

SEMINARS

SEMINAIRES

Monday 14 June

PPE SEMINAR

at 16.30 hrs – Auditorium

Next-to-leading order corrections to jet physics

by David KOSOWER / CERN

Detailed calculations of processes in perturbative QCD and QCD-associated physics (such as electroweak vector boson production) in hadron collider experiments are necessary to obtaining an understanding of backgrounds to new physics at these colliders, the present Tevatron and the future LHC and SSC. The talk will discuss briefly an array of techniques that translate the core of a next-to-leading order calculation — the virtual corrections — into predictions for experiments, and will focus on applications of programs for calculating 2-jet and $W+0,1$ jet distributions, developed in collaboration with W. Giele (Fermilab) and N. Glover (Durham), to Tevatron and LHC physics.

Tuesday 15 June

PRESENTATION

at 10.00 hrs – CN Auditorium

bldg 31/3-005

Digital signal processing, hardware and software A System approach

by Kevin PARSLOW / Loughborough Sound
Images

This talk aims to explain how DSP chips differ from RISC and CISC processors, how they can be used in real-time applications requiring high processing rates, the movement of vast amounts of data or often, both. As important as the processors themselves is the supporting software. For DSP, this includes the usual array of compilers, debuggers, etc., and most recently, system oriented software such as real-time operating systems running on DSP chips themselves, permitting full system solutions to be constructed. Thus applications ranging from single chip, low-cost control systems to parallel processing systems using hundreds of devices and providing over 1 GFLOPs can be constructed from the basic building blocks.

Tuesday 15 June

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium*

A search for neutrino-less double beta decay in ^{136}Xe with a time projection chamber

by Henry T. WONG / CERN-PPE

Neutrino-less double beta decay provides a sensitive probe to lepton number violation and Majorana neutrino mass. The Caltech-Neuchatel-PSI Collaboration has built a xenon Time

Projection Chamber (TPC) to study this process in ^{136}Xe at the Gotthard Underground Laboratory. The excellent tracking capability of the TPC provides a powerful means of background identification. We have demonstrated the technique of measuring the directionality of low energy (MeV) electrons by the difference of dE/dx between the beginning and end of their tracks. An overview of the subject, as well as the experimental details, background considerations, detector performance, and latest results will be presented. Future projects of applying the TPC as a tracking calorimeter in neutrino physics will be discussed.

* Tea & coffee will be served at 16.00 hrs.

Wednesday 16 June

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

Black hole evaporation without information loss

by Gerard 't HOOFT / Utrecht University

A procedure is formulated that allows one to construct transition amplitudes involving black holes in such a way that information and unitarity are preserved. The improvement with respect to previous approaches is that now the entire in-state and the entire out-state are considered, so that the final explosion is included in the picture. The most striking feature is that we employ Penrose diagrams that do not contain the usual singularity. New alleys towards the treatment of "supra-general-relativistic" particles are suggested.

Wednesday 16 June

COMPUTING SEMINAR

at 16.00 hrs – CN Auditorium

bldg 31/3-005

Condor flocking : load sharing between pools of workstations

by Xander EVERS / NIKHEF-K & TU-Delft

Condor is a facility for executing UNIX batch jobs on a pool of cooperating workstations. Condor has been the subject of two earlier CERN seminars, by Miron Livny and Mike Litzkow from the University of Wisconsin, Madison, who are the principal designers. A Condor flock is a collection of Condor pools that share the load of their Condor jobs. A first design and implementation of a Condor flock has been made for the case where the remote executing mechanism of Condor can be used across pool boundaries. A guideline to the current design was that the Manager of a Condor pool will not be aware of the existence of the Flock. Consequently, the Condor flock has been implemented by adding a virtual machine, called the World Machine, to each Condor pool. The present implementation has been tested on two small pools, one at NIKHEF, the other at the Computer Science site of the University of Amsterdam, both on campus and connected by a LAN. Some first bandwidth measurements, including situations where workstations in Condor pools are accessed over a WAN, are reported.

Wednesday 16 June

ISOLDE SEMINAR

at 16.30 hrs – TH Conference Room

Experimental limits for special relativity in storage rings

by Gerhard HUBER / University of Mainz & CERN

A new version of the Kennedy-Thorndike experiment based on laser spectroscopy in the TSR storage ring in Heidelberg is presented. The development of heavy ion cooler rings allow to push further down the limits for special relativity. First results and their discussion in the framework of other test experiments are shown.

Thursday 17 June

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium*

The World's coldest antiproton : precision test of fundamental symmetries at LEAR

by Gerald GABRIELSE / Harvard University

During the past several years, antiprotons have been slowed, trapped and electron-cooled in a Penning trap, to energies which are 10^{10} times lower than is possible in LEAR alone. The radio signal from a single antiproton can now be observed non-destructively for months. (The pressure is less than 5×10^{-17} Torr). The measured fractional linewidth for an antiproton (or proton) cyclotron resonance is less than 10^{-10} . The relativistic mass increase of a 1 eV antiproton is observed with textbook clarity. This resolution bodes well for improved comparison of protons and antiprotons, at an accuracy even well beyond the 1000-fold improved comparison of cyclotron frequencies we made recently. These comparisons are the most accurate tests of CPT invariance with baryons by orders of magnitude. The techniques we have developed for slowing, trapping, cooling and stacking antiprotons in a Penning trap make it possible contemplate the production of antihydrogen atoms. To this end, we have recently increased substantially the number of low energy positrons trapped in a vacuum. Portable particle traps have also been demonstrated, by actual transport of trapped particles across the continental United States.

* Tea & coffee will be served at 16.00 hrs.

Friday 18 June

MEETING ON

PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room

Trilinear couplings among the electroweak vector bosons and their determination in $e^+e^- \rightarrow W^+W^-$

by D. SCHILDKNECHT / University of Bielefeld

We present a detailed investigation of the potential of LEP2 and future e^+e^- colliders (NLC) to measure the couplings of the vector bosons, $Z^0W^+W^-$ and γW^+W^- , with one another. The restrictions imposed on non-standard couplings by symmetry requirements, thus excluding violent boson-loop divergences and a violent growth of tree amplitudes for

vector-boson scattering, are discussed in some detail. We stress that a direct measurement of the couplings of the vector bosons with one another is indispensable for an empirical verification of the standard electroweak theory.

Monday 21 June

PPE SEMINAR

at 16.30 hrs – Auditorium

Does the present data say anything about the Higgs mass ?

by Manel MARTINEZ / CERN-PPE

The high precision Electroweak data presented at the Winter conferences is analysed in the minimal Standard Model framework to look for information about the Higgs mass. In this analysis, special attention has been paid to the proper combination with the direct search results, the use of the most up-to-date calculations, the propagation of the relevant theoretical uncertainties and the detailed study of the statistical significance of the behaviour of the χ^2 function. The expected evolution of this kind of indirect search in the coming years will also be discussed.

Tuesday 22 June

PRESENTATION

at 10.00 hrs – CN Auditorium
bldg 31/3-005

Catering for language and territory conventions in DB applications

by Kevin WHARTON / Director, National Language Support, Oracle Corp.

To maximise operability, data processing applications need to interact with end-users in their native language, and adapt to their specific cultural conventions for displaying data. Such features enhance the ease-of-use of applications, reduce the amount of training needed to learn how to use them, and improve the productivity of end-users. Oracle has developed a National Language Architecture that enables such features to be implemented with little additional complexity required from the application design, and which also caters for applications implemented in heterogeneous client/server environments. This presentation will describe in detail how the features provided by ORACLE7 can be utilized in designing such applications.

Mercredi 23 juin

PRESENTATION TECHNIQUE

de 14.00 à 17.00 h – parking PTT, bât. 63

Démonstration de pompes à vide VACCUBRAND (D)

par E. MERCK (Suisse) SA
(D. Fuchs tél. 01 74 51 440)

Produits en démonstration :

- évaporateur rotatif, évaporateur concentrateur, lyophilisateur
- étuve à vide