

Conseil d'administration sur l'expertise actuarielle, le TREF a demandé qu'elles soient remises à l'ordre du jour d'une prochaine séance, une fois connue également la position de la Direction. Par ailleurs, toujours en ce qui concerne l'équilibre technique de la Caisse, des demandes de renseignements supplémentaires ont été formulées sur les effets découlant d'une modification des effectifs, en liaison avec la distinction entre les différentes catégories de membres du personnel titulaires et assimilés introduite par le Conseil du CERN à fin décembre et sur le nombre des boursiers. Enfin, le TREF s'est intéressé aux conséquences de la modification éventuelle des hypothèses actuarielles et aux questions de congruence entre actifs et passifs de la Caisse. La remarque de l'actuaire relative aux promotions tardives et à leurs effets sur l'équilibre technique de la Caisse a été également évoquée lors de cette même réunion.

Le Conseil d'administration a accepté une proposition de modification de la liste des experts du Comité de placement. Il est prévu de faire davantage appel à des experts extérieurs ayant une expérience directe de la gestion d'une caisse de pensions.

Il a entendu un historique de l'Administrateur sur les prestations bénévoles versées par la Caisse et des indications sur l'état des comptes de la Caisse à la fin de l'exercice 1995. Pour sa part G. Maurin a présenté les résultats de la gestion mobilière à fin janvier.

Enfin, le Conseil d'administration a pris note avec regret du décès de MM. J. Marian, G. Lachenal et L. Fontaine.

La Modification No 12 aux Statuts et Règlements de la Caisse de pensions, relative aux articles I 3.02 - Créances sur la Caisse et II 1.07 - Les cotisations ainsi qu'aux sommes fixes et allocations, modifiées à la date du 1.1.1996, peut être obtenue auprès des secrétariats de division ou, pour les pensionnés, directement auprès de l'Administration de la Caisse (tél. 767 27 38/44 21).

L'attention des membres et des bénéficiaires est attirée sur le fait que, pour que leur exemplaire des Statuts et Règlements de la Caisse soit complet, il convient d'y insérer **toutes** les pages de la présente Modification (y compris celles ne comportant pas d'articles modifiés qui ont dû être réimprimées pour des raisons de mise en page) et de détruire les pages ainsi remplacées.

SEMINARS SEMINAIRES

Monday 25 March

TECHNICAL SEMINAR

at 11.00 hrs / ECP Conference Room, bldg 13/2-005

ON-LINE ALGORITHMS FOR FUTURE HEP DATA ACQUISITION SYSTEMS

by Paulo GOMES, CERN/LHC

The main subject of this talk is the work performed within the scope of a collaboration between LIP-Lisboa and the Digital Microelectronics section of ECP. It comprised the development and evaluation of algorithms, for possible use in the data acquisition systems of LHC experiments, such as: zero suppression, data linearisation and channel equalisation, data compression, and feature extraction.

These algorithms are aimed at the front-end of detector channels, whose signals are sampled and digitised at con-

stant rate. They must be fast and of low complexity, given the large data rates and number of channels, and the requirements on power consumption. The goal is to reduce the data volume in the front-end electronics as early as possible, allied to simple data buffering, during the latency of the first and second levels of trigger. This will diminish the amount of required buffering, limit the power consumption, and enable more complex processing to be implemented in later stages of the data acquisition system.

Management's position was also known. Still in the context of the technical balance of the Fund, additional information had been requested on the effects of changes in staff numbers following the CERN Council's introduction of a distinction in terms of personnel categories between staff members and assimilated members of the personnel at the end of December; additional information had also been requested on the numbers of Fellows. Finally, TREF had examined the consequences of the possible modification of the actuarial assumptions as well as the matching of the Fund's assets and liabilities. The actuary's observation on late promotions and their effects on the technical balance of the Fund was also discussed at the meeting.

The Governing Board accepted a proposed amendment to the Investment Committee's list of experts so that greater use could henceforth be made of outside experts with direct experience in pension fund management.

The Administrator presented a review of past practice with regard to *ex-gratia* benefits paid by the Fund and made some remarks on the state of the Fund's accounts at the end of the 1995 financial year. G. Maurin presented the results of movable assets management at the end of January.

Finally, the Governing Board noted, with regret, the deaths of J. Marian, G. Lachenal and L. Fontaine.

Amendment No. 12 to the Rules and Regulations of the Pension Fund, relating to Articles I 3.02 - *Creditors to the Fund* and II 1.07 - *Contributions* and to the fixed sums and allowances, amended on 1.1.1996, is available from divisional secretariats or, for the pensioners, directly from the Administration of the Fund (Tel: 767 2738/4421).

The attention of members and beneficiaries is drawn to the fact that their copy of the Rules and Regulations is not complete unless **all** the pages of the above Amendment have been inserted, including pages not containing amendments, which had to be printed again for layout reasons. The old pages should then be destroyed.

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Monday 25 March

UMTF COMPUTING TUTORIAL

at 14.00 hrs - CN Auditorium, bldg 31/3-00485

How to Tailor Your X11 Environment

by Arnaud TADDEI & Lionel CONS

When a user is working on a computer he/she may start programs using the shell interface which is essentially line-mode but he/she can also work using a graphical interface. X11 is a graphical system which you can use on to work on UNIX machines from various desktop devices (PC, X Terminal, Workstation, etc.)

This course is meant to give beginners the basic information about many aspects of X11 as well as the basic language you must know in order to understand what you are doing understand what you want to do communicate correctly with the support teams when you have questions.

Monday 25 March

CERN COMPUTING COLLOQUIUM

at 16.00 hrs – Council Chamber

"What If Your Life Depended on Software?"

by W. S. HUMPHREY / Software Engineering Institute

If your survival depended on software, you would be pretty interested in how it was developed. Few people realize that software is now or soon will be critical to the performance, safety, or security of most advanced electronic products. In this talk, Mr. Humphrey discusses the critical nature of software and the challenges software developers face. He shows that the methods traditionally used to develop quality software are ineffective and that better processes are essential.

Two approaches to these problems have shown substantial benefits. The Capability Maturity Model (CMM) is now widely used to help organizations improve their capability. Experience with the CMM shows sharp improvements in product quality and development productivity. The Personal Software Process (PSP) introduces software engineers to disciplined personal methods. After PSP training, engineers produce more accurate plans and develop higher quality products. While the benefits vary by individual, quality improvements of five to ten times are normal and productivity improvements average about 25%.

Mr. Humphrey concludes with a summary of steps required to introduce these methods into software organizations.

Monday 25 March

PPE SEMINAR

at 16h30 – Auditorium

A New Measurement of the Proton Structure Function $F_2(x, Q^2)$ at HERA

by Gaby RAEDEL/CERN-PPE

A new measurement of the proton structure function $F_2(x, Q^2)$ is reported for momentum transfers squared Q^2 between 1.5 GeV² and 5000 GeV² and for Bjorken x between $3 \cdot 10^{-5}$ and 0.32 using data collected by the HERA experiment H1 in 1994.

The data represent an increase in statistics by a factor of ten with respect to the analysis of the 1993 data. A substantial extension of the kinematic range towards low Q^2 and x has been achieved using dedicated data samples and events with initial state photon radiation.

The structure function is found to increase significantly with decreasing x , even in the lowest accessible Q^2 region.

The data are well described by a Next to Leading Order QCD fit and the gluon density is extracted.

Tuesday 26 March & Wednesday 27 March

SPS AND LEAR EXPERIMENTS COMMITTEE

Preliminary Agenda for the 28th meeting

Tuesday 26 March

at 9.00 hrs – Main Auditorium

Wednesday 27 March

at 9.00hrs – 6th floor Conference Room.

OPEN SESSION

1. Report on the Antiproton-Decelerator study: D. Simon.
2. Formation of antihydrogen at rest and tests of CPT and gravity (SPSLC 96-16 / I208): M. Holzscheiter.
3. Fundamental studies of the antiproton at the AD: High precision spectroscopy of antiprotonic helium atomcules as a window on the antiparticle world (SPSLC 96-12 / I207): T. Yamazaki.
4. The production and study of cold antihydrogen (SPSLC 96-23 / I211): G. Gabrielse.
5. COMPASS: Common Muon and Proton Apparatus for Structure and Spectroscopy (SPSLC 96-14 / P297): F. Bradamante, S. Paul.
6. A prototype of an instrumented target for the NOMAD detector (SPSLC 96-2 / P261 Add.3): J.J. Gomez-Cadenas.
7. Request for beam-time for the experiment EMU12 at the heavy ion run in November / December 1996 at the SPS (SPSLC 96-20 / M576): E. Stenlund

CLOSED SESSION at 14h30 to be continued on Wednesday 27 March.

Tuesday 26 March

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs - Auditorium *

Four-jet final state production at LEP 1.5

by Patrick JANOT / CERN

The four-jet final state is analyzed to search for hadronic decays of pair-produced heavy particles. The analysis uses the ALEPH data collected at LEP in November 1995 at centre-of-mass energies of 130 and 136 GeV. An excess of four-jet events is observed with respect to the standard model predictions. In addition, these events exhibit an enhancement in the sum of the two di-jet masses around 105 GeV. The properties of these events are studied and compared to the expectations from standard processes and to pair production hypotheses.

* Tea & coffee will be served at 16.00 hrs.

Thursday 28 March

TECHNICAL PRESENTATION

at 09.00 hrs – CN Auditorium

Digital's half day seminar on ATM

by L. KNOCH, European High-Performance Networking Marketing Manager

Mr. Lee KNOCH, Digital's European High-Performance Networking Marketing Manager will cover the following topics:

- ATM standardization status
 - Digital's ATM product strategy and roadmap
 - Testimonials - Examples of customers deploying ATM
 - From virtual LANs to virtual Networks: Digital's enVISON
- Organiser : S. Cannon / CN / 5036

Thursday 28 March

UMTF COMPUTING TUTORIAL

at 10.00 hrs – CN Auditorium

Moving REXX code from VM/CMS to UNIX platforms

by Pierantonio MARCHESINI

This talk is addressed to the users and the programmers who wrote REXX programs on CERNVM and now wish to run these on UNIX without rewriting them in another language.

The basic rules and tricks to move REXX code from CERNVM in an effective and easy way will be shown.

Thursday 28 March

TECHNICAL SEMINAR

14.30 hrs – Room 11, Bar. 593 (Auditorium Technical Training)

Magnetostrictive Force Actuators for High Precision Positioning

V.I. RAKHOVSKY (VMP LTD, Moscow, Russia)

Magnetostrictive actuators for positioning with subnanometer (10^{-2} nm) resolution in ranges up to 1m have been developed and used. These actuators with 10nm step can be used as force actuators with efforts up to 10×4 N. Precise displacements are set by active elements made of giant magnetostrictive alloys.

The actuators are designed for use in precise manipulators and object tables, nanotechnology devices, adaptive optics, for the manufacturing of VLSI, Fresnel optics, diffraction gratings, etc.. Low-power excitation of active elements is performed due to a unique patented method that allowed to get time shift of less than 10^{-3} nm/s without any temperature stabilization. The actuator consumes energy only during displacements. It can be operated manually without any additional energy source, or by computer control.

With manual control one can achieve steps of 3nm, and with a reduction $15 \cdot 10^{-3}$ nm. Under computer control these values are 10^{-2} nm resp. $4 \cdot 10^{-5}$ nm. The actual dimensions of the actuator are $50 \times 31 \times 27$ mm and $120 \times 190 \times 38$ mm.

The author will give a demonstration of the micropositioner under various conditions.

This seminar is free of charge and no registration is necessary.

Thursday 28 March

LHC TECHNICAL SEMINAR

at 16.00 hrs / AT Auditorium Bldg. 30/7th fl.

He II 1990-95: Six years of R&D for LHC cryogenics

by Ph. LEBRUN/LHC

The LHC cryogenic system, based on the large-scale use of superfluid helium (He II) as magnet coolant, will have to provide an unprecedented refrigeration capacity at 1.8 K, and to distribute it quasi-isothermally over the circumference of the collider. This has required to push technology beyond the current state-of-the art in the key domains of thermal insulation, cryostat design, cryogenic distribution systems, thermo-hydraulics of flowing HeII, low-temperature refrigeration techniques, instrumentation and process control. Development of human competence and team build-up of experienced staff was also critical to accompany the progress in technology and prepare for LHC construction. We report on the highlights of this R&D programme conducted in collaboration with European laboratories and industry.

Thursday 28 March

CERN COLLOQUIUM

at 16.30 hrs - Auditorium*

Antihydrogen production at LEAR

by Walter OELERT/Institut für Kernphysik, Jülich & CERN

Antihydrogen would be well suited for investigations of fundamental CPT violation studies under different forces. Antihydrogen has never been observed before. The investigation of the PS210 collaboration at LEAR concentrated on the production and detection of this simplest atomic bound state of antimatter. The production of antihydrogen is predominantly based on the e^+e^- pair creation via the two-photon mechanism in an antiproton – nucleus interaction. A Xe cluster target – being thin enough to allow the produced antihydrogen atoms to escape the target region without dissociation – has been used for the production of neutral antihydrogen atoms which were identified by a unique sequence of annihilation characteristics. Eleven antihydrogen atoms have been observed including possibly two background compared to the theoretical production predictions.

Thoughts about future possible directions of research will be sketched.

* Tea & coffee will be served at 16.00 hrs.

Friday 29 March 1996

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room

Jet phenomenology at hadron colliders

by Z. KUNSZT / ETH, Zürich and CERN

I critically review the next-to-leading order QCD predictions and their comparison with the jet data obtained at Tevatron and Sp $\bar{p}$ S. I also consider some open problems like the NLO analysis of three-jet production, the search for the signal of double parton scattering in four-jet final states, etc. Recent progress concerning the theoretical calculations is also summarized.

Friday* 29 March

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs - Auditorium**

Top Physics at D0

by P. BHAT / FNAL

The D0 Collaboration has just completed a new optimized analysis of about 100 pb^{-1} of Run1 $p\bar{p}$ collider data to study the properties of the top quark. Latest results on the measurement of $t\bar{t}$ production cross-section and top quark mass will be presented. Multivariate analysis efforts at D0 and future prospects will also be outlined.

* Please note unusual day

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

Monday 1 April

TECHNICAL SEMINAR

at 11.00 hrs – ECP Conference Room, bldg 13/2-005

Introduction to FASTCAMAC (Transfer 60 Mbytes/s, in CAMAC?)

Satish K. DHAWAN, Yale University

FASTCAMAC is a proposed extension to the CAMAC data acquisition standard, which substantially increases the data transfer rate of CAMAC systems while retaining compatibility with standard CAMAC. This extension provides an increase in data transfer rate of 2.5 to 20 times that of normal CAMAC (up to 60 Mbytes/s). These increased speeds are achieved while maintaining full forward and backward compatibility with the existing CAMAC standard. Normal CAMAC modules and the new FASTCAMAC modules will work together in the same CAMAC crate at their respective speeds. The proposed standard has 3 levels of increasing complexity. The first level (currently being circulated for comment) provides an increase in the maximum data transfer rate to 7.5 Mbytes/s (2.5 X normal CAMAC). This project is supported by the US Department of Energy.

At the 1995 IEEE conference 5 commercial CAMAC manufacturers supplied modified commercial modules for a demonstration of FASTCAMAC. There will be a demonstration of FASTCAMAC with some modules from the European CAMAC manufacturers.

Monday 1 April

PPE SEMINAR

at 16h30 – Auditorium

Recent Charm Results from CLEO

Paula A. POMIANOWSKI / Virginia Polytechnic Institute

The CLEO collaboration has just finished processing 5 fb⁻¹ of data both on and off the u4S resonance, with current analyses using about 3 – 4 fb⁻¹. This sample of approximately 4 million cç events has provided results on a rich variety of charm topics.

New observations of excited charm baryons, and measurements of the relative and absolute branching fractions of many charm hadrons will be presented. Of particular interest to the LEP community are CLEO's new measurements of the absolute branching fractions of D⁰ → Xe n and D_s → f p. Also, an upper limit on a novel mechanism of l_c production from B decay is presented.

Tuesday 2 April

TECHNICAL PRESENTATION

at 10.00 hrs – CN Auditorium, bldg 31/3-004-5

High Density Fibre Optic Connector and Cable Solutions for the LHC Programme

by Philip C. LONGHURST, Europtics, Stephen M. DAVIES, BICC.

Organiser : S. Cannon / CN / 5036

Tuesday 2 April

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs - Auditorium*

Highlights of CDF Results

by Lina GALTIERI / Lawrence Berkeley National Laboratory

* Tea & coffee will be served at 16.30 hrs.

POUR INFORMATION / FOR INFORMATION

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Wednesday 27 March

PARTICLE PHYSICS SEMINAR

at 17.00 hrs – Stuckelberg Auditorium

Search for neutrino oscillations with CHORUS

by Dr Juergen BRUNNER/CERN

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Informations détaillées sur le WWW
Information about the lectures on WWW
<http://www.cern.ch/Training/>

LECTURE SERIES

25, 26, 27, 28 & 29 March

11.00 to 12.00 hrs – Council Chamber

Fun with symmetries in particle physics

by H. Georgi, Harvard Univ., Cambridge, USA

The five lectures should correspond roughly to the following topics :

1. Global and/or approximate symmetries
2. Gauge symmetries : unbroken and broken
3. Goldstone Bosons
4. Heavy quark symmetries
5. Peculiar symmetries at large N_c

My intention is to give colloquium-style lectures. Except in the last lecture, I will say only things that everyone in the audience knows, but I hope to do so in entertaining and sometimes surprising ways. A highlight, assuming that my computer animations work, should be an entirely pictorial derivation of Weinberg's formula for $\pi\pi$ scattering in lecture 3.