

SEMINARS SEMINAIRES

Monday 27 September

PPE SEMINAR

at 16.30 hrs – Auditorium

**Parton distributions at low x from
NMC data on $F_2(p)$ and $F_2(d)$**

by Ewa RONDIO / Institute for Nuclear Studies,
Warsaw

The results of the New Muon Collaboration measurements of deep inelastic muon scattering on hydrogen and deuterium will be presented together with the results of QCD analysis leading to precise determination of the gluon distribution at low x . The data are in good agreement with the SLAC and BCDMS results and show differences with respect to those of EMC—NA2. The q^2 dependence of the proton and deuteron structure functions is compared with the predictions of perturbative QCD at next-to-leading order. Good agreement is observed with moderate contribution of higher twists, leading to accurate determination of parton distributions in the range $0.008 < x < 0.5$. The strong coupling constant, evaluated at lower x and q^2 than in other DIS determinations, is in agreement with previous results.

Tuesday 28 September

PRESENTATION

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

VME Computers and Boards

by Themis Computer

Themis Computer produces and markets VME products for real-time and other applications. The company has been delivering VME products to CERN for some time and is one of the suppliers under the VME blanket purchase contract. Their technical presentation will cover the following topics:

Themis Computer: company overview

VME Computers and Products

- 16-channel asynchronous intelligent peripheral controller
- 4-channel high-speed synchronous intelligent controller
- Low-cost modular 68EC030 single-board computer
- SUN classic compliant VME CPU board
- ECLIPSE family of SPARC systems

System Applications using Themis Computer SPARC boards

- GEMINI: fault tolerant redundant telecommunications server
- PACE: parallel machine for compute-intensive applications

Information : L. Pregernig/CN/2666/ lfp@cernvm

Tuesday 28 September

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium*

**Recent measurements in the $K^0\bar{K}^0$ system by
the CP LEAR Experiment**

by Andreas SCHOPPER / CERN-PPE

The CP LEAR experiment is devoted to precise studies of the neutral kaon system by using tagged K^0 's and $\bar{K}^0$'s. Time dependent $K^0\bar{K}^0$ asymmetries of decay rates for the various final states ($2\pi, 3\pi, \pi\nu$) are sensitive to CP and T violation in different and complementary ways. Non-leptonic and semi-leptonic decays also provide sensitive tests of CPT. We present an overview of the physics motivations and discuss the interconnection and observability of the various parameters. The potential of the experiment will be demonstrated by presenting the recently obtained results.

* Tea & coffee will be served at 16.00 hrs.

Wednesday 29 September

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

**Resolution of the $\lambda\Phi^4$ puzzle and a
2 TeV Higgs boson**

by Paul STEVENSON / Rice University

It is argued that $\lambda\Phi^4$ theory in four dimensions is "trivial" without being entirely trivial: it has a non-trivial effective potential, producing spontaneous symmetry breaking, but the particle excitations above the broken-symmetry vacuum are non-interacting. The key to this picture is the realization that the constant background field (the mode with zero 4-momentum) renormalizes differently from the fluctuation field (the finite-momentum modes). This picture reconciles rigorous results with one-loop and Gaussian-approximation analyses. Because of "triviality" these approximations should be effectively exact. Indeed, they yield the same renormalized effective potential and the same relation between the particle mass and the renormalized vacuum expectation value. For the massless theory this relation is $m_h^2 = 8\pi^2 v^2$, which implies a Higgs mass of 2.2 TeV in the Standard Model. Because the scalar sector is non-interacting, the Higgs and longitudinal gauge-bosons would interact only weakly, via gauge and Yukawa couplings alone.

Thursday 30 September

COMPUTING SEMINAR

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

**Aspects of Norwegian supercomputing for
academic use**

by Arne LAUKHOLM / Director of Computing
Services, University of Oslo

The talk will give an introduction to the use of large scale computing in the Norwegian Academia. Among the topics

covered are some organizational issues, experiences with the available computing systems (Cray Y-MP, Intel Paragon and RS6000 cluster), and an overview of the major fields of use. Short and medium range plans will be briefly discussed, as will be the 'Supernet', which is the national 34 Mbit/s backbone network for academic use.

Friday 1 October

PRESENTATION

09.00–10.30 hrs – CN Auditorium
bldg 31/3-005

PowerPC Announcement
by IBM

New Workstation Hardware

- The first PowerPC machines based on the CPU from the IBM, Motorola and Apple alliance
- The new generation high-end POWER systems which return IBM to the top of the CPU performance tables
- Examples of these machines will be available to try at the event

New Heterogeneous Distributed System Software

- Distributed System Management Interface Tool (SMIT)
- File Storage
- NetView

Technology Demonstrations

- The Common Open Software Environment (COSE) desktop
A common UNIX desktop environment is now defined, we can show you how it looks actually on screen
- WABI to run Windows on RISC System/6000
The new WABI Windows emulation software allows to run Windows applications with excellent performance on your X-Windows display.
- PowerMac, emulate your Macintosh on RISC System/6000
The Apple-IBM collaboration is starting to bear fruits. We show the Mac emulation on a RISC System/6000.

Information : Sima Topal / IBM
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Friday 1 October

SL SEMINAR

at 11.00 hrs – SL Auditorium
bldg 864

**Proton extraction experiment at the SPS
using a bent crystal**
by H. AKBARI & M. GYR / CERN-SL

Bent silicon crystals have been successfully used to extract 120 GeV protons from the SPS. Extraction efficiencies of about 10% are measured. We will report on the status of this experiment, the extraction mechanism, the achieved results and discuss future experiments and applications.

Friday 1 October

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room

**Next-to-leading order corrections to $2 \rightarrow 2$ and
 $2 \rightarrow 3$ parton scattering processes**

by Zoltan KUNSZT / ITP, ETH, Zurich

I first describe the theory of inclusive jet production at hadron colliders with emphasis on the structure of the soft and collinear singularities. Next I point out that the use of the helicity method, dimensional reduction and supersymmetry opens the possibility to calculate the complete next-to-leading order corrections to $2 \rightarrow 3$ parton processes.

Friday 1 October*

CERN COLLOQUIUM

at 16.30 hrs – Auditorium**

**What should Russia and the United States do
with the plutonium glut?**

by Wolfgang K.H. PANOFKY / SLAC, Stanford

* Please note unusual day

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

Wednesday 6 October

ISOLDE SEMINAR

at 16.00 hrs – TH Conference Room

Nuclei with a neutron stratosphere

by P.G. HANSEN / Institute of Physics and
Astronomy, Aarhus University

Thursday 7 October

CERN COLLOQUIUM

at 16.30 hrs – Auditorium

A new step in determining the neutrino mass

by E. W. OTTEN / Universität Mainz