

Composition du Conseil d'administration / Membership of the Governing Board

<i>Membres/Members</i>	<i>Nommés par/Appointed by</i>	<i>Suppléants/Alternates</i>
Président/Chairman : P. Levaux	Conseil/Council	M. Gigliarelli Fiumi
Vice-président/Vice-Chairman : G. Maurin	élus/elected	F. Ranjard
Vice-président/Vice-Chairman : W.C. Middelkoop	Directeur général/ Director-General	H. Weber
J. Vernet	Conseil/Council	M.O. Ottosson
A.J. Naudi	Directeur général/ Director-General	F. Cliff
G. Bachmann	Directeur général ESO/ Director-General ESO	K. Banse
M. Borghini	Association du personnel/ Staff Association	I. Seis
C. Bovet	élus/elected	E. Chiaveri
L. Henny	élus/elected	R. Pittin
E. Deluermoz	élus/elected	G. Castelli
Observateur/Observer : C.J. Zilverschoon	Conseil d'administration en accord avec l'Association du personnel/Governing Board in agreement with the Staff Association	L. Resegotti

SEMINARS SEMINAIRES

Monday 28 February

PPE SEMINAR

at 16.30 hrs – Auditorium

Precise measurements of the electroweak parameters from the hadronic and leptonic line-shapes of DELPHI

by Theodore TODOROV / Centre de Recherches Nucléaires, Strasbourg

The LEP energy scan performed in 1993 gives the possibility to measure the mass and the width of the Z^0 with about twice higher accuracy compared to the previous years of data taking. The problem of keeping experimental systematic uncertainties below the level of the statistical errors becomes more difficult. The measurement of the DELPHI hadronic and leptonic total cross-sections will be described in detail. All relevant sources of uncertainties will be discussed. The relative luminosity between the scan points is measured to high precision by a compact luminometer with a very large visible cross-section. The statistical error on the luminosity thus becomes negligible. Close to final DELPHI results will be combined with the best available LEP energy measurements to give values of $M_{Z'}$, $\Gamma_{Z'}$, σ_0 and R_1 .

Tuesday 1 March

TECHNICAL PRESENTATION

09.30–12.00 hrs – ECP Conference Room
bldg 13/2-005

**Matra MHS (F) and nCHIP (USA) offer complementary alternatives to VLSI monolithic integration on :
MCM-D Si / SiO₂ Multichip Modules**

by Eric GARCIA / MHS MCM Marketing Manager and
Luc BAUER / nCHIP Vice President

- MHS introduction: motivations for MCM technology, cooperation with nCHIP
- nCHIP presentation: nCHIP history, general technology discussion (substrate, integral decoupling; wire bond, flip-chip; thermal resistance; test capabilities), KGD review, low cost packaging, several applications

CERN expectations, general discussion

Language : English or French accordingly

Information : M. Diraison / FI-A / 4585

Wednesday 2 March

PS SEMINAR

at 11.00 hrs – PS Auditorium

From mainframes to the desktop

by Christopher JONES / CERN-CN

CERNVM has provided a fully integrated range of computing services at CERN for 10 years, and there are still more than

4000 users per week who use it for some part of their work. However it has been clear that a new computing model was needed for the future, and CN Division was re-organized at the end of 1993 in accordance with its this new plan. The speaker will describe the new plan. Whilst the large scale physics data processing will be handled by a new phase of the CORE project, a second part of the plan concerns the provision of the infrastructure needed to satisfy the everyday needs of users on their desktops. A new Desktop Computing Infrastructure group has been formed, which aims to provide for these needs, both by providing a focus for the continuation of the successful work of the inter-divisional NICE project, and by building a new architecture for UNIX-based services around the Andrew File System, AFS. Substantial changes to the CERN network are an essential part of moving from a world centred on a mainframe to one distributed across a network.

Wednesday 2 March

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

Towards an effective action for near forward high-energy scattering in QCD

by Erik VERLINDE / CERN

Previous studies of high-energy scattering in QCD have shown a remarkable correspondence with two-dimensional field theory. A simple effective model will be presented in which this two-dimensional nature of the interactions is manifest. Starting from the 3+1-dimensional Yang-Mills action, the high-energy limit $s \gg t$ is implemented via a scaling argument. It is shown that the interactions of the resulting effective theory can, to leading order, be summarized in terms of a two-dimensional sigma model defined on the transverse plane. A comparison will be made with previous perturbative calculations to first non-trivial order and also with Lipatov's effective theory.

Wednesday 2 March

COMPUTING SEMINAR

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

Is your neural net really a black box?

by Georg STIMPFL / CERN-PPE

Using the example of a particle search at LEP 200 two aspects of neural-net analysis are discussed:

- the application of neural nets to physics analysis;
- the analysis of trained nets.

Methods to select the most efficient variables and to study the behaviour of the nets are presented. The sensitivity of the nets to systematic effects in the input data is discussed extensively.

Wednesday 2 March

ISOLDE SEMINAR

at 16.00 hrs – TH Conference Room

The Gamma Ray Induced Doppler Broadening (GRID) technique and its applications

by J. JOLIE / University of Fribourg, Switzerland

The GRID technique, relying on ultra-high (ppm) resolution gamma-ray spectroscopy, involves the direct measurement of the Doppler broadening of gamma rays emitted when nuclei decay in-flight following recoil induced by preceding gamma rays. The technique can be used for the determination of

lifetimes of nuclear excited states in the ps to fs range, but also allows the investigation of interatomic collisions at very low energies. The latter yields information on the interatomic potential in solids.

Thursday 3 March

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

Anomalous scale dependence of nucleon structure functions

by S. FORTE / CERN

I show that the non-perturbative breaking of axial U(1) symmetry in QCD due to the anomaly can be effectively included in the Altarelli-Parisi equations for the evolution of non-singlet nucleon structure functions. This effect substantially modifies the usual perturbative evolution at intermediate scales, and determines the pattern of flavour symmetry breaking in the nucleon. The effect is shown to explain the observed violation of the naive parton model Gottfried sum rule. Consequences for the extraction of α_s from deep inelastic scattering data and for the small-x behaviour of non-singlet structure functions are also discussed.

Friday 4 March

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room

Two-loop radiative corrections to the lightest Higgs boson mass in the minimal supersymmetric model

by Ralf HEMPLING / DESY, Hamburg

In the minimal supersymmetric model (MSSM), the upper limit of the lightest Higgs boson mass, m_H^0 , depends strongly on the top quark mass, m_t . We have computed the dominant two-loop radiative corrections to this upper limit of m_H^0 in order to eliminate large uncertainties due to QCD and m_t^6 corrections. It is shown that the QCD corrections significantly reduce the one-loop corrections. As a result, the SUSY parameter space accessible to LEP experiments is significantly increased.

Monday 7 March

PPE SEMINAR

at 16.30 hrs – Auditorium

L3 Results of model independent analyses of the Z lineshape

by Sabine RIEMANN / DESY-IfH Zeuthen

The different model-independent approaches to the Z lineshape are presented. A minimum of assumptions is necessary for the S-Matrix approach. The results of a fit to the L3 data in this framework will be discussed and compared to the other "model independent" fits. The γZ interference turns out to be highly correlated with the Z mass. This is important for the determination of the error of the Z mass in the model-independent fits. Scanning the lineshape at an additional energy point, which could be located about 6 GeV below the Z peak, the uncertainty of the γZ interference may be reduced and, consequently, the error of the Z mass in a model-independent analysis is decreased. These considerations are important for the interpretation of the high precision measurements of the Z line shape in 1993/1994.

Tuesday 8 March

ISOLDE SEMINAR

at 16.00 hrs – TH Conference Room

The CRYRING-facility in Stockholm

by K.-G. RENSFELT / Manne Siegbahn Laboratory,
Stockholm, Sweden

Wednesday 9 March

CERN COMPUTING COLLOQUIUM

at 16.00 hrs – Auditorium

Riding elementary particles

by Eyal COHEN / Saclay

Tuesday 15 March

WORKSHOP ON VMEBUS EXTENSIONS FOR PHYSICS

09.00-17.15 hrs – AT Auditorium

bldg 30, 7th floor

Purpose : Since its inception in 1981, VMEbus has found widespread use as a modular computer system in data acquisition and control applications in all branches of research. In recent years there has been an increasing tendency to extend its use into the "front-end" where the practical requirements on the standard tend to be different. Several implementations, large and small, have been made or are planned using in-house extensions to VMEbus to cover these requirements.

The need to extend the standard has been felt in other areas of application as well. Consequently, the ANSI Open Technology Standards Group, the "guardian" of the standard, has established the "VME64 Extensions Committee". This committee is examining the requirements and available options for extra power supplies, larger board formats, supplementary connectors, new protocols, additional serial buses and so on.

The sponsors of this workshop (ESONE - European Studies on Norms for Electronics, UGMS - the CERN User Group on Microprocessor Support, and VSC - the CERN VMEbus Steering Committee) therefore invite associated research

institutes and companies to take part in a one-day event to be held at CERN (Geneva, Switzerland) on the future of VMEbus in physics applications. The aim of this workshop is to formulate the requirements of VMEbus users in the physics community in order to provide input to the standards bodies and to decide whether a further course of action towards the definition of specific "profiles" for VMEbus in this domain would be appropriate.

For program and registration information: C. Pailley/ECP (2656, claudette.pailley@cern.ch) For all other questions: C. Parkman/ECP (3963, pmn@cernvm) or L. Pregernig/CN (2666, lfp@cernvm)

POUR / FOR INFORMATION

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Mercredi 2 mars

SEMINAIRE DE PHYSIQUE CORPUSCULAIRE

à 17.00 h – Auditoire Stückelberg

Analyse des fonctions de structure du proton et du neutron mesurées par la "New Muon Collaboration" (NMC)

par R. WINDMOLDERS / Université de Mons, Belgique

Le séminaire décrira divers résultats relatifs aux fonctions de structure du nucléon dans la région des petits x et obtenus à partir des données de NMC. Une première partie, consacrée à l'analyse en QCD et à la détermination des distributions de quarks et de gluons, mettra en évidence la complémentarité des données de NMC par rapport à celles des expériences précédentes. Nous présenterons aussi de nouvelles estimations du rapport F_2^n/F_2^p s'étendant jusqu'à $x = 0,001$ ainsi qu'une réévaluation de la règle de somme de Gottfried.

EDUCATION

SERVICES

EDUCATIFS

LECTURE SERIES FOR POSTGRADUATE STUDENTS

28 February, 1, 2, 3, 4, 7, 8, 9, 10 & 11 March

11.00 to 12.00 hrs – Auditorium

Introduction to particle accelerators

by E.J.N. WILSON / CERN-AC

1. Mathematical introduction : matrices
2. Mathematical introduction : differential equations
3. The circulating beam : phase stability and focusing
4. Lattice design principles
5. Liouville's theorem and closed orbit errors
6. Linear accelerators (by Guest Speaker : M. Weiss in person)
7. Magnets multipoles and resonances
8. RF bunches and buckets
9. Electron dynamics
10. Instabilities

This is a *wide-screen video retransmission* of a previous popular series.

The course is intended for anyone with a technical or scientific background who would like to become familiar with the principles of accelerator design. It starts with two optional lectures which revise mathematical techniques. The level of the course is chosen with the intention of preparing students for specialist training at the CERN Accelerator School (Level 1) but is also of interest to a wider audience. The ten lectures on all aspects of circular machines cover in a simple way the principles of focusing, betatron motion, dispersion, chromaticity, radio-frequency systems, phase stability and beam instabilities.

ENSEIGNEMENT GÉNÉRAL

Tél. 5811

Jeudi 3 mars

à 13.00 h – Amphithéâtre

Science pour tous

par Rafel CARRERAS