

SEMINARS

SEMINAIRES

Monday 2 May

PPE SEMINAR

at 16.30 hrs – Auditorium

QCD and electroweak measurements with charmed quarks using the OPAL detector

by Ties BEHNKE / Hamburg University

In about 2 million hadronic Z^0 decays recorded with the OPAL detector close to 10,000 charged D^* mesons have been identified in several decay channels. Events reconstructed in the channel $D^{*+} \rightarrow D^0 \pi^+$, $D^0 \rightarrow K^+ \pi^-$ are used to study QCD topics in charm decays. Applying several methods to separate D^* 's from charm and beauty decays allows a model independent determination of the shape of the fragmentation function $c \rightarrow D^*$. A comparison of the result with various theoretical models is presented. By comparing the average scaled energy of D^* 's with those at lower c.m. energies, evidence for QCD scaling violations of heavy quarks is observed. The measurement of D^* 's from charm is used to obtain an improved measurement of the partial width $\Gamma(Z^0 \rightarrow c\bar{c})$ and to determine the forward backward asymmetry and its energy dependence around the Z^0 pole.

Tuesday 3 May

PRESENTATION

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

Serial storage architecture

by I.D. JUDD / Consultant architect IBM SSD, UK

This presentation will describe the design and implementation of Serial Storage Architecture (SSA). SSA is a new serial link for inter-connecting storage devices, RAID controllers, servers and work-stations. Compared to existing parallel interfaces it offers significant space savings and improved performance, connectivity and reliability. To facilitate migration, SSA retains most of the logical protocol used by the Small Computer Systems Interface (SCSI). SSA is an open architecture which is being proposed as an industry-standard interface via the American National Standards Institute (ANSI).

Wednesday 4 May

PRESENTATION

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

Object oriented directions for Database, CASE and development tools

by Cliff LONGMAN / Oracle Corporation

Oracle is developing its Database, CASE and Development tools to provide support for Object Oriented techniques, since we believe that the object modelling paradigm will provide major benefits for software developers. We are adopting an approach that will evolve the relational model into an object model, and at the same time protect the major investments that have already been made both in relational techniques, and in the substantial data already held in existing systems. We recognise that new techniques need to be usable, and allow iterative development and that tools should support this approach as well as supporting full analysis and design techniques. The central repository is seen as a major feature

in Oracle's tools strategy providing an integration framework for future systems development and management. This presentation will set out our approach in these areas and will hopefully promote a vigorous discussion around the CERN's future requirements as one of our major customers.

Cliff Longman joined Oracle in 1984 and after a number of years designing systems as a consultant, he became the chief architect for the Oracle CASE development group delivering versions of CASE Designer, CASE Dictionary and the CASE Generator family. He retains a leading role in the development team, and is currently responsible for development of CASE support for object oriented techniques.

Wednesday 4 May

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

Supersymmetry : expectations and prospects

by Pran NATH / Northeastern University, Boston, & CERN-TH

Unification of the electroweak and the strong couplings implied by the LEP data is encouraging for the possible existence of both supersymmetry and Grand Unification. We analyse the full parameter space of Supergravity Grand Unified theory under the LEP constraints using renormalization group analyses to induce the electroweak symmetry breaking. Implications of the analysis for the possible observation of SUSY at LEP2, LHC as well as in proton stability experiments at ICARUS and in the rare decay process $b \rightarrow s + \gamma$ at CLEO will be given. A discussion of the neutralino as dark matter and an accurate technique for the computation of its relic density will also be given. Implications of the constraints of the COBE data will be discussed. Prospects for the observation of SUSY dark matter under the COBE constraint via neutralino scattering in dark matter detectors will be discussed.

Wednesday 4 May

COMPUTING SEMINAR

at 16.00 hrs – CN Auditorium
bldg 31/3-005

Highlights from CHEP '94

by Simone GIANI, Miguel MARQUINA & Harry RENSHALL / CERN-CN

The speakers will review the presentations given at this year's Computing in High Energy Physics (CHEP) conference both from a general point of view and in their specific areas of interest.

Friday 6 May

SEMINAR ON HEAVY QUARK PHYSICS WITH LEP

at 10.00 hrs – TH Conference Room

Fragmentation Functions of Charm and Beauty Status and Perspectives at LEP

The LEP measurements on the fragmentation function of charm and beauty quarks will be summarised. Both the shape and the average energy are important to derive information on heavy quark production at the Z^0 and they allow interesting tests of QCD. The possibilities and limitations of these measurements at LEP will be discussed and put into relation to measurements in e^+e^- collisions at lower c.m. energies. The theoretical implications of these measurements will be discussed.

Friday 6 May

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room

Transversely polarized quarks : their distribution and fragmentation functions and how to measure them

by Xavier ARTRU / Institut de Physique Nucléaire de Lyon

The distribution of transverse polarization (transversity) of quarks in the nucleon, $\Delta_{\perp}q(x)$ proposal to $h_1(x)$, is on equal footing with the helicity distribution $\Delta_{\perp}q(x)$ proposal to $g_1(x)$. However, its properties are quite different and it should give new information about the nucleon structure and the mechanism of chiral symmetry breaking. The same can be said about the transversely polarized quark fragmentation function into a baryon, $\Delta_{\perp}f_{B/q}(z)$, which may be used as a "transverse quark polarimeter". A "cheaper" transverse quark polarimeter may be provided by an azimuthal asymmetry of the fragmentation into pions (Collins effect). Examples of reactions sensitive to quark transversity will be given. Among them, semi-inclusive deep inelastic lepton scattering can measure $\Delta_{\perp}q(x)$, provided $\Delta_{\perp}f_{B/q}(z)$ or the Collins effect is large enough. This necessary "transverse quark polarimetry" may be observed for the first time and calibrated by an ad hoc analysis of the existing $Z^0 \rightarrow 2$ jets events. For the time being, an experimental suggestion for a large Collins effect might be seen in the single spin asymmetry observed in inclusive pion production at large $p_{\perp}$.

Monday 9 May

TECHNICAL SEMINAR

at 14.00 hrs – CN Auditorium

LabVIEW Data Acquisition Seminar

by National Instruments CH

Invited : all developers who are planning computer based (analog) data acquisition. Topics : Data Acquisition Fundamentals, Transducers, Signal Conditioning, Data Acquisition Board Performances, DAQ software, Virtual Instruments. There will be time for further, more individual discussions.

Languages : English, French.

Information : F. Soso / CN-CE / 2344

Monday 9 May

PPE SEMINAR

at 16.30 hrs – Auditorium

Observation of $B^- \rightarrow D^{*0} \bar{l} \bar{\nu}$ with the ALEPH detector

by Leo BELLANTONI / Univ. of Wisconsin-Madison

The inclusive semileptonic branching ratio of b hadrons has been measured by several experiments to be $11.1 \pm 0.3\%$. Experimental attempts at explaining the inclusive semileptonic rate as a sum of exclusive final states has not been entirely successful. For example, the simplest final states in semileptonic B^- decays : $B^- \rightarrow D^0 \bar{l} \bar{\nu}$, $B^- \rightarrow D^0 \bar{l} \bar{\nu}$ account for only 60% of the inclusive rate. The nature of the remaining decays continues to be an object of investigation. In this talk, unambiguous evidence for the decay $B^- \rightarrow D^{*0}(2420) \bar{l} \bar{\nu}$ will be presented. The implications of the observed decay rate in explaining the "deficit" will be discussed.

Tuesday 10 May

USER MEETING

at 14.00 hrs – CN Auditorium

LabVIEW User Group Meeting, CERN and Suisse Romande

by National Instruments CH/USA.

All LabVIEW users and interested people are invited to attend this meeting.

The LabVIEW software is widely used in the AT, ECP, PPE, PS, and SL division at CERN. It provides a graphic programming language and a user-friendly interface for data acquisition, data processing and instrument control applications, without sacrificing speed. Developments are fully portable between MAC, Windows and Unix platforms. National Instruments CH and USA will be presenting the latest products on 9 May at 09.00 hrs in the CN Auditorium, building 31. The presentation will be followed by demonstrations of user-developed applications and by a discussion session.

Languages : English, French, German

Information : F. Soso, CN/CE, 2344

Wednesday 11 May

AT SEMINAR

at 14.30 hrs – LEP Auditorium

bldg 30, 7th floor

Design, development and fabrication of the first 10 m long superconducting dipole prototype for the LHC

by M. BONA / CERN-AT

Wednesday 11 May

COMPUTING SEMINAR

at 16.00 hrs – Auditorium

Introduction to the World-Wide Web

by Robert CAILLIAU / CERN-ECP

* Note unusual venue

POUR / FOR INFORMATION

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Wednesday 4 May

PARTICLE PHYSICS SEMINAR

at 17.00 hrs – Stückelberg Auditorium

Search for strange quark matter in ultrarelativistic heavy-ion collisions

by K. PRETZL/Laboratory for High Energy Physics,
University of Bern

The motivation for the search for strange quark matter, sometimes called "strangelets", in ultrarelativistic heavy ion collisions is twofold. First, if strange matter were to be found, it would confirm the existence of an as yet unseen ground state of matter and second, it would indicate the existence of a quark gluon plasma, which on cooling had served as a source for the strange matter. An overview of the search for strangelets in cosmic rays and relativistic heavy ion collisions with emphasis on the NA52 experiment at CERN will be given.