

SEMINARS SEMINAIRES

Vous pouvez aussi consulter

For information on these seminars, please see

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

Monday 6 April

TECHNICAL PRESENTATION

at 09.00 hrs – Auditorium IT, bld. 31/3-004

PC Automation with BridgeVIEW

by Deepika AURORA / BridgeVIEW Software Engineer, National Instruments & Stefano ZANETTI / Application Engineer, National Instruments

This seminar consists of extensive demonstrations of BridgeVIEW, the innovative HMI/SCADA package from National Instruments, and techniques for developing industrial automation applications. It is also an informative session on key technologies that are shaping the industry today. You will have the chance to talk directly with a software engineer from BridgeVIEW development team.

Agenda

- 09.00 Introduction
- 09.10 BridgeVIEW architecture – Steps for building a BridgeVIEW application
- 09.45 Connectivity and I/O - OPC
- 10.15 Break
- 10.30 Networking – TCP server, Internet toolkit
- 11.00 Connectivity to other products - ActiceX, HiQ
- 11.20 VI based server – writing your own BridgeVIEW server
- 11.40 BridgeVIEW future – Conclusion

Monday 6 April

EP SEMINAR

at 16.30 hrs – Auditorium*, bld. 500

The W-boson mass by direct reconstruction at LEP

by Frederic TEUBERT / CERN-EP

The W-boson mass is one of the fundamental parameters of the Standard Model. Its precise measurement allows the consistency of the SM predictions to be tested and constrains the mass of the undiscovered Higgs boson. In this talk, I review the procedure to determine the W-boson mass from the reconstructed invariant mass distributions. The difficulty of the measurement consists in the control of the systematic uncertainties, both at the detector level and at the theoretical level. The talk is based on the ALEPH analysis although the four LEP experiments use very similar techniques. The precision achieved by the four LEP experiments already now is at the same level as the W-boson mass determination from the Tevatron, and the world average, with a precision of 64 MeV, starts to become comparable to the indirect determination of the W-boson mass from loop corrections.

Organiser : Fabiola Gianotti / EP Division

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

Wednesday 8 April

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

Cosmological applications of gravitational lensing

by Liliya L.R. WILLIAMS / Cambridge University

Ever since the discovery of the first gravitational lens two decades ago the field of gravitational lensing has grown phenomenally in both theoretical and observational aspects. The beauty and appeal of lensing is easy to understand: the basic theory is simple and grounded in fundamental physics, while its applications in astronomy and cosmology have proven, and continue to be extremely fruitful. I will give a brief summary of the subject's history, summarize the relevant theory, and describe, in some detail, the many ways in which gravitational lensing is used in astronomy today (1) to map out mass distribution on a range of physical scales, from sub-stellar to cosmological; (2) to study high redshift objects, galaxies and quasars; (3) to derive global cosmological parameters, Omega, Lambda, and the Hubble constant and hence the geometry of the Universe. Finally, I will show a few slides – Hubble Space Telescope images of some of the more spectacular observed cases of gravitational lensing.

Wednesday 8 April

CERN HEAVY ION FORUM

at 14.30 hrs – Conference Room 160/1-009

Nuclear effects in heavy flavour production

by Ramona VOGT / LBNL and U.C. Davis, California

Heavy flavours, particularly charm, will be produced in abundance at heavy-ion colliders such as RHIC and LHC. The expected yield will differ in detail from a simple extrapolation from pp collisions due to nuclear effects such as shadowing and energy loss. Shadowing can reduce the expected yield while both shadowing and energy loss change the shape of the heavy quark distributions. Depending on the expected energy loss, thermal signals in the dilepton spectrum may come to light.

Jeudi 9 avril

SÉMINAIRE EDMS

à 10.00 hrs – Amphithéâtre LHC, bât. 30, 7e étage

Présentation du CERN Drawing Directory (CDD)

par Stephan PETIT / CERN - EST/ISS

CDD est un outil s'intégrant dans le projet EDMS (Engineering Data Management System). Depuis mai 1996, il est utilisé pour archiver et faire circuler les plans techniques utilisés au CERN et dans les instituts associés. Cette présentation exposera de manière générale les fonctions de CDD, suivant le plan décrit ci-dessous :

- Introduction (aspects de la gestion des plans)
- Fonctions
 - Enregistrement de plan
 - Liens avec les outils CAO
 - Contrôles qualité (signatures électroniques)
 - Archivage
 - Recherche et visualisation
 - Circuits d'approbation
- Démonstration
- Questions / réponses

Pour plus d'informations, consultez le web :

<http://wwwlh01.cern.ch/cdd/>

Thursday 9 April

THURSDAY SEMINAR

at 14.00 hrs – TH Conference Room, bld. 4

Time evolution for non-equilibrium effective action

by C. WETTERICH / Heidelberg University

The time dependence of the generating functional for equal-time 1PI correlation functions is described by an exact flow equation. This is the relevant equation for out of equilibrium situations in early cosmology or for heavy ion collisions. For example, the effective mass of a scalar field is generically neither the one for thermal equilibrium nor for the vacuum. The problem of the approach to thermal equilibrium for large time in isolated systems remains puzzling. Our equation should also have wide applications in non-equilibrium situations for classical and quantum statistical systems.

Thursday 9 April

LHC PROJECT SEMINAR

at 14.15 hrs – LHC Auditorium, bld. 30/7th floor

Genetic optimization algorithms for the conceptual design of superconducting magnets

by S. RAMBERGER & S. RUSSENSCHUCK / CERN-LHC

The presentation will focus on the theory and implementation, as well as on the application of genetic algorithms to the design of superconducting magnets. Genetic optimization algorithms were developed by a number of researchers in different disciplines already in the sixties. Mainly due to constraints in computing power, however, they were only recently applied to problems in computational electromagnetics. For the conceptual design of superconducting coils, genetic algorithms with the concept of niching were used at CERN, and a new coil cross-section with improved properties was found for the main dipoles of the LHC. The results were validated by a short-model magnet built and tested at CERN at the end of 1997. The advantage of niching genetic algorithms is that a number of different solutions are found which can then be studied in detail considering the ease of manufacturing, sensitivity to tolerances, etc. Genetic algorithms can also be used as an approach towards a creative design tool by treating the magnet as a "material distribution" problem. First results for the two-in-one iron yoke will be presented.

Tuesday 14 April

DUALITY WORKSHOP

at 14.00 hrs – TH Conference Room, bld. 4

Some insights in topological field theories (I)

by Laurent BAULIEU / CERN-TH

In two pedagogical lectures I tentatively explain some aspects of Topological Field Theories and some of their applications in particle and string theories.

Tuesday 14 April

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium, bld. 500*

Variation of cosmic ray flux and global cloud coverage

by Henrik SVENSMARK / Solar-Terrestrial Physics Division, Danish Meteorological Institute, Copenhagen

There has long been a search for a physical link between solar activity and the Earth's climate. The most direct way the sun could affect the Earth's climate would be through temporal changes in its luminosity, but observations have shown that these variations are too small to explain the observed temperature changes. This does not, however, exclude the possibility of an indirect physical mechanism. In the talk it will be shown that the excellent correlations observed between solar activity parameters and climate could be caused by a link between cosmic ray flux and global cloud cover.

Organiser : Jasper Kirkby / EP Division

* Tea & coffee will be served at 16.00 hrs.

Wednesday 15 April

DUALITY WORKSHOP

at 11.00 hrs* – TH Conference Room, bld. 4

Some insights in topological field theories (II)

by Laurent BAULIEU / CERN-TH

In two pedagogical lectures I tentatively explain some aspects of Topological Field Theories and some of their applications in particle and string theories.

* Please note unusual time!

Thursday 16 April

THURSDAY SEMINAR

at 14.00 hrs – TH Conference Room, bld. 4

Probing 4-dim nonsupersymmetric black holes carrying D0-brane and D6-brane charges

by A. DHAR / Tata Inst. of Fundamental Research

A 4-dimensional nonsupersymmetric black hole solution to low energy type IIA string theory carrying D0- and D6-brane charges is presented. A brane configuration of D0- and D6-branes is constructed that seems to correspond to the extremal solution. A computation of 1-loop potential for the scattering of a D0-brane off this configuration of the branes is performed in the matrix theory and compared with the 1-loop potential obtained from a supergravity calculation. The two calculations agree in the limit in which the ratio of the D0-brane to D6-brane charge is very large.

Thursday 16 April

LHC PROJECT SEMINAR

at 14.15 hrs – LHC Auditorium, bld. 30/7th floor

Development of a generic magnetic measurement system at room temperature and its application to the LHC quadrupoles

by V. REMONDINO / CERN-LHC

As part of the acceptance tests on LHC magnets, series measurements are foreseen on the manufacturer's premises. The production quality needs to be verified during the different stages of the magnet construction to correct possible defects as soon as they occur. For this reason, we plan to measure the field harmonic components at room temperature. These measurements on the finished magnets are also useful to get information for the beam optics because the field expected when the magnets are superconducting is correlated to these low field measurements. A system has been developed which is able to measure any type of magnetic lenses, the first application being the LHC quadrupoles. The seminar will present the study, the development and the realisation of a general-pur-

pose field measuring system, the problems encountered and the solutions adopted. It is addressed to non-specialists, who want to understand the function of the different components of the system, their influence on the final measurements and the problems related to the precision of the measurement itself.

Thursday 16 April

CERN COLLOQUIUM

at 16.30 hrs – Auditorium, bld. 500*

Climate Variability and Change

by Hartmut GRASSL / World Meteorological Organization, Geneva

Many factors influence climate. The present knowledge concerning the climate relevance of earth orbital parameters, solar luminosity, volcanoes, internal interactions, and human activities will be reported as well as the vulnerability of societies to climate variability and change. The latter part of the lecture discusses emission scenarios for given stabilization goals for greenhouse gas concentrations and the main points of the Kyoto Protocol.

Organiser : Luigi Di Lella / EP Division

* Tea & coffee will be served at 16.00 hrs.

Friday 17 April

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room, bld. 4

Diagrammatic two-loop results for the masses of the neutral CP-even Higgs bosons in the MSSM

by Georg WEIGLEIN / University of Karlsruhe

Results for the leading two-loop QCD corrections to the masses of the neutral CP-even Higgs bosons in the MSSM are presented. They are valid for arbitrary values of the parameters of the Higgs and scalar top sector of the MSSM. Implications for the discovery potential of LEP2 in the GUT favoured regions of small and large $\tan \beta$ are discussed.

Wednesday 22 April

LHCC COMPUTING BOARD

Open Session

at 10.30 hrs – Council Chamber, bld. 503

10.30 RD45 Status Report [Persistent Object Manager for HEP] (LHCC 98-11/LCB RD45 Status Report; J. Shiers)

11.20 Collaboration Database (PIE) Status Report (LCB 98-6; R. Martens)

Wednesday 22 April

PS SEMINAR

11.00 hrs – PS Auditorium, bld. 6/2-004

Lead Ion Accumulation in LEAR for the LHC

by M. CHANEL & G. TRANQUILLE / CERN

Colliding heavy ions in LHC require an entirely new production scheme including accumulation and cooling in the LEAR machine. In 1997, before its long shutdown, LEAR was modified to test the multiturn injection and the accumu-

lation process. More than 5×10^8 Pb^{54+} ions were stored. This result was obtained by pulsing the Linac3 every 0.4 second, injecting a batch of ions over 20 turns and collecting 10 batches. The scenario of ion collisions in the LHC will be described and the technical aspects of injection and electron cooling thoroughly discussed.

Organiser: Bruno Autin

Thursday 23 April

COMPUTING COLLOQUIUM

at 09.30 hrs – Council Chamber, bld. 503

Scientific Computing using the Blitz++ Class Library (Part 1)

by Todd VELDHUIZEN / University of Waterloo

The C++ programming language offers many desirable features useful for tackling complex scientific computing problems: inheritance, polymorphism, generic programming, and operator overloading are some of the most important. Unfortunately, these advanced features came with a hefty performance pricetag: until recently, C++ lagged behind Fortran's performance by anywhere from 20% to a factor of ten. As a result, the adoption of C++ for scientific computing has been slow.

Is there a way to soup up C++ so that we can keep the advanced language features but ditch the poor performance? This is the goal of the Blitz++ project: to develop techniques which will enable C++ to rival — and in some cases even exceed — the speed of Fortran for numerical computing, while preserving an object-oriented interface. The experimental Blitz++ Numerical Library is being constructed as a testbed for these techniques.

Recent benchmarks show C++ encroaching steadily on Fortran's high-performance monopoly, and for some benchmarks, C++ is even faster than Fortran! These results are being obtained not through better optimizing compilers, pre-processors, or language extensions, but through the use of template techniques. By using templates cleverly, optimizations such as loop fusion, loop unravelling, and algorithm specialization can be performed automatically at compile time.

Friday 24 April

IT TRAINING TUTORIAL

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

Win32 Internals

by Alberto PACE / CERN-IT

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

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

Friday 24 April*

COMPUTING SEMINAR

at 16.00 hrs* – IT Auditorium, bld. 31/3-005

Scientific Computing using the Blitz++ Class Library (part 2)

by Todd VELDHUIZEN / University of Waterloo

Organiser : G. Folger / IT

* Please note unusual day & time!

Tuesday 28 April

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium, bld. 500

TESLA: How to construct a high energy, high luminosity, 30 km long superconducting linear collider

by Björn WIK / DESY & Univ. Hamburg

Organiser : Jasper Kirkby / EP Division

Thursday 30 April

CERN COLLOQUIUM

at 16.30 hrs – Auditorium, bld. 500

Spooky action under Geneva : violation of Bell's inequality by photons 10 km apart

by Nicolas Gisin / University of Geneva

Organiser : Luigi Di Lella / EP Division

POUR INFORMATION / FOR INFORMATION

LAPP – Laboratoire d'Annecy de physique des Particules
F – 74941 Annecy-le-Vieux

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

Vendredi 10 Avril

à 14.00 h – Amphithéâtre du LAPP

La calorimétrie électromagnétique de CMS

par Hartmut HILLEMANN / XLPNHE, Palaiseau

Après la rédaction du TDR (Technical Design Report) de son calorimètre électromagnétique, la collaboration CMS entre dans la phase de construction du détecteur avec le début de la production des cristaux de PbWO₄ au milieu de 1998. Après un rappel des principales motivations physiques pour un calorimètre homogène, une revue générale de l'état d'avancement des différentes composantes du calorimètre sera présentée.

EDUCATION SERVICES EDUCATIFS



Information sur les cours, dates et places disponibles sur WWW:

Information about the courses, dates and places available on WWW :

<http://www.cern.ch/Training/>

ACADEMIC TRAINING ENSEIGNEMENT ACADEMIC

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3rd TERM (20 April to 26 June 1998) LECTURE SERIES FOR ACADEMIC TRAINING

22, 23 & 24 April

11.00 to 12.00 – Auditorium

Global warming

by M. HULME / UEA Norwich, GB

4, 5, 6, 7 & 8 May

11.00 to 12.00 – Auditorium

Introduction to superconductivity

by P. DARRIULAT / CERN-EP

11, 12, 13, 14 & 15 May

11.00 to 12.00 – Auditorium

Advances in high speed communications on and off the internet

by B. CARPENTER / IBM United Kingdom Laboratories, Winchester, GB

25, 26, 27, 28 & 29 May

11.00 to 12.00 – Auditorium

Bayesian reasoning in HEP - principles and applications

by G. D'AGOSTINI / Univ. di Roma, I

2, 3, 4 & 5 June

11.00 to 12.00 – Auditorium

Industrial, technical applications of accelerators

by K. BETHGE / Goethe Univ. Frankfurt, D

8 & 9 June

11.00 to 12.00 – Auditorium

Medical applications of accelerators

by S. ROSSI / CERN-EP

The lectures are open to all those interested, without application.

The abstract of the lectures, as well as any change to the above information (title, dates, time, place, etc.) will be published in the CERN Bulletin, the WWW and by Notices before each Term and for each series of lectures.