaCDM) with those of exotic Cosmologies in string theory, including non-equilibrium, super-critical string Universes arising from colliding brane worlds. All such models can be made consistent with the current astrophysical data, and the hope is that collider and other future particle physics experiments can play a crucial discriminant role.

Primary authors : MAVROMATOS, Nikos (King's College London, Physics Dept.)

Co-authors :

Presenter : MAVROMATOS, Nikos (King's College London, Physics Dept.)

Track classification :

Contribution type : --not specified--

Submitted by : MAVROMATOS, Nikos

Submitted on Friday 24 April 2009

Last modified on : Friday 24 April 2009

Comments :

Review talk

Status : SUBMITTED

Track judgments :

Abstract ID : 2

Hilltop F-term Hybrid Inflation with non-minimal Kaehler Potentials

Content :

F-term hybrid inflation of the hilltop-type can generate a scalar spectral index in agreement with the fitting of the five-year Wilkinson microwave anisotropy probe data by the standard power-law cosmological model with cold dark matter and a cosmological constant, Λ CDM. We investigate the realization of this type of FHI with the utilization of a quasi-canonical or a string-inspired Kaehler potential. In the first case, acceptable results can be obtained by constraining the coefficient of the quadratic supergravity correction to the inflationary potential and therefore a mild tuning of the relevant term of the Kaehler potential is indispensable. This tuning can be avoided with the adoption of a simple class of string-inspired Kaehler potentials which ensures a resolution to the η problem of FHI and allows acceptable values for the spectral index, constraining the coefficient of the quartic supergravity correction to the inflationary potential.

Primary authors : Dr. PALLIS, Constantinos (University of Patras)

Co-authors :

Presenter : Dr. PALLIS, Constantinos (University of Patras)

Track classification :

Contribution type : --not specified--

Submitted by : PALLIS, Constantinos

Submitted on Saturday 25 April 2009

Last modified on : Sunday 03 May 2009

Comments :

My talk is based on the papers: [B. Garbrecht, C.Pallis A. Pilaftsis, JHEP12, 038\(2006\) \[hep-ph/0605264\]](#); <

Status : SUBMITTED

Track judgments :

Abstract ID : 3

Tachyon-Dilaton Inflation as an α' -non perturbative solution in first quantized String Cosmology

Content :

I will discuss exact (non perturbative in the Regge slope α') inflationary solutions of a two-dimensional bosonic sigma model with tachyon, dilaton and graviton backgrounds. These solutions are found through a novel non-perturbative functional method and are consistent with Weyl invariance of the theory (to all orders in the Regge slope α'). I will also discuss some cosmological solutions which contain inflationary eras for a short period and interpolate between flat universes in the far past and far future. These solutions are characterized by the absence of cosmological horizons, and therefore have well- defined scattering amplitudes. This makes them compatible with a perturbative string framework, and therefore it is these solutions that we consider as self-consistent in our approach. The advantage of our method is that the solutions are valid directly in four target-space-time dimensions, as a result of the non trivial dilaton configurations.

Within the context of the interpolating solutions, string production at the end of inflation (preheating) may also be studied.

Reference: JHEP 0903: 022,2009.

Primary authors : Ms. KOSTOUKI, Anna (King's College London)

Co-authors :

Presenter : Ms. KOSTOUKI, Anna (King's College London)

Track classification :

Contribution type : --not specified--

Submitted by : KOSTOUKI, Anna

Submitted on Tuesday 28 April 2009

Last modified on : Tuesday 28 April 2009

Comments :

Status : SUBMITTED

Track judgments :

Abstract ID : 4

Recent Activities in the Alice Experiment at the LHC

Content :

The recent activities in the ALice experiment at the LHC will be presented.

Primary authors : VASSILIOU, Maria (Nuclear & Particle Physics Section - Physics Department - Univer)

Co-authors :

Presenter : VASSILIOU, Maria (Nuclear & Particle Physics Section - Physics Department - Univer)

Track classification :

Contribution type : --not specified--

Submitted by : VASSILIOU, Maria

Submitted on Thursday 30 April 2009

Last modified on : Thursday 30 April 2009

Comments :

Status : SUBMITTED

Track judgments :

Abstract ID : 5

How to Make Solitons from Particles

Content :

We demonstrate numerically that an oscillation mode in 1+1 dimensions (eg a breather) can decay into a kink-antikink pair by a sudden distortion of the evolution potential which occurs within a certain time or space domain. In particular, we consider the transition of a sine-Gordon potential into a Φ^4 potential. The breather field configuration is assumed to initially evolve in a sine-Gordon potential with velocity v and oscillation frequency ω . We then consider two types of numerical experiments: a. An abrupt transition of the potential to a Φ^4 form at $t_0 = 0$ over the whole 1-dimensional lattice and b. The impact of the breather on a region $x > x_0 = 0$ where the potential has the Φ^4 form which is different from the sine-Gordon form valid at $x < x_0 = 0$. We find that in both cases there is a region of parameters (v, ω) such that the breather decays to a kink-antikink pair. This region of parameters for kink-antikink formation is qualitatively similar with the parameter region where the energy of the breather exceeds the energy of the kink-antikink pair in the Φ^4 potential.

Primary authors : Prof. PERIVOLAROPOULOS, Leandros (U. of Ioannina)

Co-authors :

Presenter : Prof. PERIVOLAROPOULOS, Leandros (U. of Ioannina)

Track classification :

Contribution type : --not specified--

Submitted by : PERIVOLAROPOULOS, Leandros

Submitted on Sunday 03 May 2009

Last modified on : Sunday 03 May 2009

Comments :

Status : SUBMITTED

Track judgments :

Abstract ID : 6

Spanish ATLAS computing cloud: Facing data taking

Content :

The Large Hadron Collider is starting operations in Autumn 2009. ATLAS Distributed Computing group (ADC) is stressing the Computing Model infrastructure in order to have everything tested prior to collisions. The Iberian ATLAS computing cloud -composed by: PIC-Barcelona, IFAE-Barcelona, IFIC-Valencia, UAM-Madrid, LIP-COIMBRA, LIP-LISBON and LIP-LNEC/FCCN- is regularly participating in all the activities coordinated by the ADC group: simulated events production, data re-processing, distributed data analysis and data distribution. Each single one of this activities is crucial for the success of the ATLAS Grid Computing infrastructure. The focus of this talk is to describe and explain the status of the distributed computing activities in the Spanish cloud and its readiness for the first data taking.

Summary :

ATLAS detector is going to take real data in Autumn 2009. Spanish sites have to be validated in order to be ready for the physics analysis. With these tests we will identify breaking points and bottlenecks which result from the site design or configuration taking into account that needs of analysis jobs differ from those of production. The essential impact is ensuring the robustness and effectiveness of the complex system of GRID Analysis

Primary authors : Dr. GONZALEZ DE LA HOZ, Santiago (IFIC-Valencia)

Co-authors : Dr. SALT, Jose (IFIC-Valencia) ; Dr. KACI, Mohammed (IFIC-Valencia) ; Mr. LAMAS, Alejandro (IFIC-Valencia) ; Ms. OLIVER, Elena (IFIC-Valencia) ; Mr. SÁNCHEZ, Javier (IFIC-Valencia) ; Mr. VILLAPLANA, Miguel (IFIC-Valencia) ; Mr. BORREGO, Carlos (IFAE-Barcelona) ; Dr. CAMPOS, Marc (IFAE-Barcelona) ; Dr. NADAL, Jordi (IFAE-Barcelona) ; Dr. PACHECO, Andreu (IFAE-Barcelona) ; Dr. PARDO, Jose (UAM-MAdrid) ; Dr. MUÑOZ, Luis (UAM-MAdrid) ; Dr. FERNANDEZ, Pablo (UAM-MAdrid) ; Dr. DEL CANO, Luis (UAM-MAdrid) ; Dr. ESPINAL, Xavier (PIC-Barcelona)

Presenter : Dr. GONZALEZ DE LA HOZ, Santiago (IFIC-Valencia)

Track classification :

Contribution type : --not specified--

Submitted by : Dr. GONZALEZ DE LA HOZ, Santiago

Submitted on Monday 04 May 2009

Last modified on : Wednesday 06 May 2009

Comments :

I am arriving to Athens on 20th May and I am leaving on Saunday 24th in the morning, so please fit my talk from 21st

Status : SUBMITTED

Track judgments :

Abstract ID : 7

Probing R-parity violating supersymmetry with ATLAS

Content :

The search for supersymmetry (SUSY) with violation of R-parity through bilinear terms at the LHC is theoretically motivated by the explanation it provides for the neutrino masses and mixings through the neutrino-neutralino mixing. In this study, we consider a scenario where the lightest supersymmetric particle (LSP), the lightest neutralino, decays to a W and a muon or to a W and a tau lepton. If the hadronic decay of the W is considered, this analysis involves the reconstruction of the neutralino mass from the muon or tau and two high-pT jets with invariant mass M_{jj} near M_W , requiring high sphericity, high effective mass and high jet multiplicity. A preliminary analysis with ATLAS simulated events will be presented, assuming the minimal supergravity (mSUGRA) model, for a c.m.s. energy of 10 TeV and 2 fb^{-1} of integrated luminosity.

Primary authors : TORRO PASTOR, Emma (CSIC - Universitat de Valencia)

Co-authors : MITSOU, Vasiliki (CSIC) ; GARCIA, Carmen (CSIC)

Presenter : TORRO PASTOR, Emma (CSIC - Universitat de Valencia)

Track classification :

Contribution type : --not specified--

Submitted by : TORRO PASTOR, Emma

Submitted on Wednesday 06 May 2009

Last modified on : Wednesday 06 May 2009

Comments :

Unfortunately I will not be able to attend to the lectures on Sunday, 24th May, so I would be grateful if my talk could be

Status : SUBMITTED

Track judgments :

Abstract ID : 8

Stringy Instantons and Fermion Masses

Content :

Stringy instanton Yukawa corrections from Euclidean branes are calculated in models with extended Standard Model gauge symmetry obtained from D-brane configurations. These instanton induced contributions are found to correlate quark mass ratios to the geometry of the internal compact space. Examples of viable fermion mass textures are presented.

Primary authors : LEONTARIS, George (Ioannina University)

Co-authors :

Presenter : LEONTARIS, George (Ioannina University)

Track classification :

Contribution type : --not specified--

Submitted by : LEONTARIS, George

Submitted on Thursday 07 May 2009

Last modified on : Thursday 07 May 2009

Comments :

Status : SUBMITTED

Track judgments :

Abstract ID : 9

Flavour Mixing, Vacuum Energy and Late-era Universe's Acceleration

Content :

I discuss a Fock space quantisation of quantum field theories with flavour mixing, defining the so-called "flavour vacuum", which is not unitarily connected to the mass eigenstate vacuum in a thermodynamic limit, and hence is distinct. Extending works by Blasone and Vitiello and collaborators in flat space times, I discuss issues concerning novel non perturbative contributions to the vacuum energy as a result of the mixing, taking into account the back reaction of matter onto the space time in a consistent way. I pay particular attention to discussing appropriate definitions of normal ordering of quantum operators in such curved environments. I discuss cosmological issues, regarding a late era of the Universe's acceleration, in this context.

Primary authors : Prof. MAVROMATOS, Nikolaos (King's College London) ; Prof. SARKAR, Sarben (King's College London) ; Mr. TARANTINO, Walter (King's College London)

Co-authors :

Presenter : Mr. TARANTINO, Walter (King's College London)

Track classification :

Contribution type : --not specified--

Submitted by :

Submitted on Saturday 09 May 2009

Last modified on : Saturday 09 May 2009

Comments :

Status : SUBMITTED

Track judgments :

Abstract ID : 10

Top quark mass using the leptons' transverse momentum at the CDF experiment

Content :

A new CDF measurement of the top quark mass in the top-antitop dilepton decay channel is presented. It is based upon the observation that the top quark mass is linearly connected to the leptons' transverse momentum and it represents one of the best so far measurements with respect to the systematic error.

Primary authors : Dr. GIAKOUMOPOULOU, Victoria (University of Athens)

Co-authors :

Presenter : Dr. GIAKOUMOPOULOU, Victoria (University of Athens)

Track classification :

Contribution type : --not specified--

Submitted by : GIAKOUMOPOULOU, Victoria

Submitted on Sunday 10 May 2009

Last modified on : Sunday 10 May 2009

Comments :

Status : SUBMITTED

Track judgments :

Abstract ID : 11

CERN-CMS Award to Prisma Electronics S.A.

Content :

Description of the production of about 5000 hybrid cards for the CMS-Preshower according to CMS schedule. Motivations for the Award.

Primary authors : BARONE, Michele (National Center for Scientific Research "Demokritos" (NRCPS))

Co-authors :

Presenter : BARONE, Michele (National Center for Scientific Research "Demokritos" (NRCPS))

Track classification :

Contribution type : --not specified--

Submitted by : BARONE, Michele

Submitted on Monday 11 May 2009

Last modified on : Monday 11 May 2009

Comments :

Status : SUBMITTED

Track judgments :

Abstract ID : 12

Commissioning of the ALICE Online Data Quality Monitoring Framework

Content :

ALICE is one of the experiments installed at CERN Large Hadron Collider, dedicated to the study of heavy-ion collisions. The final ALICE data acquisition system has been installed and is being used for the testing and commissioning of detectors. Data Quality Monitoring (DQM) is an important aspect of the online procedures for a HEP experiment. In this presentation we overview the commissioning and the integration during the summer of 2008 LHC startup of ALICE's AMORE (Automatic MOnitoRing Environment), a custom-written distributed application aimed at providing DQM services in a large, experiment-wide scale.

Primary authors : ROUKOUTAKIS, Filimon (University of Athens)

Co-authors :

Presenter : ROUKOUTAKIS, Filimon (University of Athens)

Track classification :

Contribution type : --not specified--

Submitted by : ROUKOUTAKIS, Filimon

Submitted on Monday 11 May 2009

Last modified on : Monday 11 May 2009

Comments :

Status : SUBMITTED

Track judgments :

Abstract ID : 13

CAST results and Axion Review

Content :

Axions have been invented to accommodate the vanishingly small CP Violation in the strong interactions, probed mainly by the stringent limits on the neutron electric dipole moment. Additionally, their discovery may offer a solution to the so much wanted Cold Dark Matter constituent. CAST, the CERN Axion Solar Telescope, searched for axions with masses up to $\sim 0.02\text{eV}$ and improved the axion to photon coupling beyond the ones derived from astrophysical arguments for the first time, $g_{\gamma} < 8.8 \times 10^{-11} \text{GeV}^{-1}$. CAST has recently extended its research potential to higher masses, by introducing in the magnet bore a buffer gas, initially 4He (completed) and currently 3He , and has published the best experimental limit in almost the full mass range up to 0.39eV . The CAST experiment has scanned already masses up to 0.64eV and will continue to reach beyond the HDM axion mass limit of $\sim 1\text{eV}$. The plans are to extend its searches to the sub-keV range. CAST was the first helioscope to operate in the visible. New generation, extra low noise Micromegas detectors of the microbulk technology offer the opportunity to reach a level of $g_{\gamma} \sim (\text{few}) \times 10^{-11} \text{GeV}^{-1}$. ADMX, the Axion Dark Matter eXperiment, on the other side is searching for relic galactic halo axions and is in the reach of the theoretically (KSVZ and DFSZ) favored "axion line" at the μeV mass scale. The results obtained up to now with a GaAs HFET amplifier are going to be superseded with the use of a SQUID amplifier, the world's quietest spectral receiver, which boosts the sensitivity down to the detection of one rf photon (axion) per minute. ADMX targets at a definitive axion search in the phase space bounded by the astrophysical constraints and the universe overclosure reasoning.

Primary authors : Dr. GERALIS, Theodoros (National Center for Scientific Research "Demokritos" (NRCPS))

Co-authors :

Presenter : Dr. GERALIS, Theodoros (National Center for Scientific Research "Demokritos" (NRCPS))

Track classification :

Contribution type : --not specified--

Submitted by : GERALIS, Theodoros

Submitted on Monday 11 May 2009

Last modified on : Monday 11 May 2009

Comments :

Status : SUBMITTED

Track judgments :

Abstract ID : 14

Recent results from the Tevatron

Content :

Each one of the CDF and D0 experiments, running at the Tevatron collider, has by now accumulated about 5 fb⁻¹ of data. Some recent results from these two experiments will be reviewed. A more detailed description of the discovery potential, or the exclusion of the existence of the Standard Model Higgs particle from the RUNII data will be given.

Primary authors : GIOKARIS, Nikos (University of Athens)

Co-authors :

Presenter : GIOKARIS, Nikos (University of Athens)

Track classification :

Contribution type : --not specified--

Submitted by : GIOKARIS, Nikos

Submitted on Tuesday 12 May 2009

Last modified on : Tuesday 12 May 2009

Comments :

Status : SUBMITTED

Track judgments :

Abstract ID : 15

Spanish ATLAS computing cloud: Facing data taking

Content :

The Large Hadron Collider is starting operations in April 2010. ATLAS Distributed Computing group (ADC) is stressing the Computing Model infrastructure in order to have everything tested prior to collisions. The Iberian ATLAS computing cloud -composed by: PIC-Barcelona, IFAE-Barcelona, IFIC-Valencia, UAM-Madrid, LIP-COIMBRA, LIP-LISBON and LIP-LNEC/FCCN- is regularly participating in all the activities coordinated by the ADC group: simulated events production, data re-processing, distributed data analysis and data distribution. Each single one of this activities is crucial for the success of the ATLAS Grid Computing infrastructure. The focus of this talk is to describe and explain the status of the distributed computing activities in the Spanish cloud and its readiness for the first data taking.

Summary :

ATLAS detector is going to take real data in Spring 2010. Spanish sites have to be validated in order to be ready for the physics analysis. With these tests we will identify breaking points and bottlenecks which result from the site design or configuration taking into account that needs of analysis jobs differ from those of production. The essential impact is ensuring the robustness and effectiveness of the complex system of GRID Analysis

Primary authors : Dr. GONZALEZ DE LA HOZ, Santiago (Instituto de Física Corpuscular (IFIC)-Universitat de València-U)

Co-authors :

Presenter : Dr. GONZALEZ DE LA HOZ, Santiago (Instituto de Física Corpuscular (IFIC)-Universitat de València-U)

Track classification :

Contribution type : --not specified--

Submitted by : GONZALEZ DE LA HOZ, Santiago

Submitted on Tuesday 12 May 2009

Last modified on : Tuesday 12 May 2009

Comments :

Co-authors:
Dr. SALT, Jose (IFIC-Valencia)
Dr. KACI, Mohammed (IFIC-Valencia)
Mr. LAMAS, A

Status : SUBMITTED

Track judgments :

Abstract ID : 16

Kink topology study in ALICE experiment at CERN and its implementation to resonance analysis

Content :

The ALICE detector provides particle identification in a wide momentum range. Particle yields and spectra are of particular importance for many topics in Heavy Ion Physics, including the behaviour of hadronic resonances inside the dense medium. The possibility of using the kink topology in ALICE in order to extend the kaon PID in the intermediate p_T region is discussed. A first application of the kaon identification through this topology is the reconstruction of resonances having at least one kaon kink in their decay products (K^*0 , $\phi(1020)$). While, without detectors PID, these resonances can be reconstructed only if the daughter tracks have a $p_T > 1$ GeV, using the kink topology the resonances can be reconstructed in all p_T range (mean resonance $p_T \sim 1$ GeV/c), even for samples of ~ 250000 events of p-p collisions at 10 TeV.

Primary authors : Dr. GANOTI, Paraskevi (University of Athens)

Co-authors :

Presenter : Dr. GANOTI, Paraskevi (University of Athens)

Track classification :

Contribution type : --not specified--

Submitted by : GANOTI, Paraskevi

Submitted on Tuesday 12 May 2009

Last modified on : Tuesday 12 May 2009

Comments :

Status : SUBMITTED

Track judgments :

Abstract ID : 17

Search for $Z' \rightarrow \mu^+ \mu^-$ and $W' \rightarrow \mu \nu$ with the ATLAS detector at 10 TeV

Content :

Despite the amazing experimental success of the Standard Model there are strong theoretical motivations for the existence of new particles that could be produced at the TeV scale. The existence of new heavy gauge bosons, W' and Z' , arises in many extended gauge theories. A study for the search of these new heavy bosons in ATLAS with final states containing muons is presented. The study is adapted to the first phase of the LHC run at 10 TeV. The estimation of the detector performance with early data is emphasized, together with the evaluation of the corresponding systematic uncertainties. A 5σ discovery for masses up to 2TeV can be achieved at luminosities of the order of a few hundreds of pb⁻¹.

Primary authors : ANTONAKI, Ariadni (Physics Department)

Co-authors :

Presenter : ANTONAKI, Ariadni (Physics Department)

Track classification :

Contribution type : --not specified--

Submitted by : ANTONAKI, Ariadni

Submitted on Thursday 14 May 2009

Last modified on : Sunday 17 May 2009

Comments :

Status : SUBMITTED

Track judgments :

Abstract ID : 18

Distributed data acquisition and control system for the CMS Preshower detector

Content :

CMS is a general purpose detector designed to identify a wide range of particles and examine phenomena produced in 14 TeV center of mass collisions at the LHC. Modern high-energy physics experiments produce a total data flow in the order of hundreds of GB/sec which an affordable centralized system could not handle, and therefore a distributed architecture was adopted for the CMS needs. CMS Preshower is a fine grain autonomous CMS sub-detector that comprises 4288 silicon sensors, each containing 32 strips. The raw data are transferred from the detector to the counting room via 1208 optical fibres producing a total data flow of ~72GB/s. This report focuses on the architecture of CMS Preshower and its distributed control and DAQ systems based on custom and commercial frameworks adopted by the CMS.

Primary authors : PATRAS, Vaios (University of Ioannina)

Co-authors :

Presenter : PATRAS, Vaios (University of Ioannina)

Track classification :

Contribution type : --not specified--

Submitted by : PATRAS, Vaios

Submitted on Thursday 14 May 2009

Last modified on : Thursday 14 May 2009

Comments :

Status : SUBMITTED

Track judgments :

Abstract ID : 19

Study of the decay $\chi_b \rightarrow J/\psi (\mu\mu) J/\psi(\mu\mu)$

Content :

Study of the χ_b meson through its decay $\chi_b \rightarrow J/\psi (\mu\mu) J/\psi(\mu\mu)$ in the Atlas detector with the AAna physics analysis framework, developed by the university of Lancaster. First studies for background suppression for the 2 following samples : $bb \rightarrow J/\psi(\mu\mu)X$ and $bb \rightarrow \mu\mu X$.

Primary authors : Mrs. KOUKOVINI PLATIA, Eirini (NTU-Athens)

Co-authors : Prof. GAZIS, Evangelos (NTU-Athens)

Presenter : Mrs. KOUKOVINI PLATIA, Eirini (NTU-Athens)

Track classification :

Contribution type : --not specified--

Submitted by : KOUKOVINI PLATIA, Eirini

Submitted on Monday 18 May 2009

Last modified on : Monday 18 May 2009

Comments :

Status : SUBMITTED

Track judgments :

Abstract ID : 20

CMS ECAL endcap testbeam calibration

Content :

The CMS ECAL endcap testbeam pre-calibration will be presented. Comparison of the testbeam intecalibration with respect the crystal light yield and the photo-detector gain and quantum efficiency lead to a better understanding of the detector.

Primary authors : Mr. THEOFILATOS, Konstantinos (Demokritos)

Co-authors :

Presenter : Mr. THEOFILATOS, Konstantinos (Demokritos)

Track classification :

Contribution type : --not specified--

Submitted by : Mr. THEOFILATOS, Konstantinos

Submitted on Tuesday 19 May 2009

Last modified on : Tuesday 19 May 2009

Comments :

Status : SUBMITTED

Track judgments :

Abstract ID : 21

LHC Cryogenics Hardware Commissioning

Content :

The installation and the commissioning of the Large Hadron Collider (LHC) at CERN is completed. This work focuses on the commissioning of the cryogenic instrumentation and the hellenic contribution to this project. The LHC is a two-ring superconducting accelerator and pp collider of 27 km circumference. The dipoles will operate at 8.3 T, cooled by superfluid helium at 1.9 K. The operation and monitoring of the LHC require a massive amount of cryogenic instrumentation channels with a robust and reliable design.

Primary authors : Dr. AVRAMIDOU, Rachel (National Technical University of Athens)

Co-authors :

Presenter : Dr. AVRAMIDOU, Rachel (National Technical University of Athens)

Track classification :

Contribution type : --not specified--

Submitted by : AVRAMIDOU, Rachel

Submitted on Wednesday 20 May 2009

Last modified on : Wednesday 20 May 2009

Comments :

Status : SUBMITTED

Track judgments :

"Matrix Model for interacting systems of Lorenz chaotic attractors and Particle Physics"

Speaker: Emmanuel Floratos

Abstract: The Lorenz strange attractor system is a prototype model for the onset of turbulence. Using methods from M-theory we consider a Matrix model for interacting N -turbulent vortices, each one modeled by the Lorenz system.

We find a higher dimensional attractor structure and we present a numerical analysis of the dynamics for $N=2$. We discuss possible relevance of our work for quark-gluon plasmas of heavy -ion collisions in the turbulent regime.

This work is a preliminary report of an upcoming paper authored by M.Axenides(INP-Demokritos) and E.Floratos(INP and Physics Dpt. UoAthens).

Title: The 3D Detector Control System (DCS) of the Monitored Drift Tubes (MDT) detector of the ATLAS experiment at CERN.

Speaker: Εμμανουήλ Ικάριος

Abstract:

The principal task of DCS is to enable and ensure the coherent and safe operation of the detector.

The interaction of detector experts, users or even shifters with the detector hardware is performed via DCS.

This is the responsible system of monitoring the operational parameters and the overall state and status of the detector, the alarm generation and handling, the connection of hardware values to databases and the interaction with the Data Acquisition system.

The MDT subdetector was treated as a Finite State Machine hierarchy while the operation is done on a top level human interface.

Until now a two dimensional representation, implemented in the Supervisory Control And Data Acquisition System named PVSS, is used for the monitoring of the state and status of the detector's chambers.

The 3 dimensional representation is a much more efficient way of monitoring large areas of the detector thus making it easier to detect problematic clusters and having a better perspective of the overall state and status without being deprived of any information or functionality that the currently used panels may provide.

Title " "Up-down quark masses in D-brane (intersecting brane) models "
Speaker: Ch. Kokorelis

Short abstract: We describe the perturbative and non-perturbative solution to the universal problem of missing up-quark masses that appears in all SU(5) GUT intersecting D-brane string models (with or without fluxes).
We also briefly review the status of expected LHC phenomenology from D-brane string models.

Detailed abstract :

We describe the perturbative and non-perturbative solution to the universal problem of missing up-quark masses that appears in all SU(5) GUT intersecting D-brane string models (with or without fluxes).
We find at the perturbative level, higher order non-renormalizable suppressed terms like $10 \cdot 10 \cdot 5^* \cdot 5^* \cdot 5^* \cdot 5^*$ in SU(5) may be responsible for the relevant quark mass generation in string models with general intersecting D6-branes. Euclidean D2-brane instantons on the other hand can also generate at the NP via an identical term the relevant quark masses by the use of just the $U(1)_b$ brane, for SU(5) and flipped SU(5) GUTS classes of models We also briefly review the status of expected LHC phenomenology from D-brane string models.

Kaluza-Klein Pistons with non-Commutative Extra Dimensions

V.K.Oikonomou*

Dept. of Theoretical Physics Aristotle University of Thessaloniki,
Thessaloniki 541 24 Greece

and

T.E.I. Serres

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Abstract

We calculate the scalar Casimir energy and Casimir force for a $R^3 \times N$ Kaluza-Klein piston setup in which the extra dimensional space N contains a non-commutative 2-sphere, S_{FZ} . The cases to be studied are $T^d \times S_{FZ}$ and S_{FZ} respectively as extra dimensional spaces, with T^d the d dimensional commutative torus. The validity of the results and the regularization that the piston setup offers are examined in both cases. Finally we examine the 1-loop corrected Casimir energy for one piston chamber, due to the self interacting scalar field in the non-commutative geometry. The computation is done within some approximations. We compare this case for the same calculation done in Minkowski spacetime M^D . A discussion on the stabilization of the extra dimensional space within the piston setup follows at the end of the article.

*voiko@physics.auth.gr

Codimension-2 Braneworlds: Black Holes and their Extension into the Bulk

Speaker: V. Zamarias

We discuss black hole solutions with a Gauss-Bonnet term in the bulk and an induced gravity term on a thin brane of codimension-2. First, for the five-dimensional case we show that this system admits BTZ black holes on the 2-brane which are extended into the bulk with regular horizons. Secondly, for the six-dimensional case, we show that these black holes can be localized on the 3-brane, and they can further be extended into the bulk by a warp function. These solutions have regular horizons and no other curvature singularities appear apart from the string-like ones. The projection of the Gauss-Bonnet term on the brane imposes a constraint relation which requires the presence of matter in the extra dimensions.

{\bf{\Large Rotating Black Hole Solutions with Axion Dilaton and Two Vector Fields and Solutions with Metric and Fields of the Same Form}}

E. Kyriakopoulos
Department of Physics
National Technical University
157 80 Zografou, Athens, GREECE
Abstract

We present two rotating black hole solutions with axion ξ , dilaton ϕ and two $U(1)$ vector fields. Starting from a non-rotating metric with three arbitrary parameters, which we have found previously, and applying the "Newman-Janis complex coordinate trick" we get a rotating metric $g_{\mu\nu}$ with four arbitrary parameters namely the mass M , the rotation parameter a and the charges electric Q_E and magnetic Q_M . Then we find a solution of the equations of motion having this $g_{\mu\nu}$ as metric. Our solution is asymptotically flat and has angular momentum $J=Ma$, gyromagnetic ratio $g=2$, two horizons, the singularities of the solution of Kerr, axion and dilaton singular only when $r=a\cos\theta=0$ etc. By applying to our solution the S -duality transformation we get a new solution, whose axion, dilaton and vector fields have one more parameter. The metrics, the vector fields and the quantity $\lambda = \xi + ie^{-2\phi}$ of our solutions and the solution of : Sen for Q_E , Sen for Q_E and Q_M , Kerr-Newman for Q_E and Q_M , Kerr, Ref. \cite{Ky1}, Shapere, Trivedi and Wilczek (STW), Gibbons-Maeda-Garfinkle-Horowitz-Strominger (GM-GHS), Reissner-Nordström, Schwarzschild are the same function of a , and two functions $\rho^2 = r(r+b) + a^2\cos^2\theta$ and $\Delta = \rho^2 - 2Mr + c$, of a , b and two functions for each vector field, and of a , b and d respectively, where a , b , c and d are constants. From our solutions several known solutions can be obtained for certain values of their parameters. It is shown that our two solutions satisfy the weak the dominant and the strong energy conditions outside and on the outer horizon and that all solutions with a metric of our form, whose parameters satisfy some relations satisfy also these energy conditions outside and on the outer horizon. This happens to all solutions given in the Appendix. Mass formulae for our solutions and for all solutions which are mentioned in the paper are given. One mass formula for each solution is of Smarr's type and another a differential mass formula. Many solutions with metric, vector fields and λ of the same functional form, which include most physically interested and well known solutions, are listed in an Appendix.

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