

SEMINARS SEMINAIRES

Monday 17 November

DETECTOR SEMINAR

at 11.00 hrs – ECP Conference Room, bld. 13/2-005

What have we learned from the design of WANF and NA48 Controls?

by David MYERS / CERN-ECP

Starting at the end of 1992, a new controls system was produced for the rejuvenated West Area Neutrino Facility. The philosophy was to use industrial controls software wherever possible and the same technology has since been used to control NA48 and other systems. It is based on a product called Factory-Link running on HP workstations, with multiple LynxOS front-end machines running object-oriented multi-threaded application code. The presentation will cover the architecture of the system and give a brief demonstration as well as mentioning various design decisions and their motivation. It will then go on to discuss the strengths and weaknesses of the approach with an eye to requirements for LHC experiments.

Monday 17 November

COSMOLOGY WORKSHOP

at 14.00 hrs – TH Conference Room, bld. 4

Fundamental physics in the ESA (European Space Agency) programme

by Maurice JACOB / CERN

Over the past few years, "Fundamental Physics" has become a special entry in the ESA programmes, beside "Astronomy" and "Solar System". LISA, a space antenna for gravitational waves at low frequency, is now one of the "Corner Stones" of the future programme. A very precise test of the equivalence principle is also taking shape on a shorter time scale. Mission concepts originating from the community as responses to calls for proposals help define the future of this subject. This will be reviewed while stressing the overlap between astroparticle physics, cosmology and space research.

Monday 17 November

TUESDAY WORKSHOP

at 16.00 hrs – TH Conference Room, bld. 4

Branes, central charges and duality-invariant BPS conditions – Part I

by Sergio FERRARA / CERN

In extended supergravity theories, there are p-brane solutions preserving different numbers of symmetries, depending on the charges, the space-time dimensions and the number of original supersymmetries. We describe duality-invariant conditions on the quantized charges which specify the fraction of supersymmetry preserved by a particular charge configuration. These conditions relate U-duality invariants to the picture of intersecting branes. For the case of four- and five-dimensional BPS black holes, the analysis is formulated in terms of orbits of the fundamental representation of the exceptional groups E7 and E6.

Vous pouvez aussi consulter

For information on these seminars, please see

<http://wwwas.cern.ch/Bulletin/Seminars/current.html>

Timelike, spacelike and lightlike orbits of different criticality are shown to correspond to BPS black holes preserving different fractions of upersymmetry.

Monday 17 November

PPE SEMINAR

at 16.30 hrs – Auditorium*, bld. 500

Determination of m_b at the M_z scale with the DELPHI detector

by Juan FUSTER / University of Valencia

The value of the b quark mass at the M_z scale defined in the $\overline{MS}$ renormalization scheme, $m_b(M_z)$, was determined using 2.8 million hadronic Z decays collected during 1992-1994 by the DELPHI detector to be:

$m_b(M_z) = 2.67 \pm 0.25(\text{stat.}) \pm 0.34(\text{frag.}) \pm 0.27(\text{theo.}) \text{ GeV}/c^2$. This analysis considers NLO corrections to the three-jet production rate including mass effects, and the result obtained agrees with the QCD prediction of having a running b-quark mass at an energy scale equal to M_z . This is the first time that such a measurement is performed far above the $b\bar{b}$ production threshold.

*Tea & coffee will be served at 16.00 hrs.

Tuesday 18 November

TUESDAY WORKSHOP

at 14.00 hrs – TH Conference Room, bld. 4

Branes, central charges and duality-invariant BPS conditions – Part II

by Sergio FERRARA / CERN

Continuation of the lecture given on Monday 17 November at 16.00 hrs.

Mardi 18 novembre

IT TRAINING TUTORIAL

14.00-16.00 hrs – IT Auditorium, bld. 31/3-004

Comment utiliser Netscape pour se connecter au Mail Server

by Alberto PACE / CERN-IT

La version 4 de Netscape peut être utilisée pour recevoir et envoyer le courrier électronique en se connectant aux serveurs centraux de messagerie. La présentation montrera comment on conseille d'utiliser Netscape afin de pouvoir changer d'un PC à un autre, d'un Macintosh à un PC, d'un PC au bureau à un PC à la maison, du PC fixe à un PC portable tout en conservant la totalité des messages envoyés et reçus. La présentation utilisera la version de Netscape installée sur NICE 95 et NICE NT mais la plupart des informations qui seront données s'appliquent aussi à d'autres plateformes (UNIX et Macintosh) et à des installations de Netscape faites par l'utilisateur (PC à la maison, etc.).

La présentation se fera en français mais toute question en anglais sera traitée en anglais.

Information: <http://wwwinfo.cern.ch/support/training>

Organisateurs: M.Marquina and R.Ramos /IT-User Support

Tuesday 18 November

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium*, bld. 500

First Results from the CHOOZ Neutrino Oscillation Experiment

by Yves DECLAIS / LAPP Annecy

The CHOOZ experiment is located 1 km from two nuclear reactors operated by EDF in the north of France. It is sensitive to ν_e disappearance down to $\Delta m^2 = 10^{-3} \text{ eV}^2$, which probes the atmospheric neutrino anomaly observed by Kamiokande and Super-Kamiokande. The performance of the detector will be presented as well as the first results, based on this year's data.

**Tea & coffee will be served at 16.00 hrs.*

Wednesday 19 November

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room, bld. 4

Complex time classical solutions and baryon number violation at high energies

by P. TINYAKOV / INR, MOSCOW

We review semiclassical methods of calculation of tunneling transition rates from non-vacuum states. We argue that, in many physically interesting cases, probabilities of such transitions are dominated by classical solutions living in the complex time plane. The properties and interpretation of such solutions are considered. The formalism provides a practical way of numerical calculation of non-vacuum tunneling rates. We discuss the present status of these calculations in the context of the false vacuum decay and baryon number violation in the Model and present some new Standard results.

Wednesday 19 November

CAS ACCELERATOR SEMINAR

at 14.30 hrs* – LHC Auditorium, bld. 30/ 7th floor

The Thirteenth Lecture in the John Adams' Memorial Lecture Series

Superconducting RF Systems for the CERN Accelerators
by Daniel BOUSSARD / CERN

Studies on RF superconductivity started at CERN at the end of the 70s, with the future upgrading of LEP energy in view. The important milestones of this long and successful story will be recalled, starting from the first beam test of a CERN-made cavity in PETRA, the emergence of the niobium-on-copper technology and the very unusual application of a LEP-type cavity in the SPS machine, which became the first CERN accelerator with a superconducting RF system. The challenge of massive production of superconducting cavities for the LEP upgrade started in 1989 and will be completed a decade later, when 288 cavities should then be running in the accelerator. Despite technical obstacles, like multipactoring in the couplers, ponderomotive oscillations and the complexity of such a large scale project, LEP already reached 92 GeV in 1997 with 240 cavities installed. Looking into the future, new applications of superconducting RF systems for high intensity machines are actively studied at CERN, notably the high energy sections of a proton linac and the RF system of the LHC accelerator, which will benefit from the long experience gained at CERN over the last 20 years.

** Tea and coffee will be served after the lecture (~16.00h) in the 7th floor cafeteria*

Thursday 20 November

TECHNICAL PRESENTATION

at 09.00 hrs – LHC Auditorium, bld. 30/ 7-018

Industrial Solutions – Using Advanced PC Technologies

by Stefano ZANETTI & Ryan McDONALD / National Instruments (CH,USA)

The seminar will provide you with a comfortable knowledge of key PC technologies such as Windows NT, PCI local bus, and OLE/ActiveX technology as they apply to industrial automation solutions. You will also learn the principals of open connectivity standards such as OPC. We will also cover the key elements of automation solutions with HMI/SCADA interfaces, from online configuration with Lookout, to graphical programming with BridgeVIEW. PC automation is more than just software. You will also learn how to use industrial I/O, industrial communications, data acquisition, and vision for complete industrial automation solutions. At the completion of the seminar, you will have been introduced to a selection of tools for building your PC-based automation solution.

Language: English, French

Information: F. Soso / IT-CE / 72344

Thursday 20 November

THURSDAY SEMINAR

at 14.00 hrs – TH Conference Room, bld. 4

Spectrum of the QCD Dirac Operator and Chiral Symmetry Breaking

by S. MEYER / University of Heidelberg

The role of the spectrum edge of the QCD Dirac operator for spontaneous breakdown of chiral symmetry is pointed out. Analytic results for the finite volume QCD partition function and predictions from chiral random matrix models for the spectrum of the QCD Dirac operator are reviewed. We propose to challenge these results with numerical simulation data. As a first step we have computed ensembles of complete spectra of the Dirac operator for staggered fermions and SU(2) gauge fields with high statistics on different lattices up to size 16^4 .

A first test of the Leutwyler-Smilga sum rule is performed.

Thursday 20 November

SL SEMINAR

at 16.00 hrs – SL Auditorium, Prévessin, bldg. 864

Transverse Beam Tails in LEP

by Ina REICHEL / RWTH Aachen & CERN

Non-Gaussian tails in the particle distribution of the bunches in LEP can influence the performance. At LEP the tails are measured by so-called tail scans. These measurements showed that in both transverse planes there exist significant non-Gaussian tails.

Effects which can create these tails have been studied and a mechanism which produces tails due to scattering processes has been found. The mechanism will be explained and a technique to simulate the tails from these processes will be described. Simulation results will be given and compared to measurements. The tail scans can also be used in studies of the dynamic aperture which is an important issue at LEP2. Results of these studies will be shown.

This seminar is aimed at non-specialists.

** Coffee and tea will be served at 15:30 in front of the auditorium*

Friday 21 November

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room, bld. 4

Resummation for heavy quark and jet cross-sections

by Nikolaos KIDONAKIS / Edinburgh University

A formalism for the resummation of distributions which are singular at partonic threshold in heavy quark and jet production is presented, in terms of logarithmic behaviour in moment space. In particular, we discuss the role of colour exchange in the hard scattering. Beyond leading logarithm, dependence on the moment variable is controlled by a matrix renormalization group equation. Analytical results are given for the anomalous dimension matrices for all the partonic subprocesses involved in heavy quark and jet production.

Monday 24 November

SPECIAL CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium*, bld. 500

The Future of Nuclear Weapons Policy in the US

by Wolfgang K.H. PANOFKY / SLAC and Stanford University, California

With the end of the cold war some changes in nuclear weapons policy have been made but much more dramatic initiatives are needed to use the opportunities for drastically reducing the nuclear danger. A process of progressive constraints on nuclear weapons numbers, doctrine and readiness will be discussed and the preconditions for potential paths towards universal prohibition of nuclear weapons will be addressed. The shift in the nuclear danger from confrontation among the declared nuclear weapons states to concerns about proliferation, inadvertent use or the danger of nuclear terrorism will be addressed.

**Tea & coffee will be served at 16.00 hrs.*

Tuesday 25 November

IT TRAINING TUTORIAL

14.00-16.00 hrs – IT Auditorium, bld. 31/3-004

Introduction to Mailing Lists and Listbox

by German FERNANDEZ / CERN-IT

Information: <http://wwwinfo.cern.ch/support/training>
Organisers: M.Marquina and R.Ramos /IT-User Support

Tuesday 25 November

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium*, bld. 500

History of SLAC

by Wolfgang K.H. PANOFKY / SLAC and Stanford University, California

The talk will give the early history of the evolution of electron linac technology at Stanford, then cover the design process, the construction proposal for SLAC and the concomitant politics of the construction process and the accelerator commissioning, including unforeseen surprises. The talk will then briefly outline the evolution of accelerator and collider complex. Some general conclusions will be drawn on the innovative nature inherent in SLAC's early development and on the reasons for the longevity of the SLAC complex.

**Tea & coffee will be served at 16.00 hrs.*

Mercredi 26 novembre

SEMINAIRE TECHNIQUE LHC

à 14.00 h – Amphithéâtre LHC, bât. 30/7ème ét.

L'état d'avancement du projet LHC

par Lyndon EVANS / Chef du projet LHC

Ce séminaire sera donné en français et s'adresse à un large public sans connaissances spécifiques.

Thursday 27 November

CERN COLLOQUIUM

at 16.30 hrs – Auditorium*, bld. 500

Wide band detectors for gravitational waves

by Francesco FIDECARO / Università e Sezione INFN di Pisa

Gravitational wave interferometric detectors operating between 10 Hz and 10 kHz are currently being built. According to current astrophysical knowledge their sensitivity – of the order of 10^{-25} m/ $\sqrt{\text{Hz}}$ at 100 Hz – should allow to detect a few events per year. The expected signals include binary neutron star inspiralling and coalescence, and stellar collapse. Less predictable sources are fast rotating neutron stars (pulsars). Stochastic background of cosmological and astrophysical will also be searched for. Operation principles and main sources of noise are described. Main ideas in the critical field of data analysis are illustrated. Finally an outline of the perspectives of the study of gravitational waves is given.

**Tea & coffee will be served at 16.00 hrs.*

Friday 28 November

IT TRAINING TUTORIAL

10.00-12.00 hrs – IT Auditorium, bld. 31/3-004

A Guided Tour of the Software Development Tools Service

by Arash KHODABANDEH / CERN-ECP

What do you use to help you analyse, design, prototype, code, debug, measure and document your software development?

In the IPT Group we actively help software projects in CERN experiments to identify, evaluate, purchase and use industrial software development tools.

Taking the OPAL Trigger Upgrade project as a case study, we will show both the benefits of using Software Development Tools and how to combine them to build the Software Development Environment that best addresses our problems. The presentation will continue with a tour of available tools that can be used, through the IPT Software Development Tools Service, as components for various phases and activities of the life cycle. Online demonstrations will be used for most of the tools.

Information: <http://wwwinfo.cern.ch/support/training>
Organisers: M.Marquina and R.Ramos /IT-User Support

Friday 28 November

SL SEMINAR

at 16.00 hrs – SL Auditorium, Prévessin, bldg. 864

Achieving new goals and results using a project approach

by B. DENIS and M. VANDEN EYNDEN / CERN-SL

Projects and project management is deeply rooted in CERN's culture.

Project practices are however quite informal. During the last years, people involved in various controls projects have tried to improve their approach to project management. Improving the project management practices does not mean adopting tools to schedule rigidly the activities of a project. In the case of the latter projects, efforts have been made to define clearly the objectives, the scope and the responsibilities of the projects. Methods and tools have been used to

support this approach but also to provide full visibility to the section leaders, the group leaders and any person having a stake in the project.

The presentation will expose the latest approach used to launch, plan, implement and control projects. It will demonstrate that the same approach should be used for projects involving work contracted or outsourced to industry. The benefits of the approach and the impressions of the persons directly or indirectly involved in the projects will also be presented.

The second part of the presentation will suggest ways to improve project culture in the SL division. Concrete solutions leading to more project orientation and more project-based management will be introduced.

* *Please note unusual day!*

** *Coffee and tea will be served at 15:30 in front of the auditorium*

POUR INFORMATION / FOR INFORMATION

THE FALL'97 IT TRAINING PROGRAMME

Please check the Bulletin every week for detailed information about the programme of tutorials scheduled for the coming weeks. Also, you can always access our WWW page for up to date information:

<http://wwwinfo.cern.ch/support/training>

Miguel Marquina and Raul Ramos / IT User Support

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Wednesday 12 November

SEMINAR ON PARTICLE PHYSICS

at 17.00 hrs- Stückelberg Auditorium

The HERMES Experiment at DESY

by Leslie Gordon GREENIAUS / University of Alberta

HERMES is an experiment being performed at the HERA accelerator at DESY to study the spin structure of the nucleon. Polarized internal gas targets are placed in the 27.5 GeV longitudinally polarized positron beam of HERA. Inclusive and semi-inclusive spin-dependent deep inelastic scattering are simultaneously measured in a forward spectrometer. The experiment was installed and commissioned in 1995. Data were obtained in 1995 with a polarized ^3He target and unpolarized hydrogen and deuterium targets. In 1996 and 1997 a polarized hydrogen target was used and unpolarized target data were taken with hydrogen, deuterium and nitrogen. The HERMES experiment will be described and results from the 1995 and 1996 running will be presented. Upgrades for future running will also be discussed.

LAPP - Laboratoire d'Annecy de physique des Particules

F74941 – Annecy-le-Vieux

Informations : Pascal Perrodo, tél. 04 50 09 16 00

Jeudi 20 novembre

SEMINAIRE SUR LA PHYSIQUE DES PARTICULES

à 14.00 h – Amphithéâtre LAPP

Scénarios pour la formation des galaxies

par Joseph SILK / IAP, Paris et U.C. Berkeley

Je passerai en revue les diverses alternatives pour décrire la formation des galaxies, partant soit de l'évolution temporelle des fluctuations primordiales, soit de modèles phénoménologiques qui décrivent les galaxies proches extrapolées vers le passé.

Idéalement, ces deux approches devraient converger, une fois connu le modèle cosmologique décrivant notre univers. La confrontation aux observations implique la prédiction de propriétés comme l'évolution morphologique (galaxies spirales, elliptiques, irrégulières) et chimique (abondance des éléments), ainsi que du taux de formation des étoiles.