

With regard to demographics, in the course of 1998 the Fund passed the threshold of 2000 beneficiaries. The accounts for the 1998 financial year marked a turning point, with a negative movement of 22 MCHF appearing in its financial situation for the first time. This movement will become accentuated during the first decade of the new millennium with benefits that will be considerably higher than contributions.

Conclusions

These graphs and statistics are taken from the 1998 Annual Report of the Pension Fund (CERN/2277-CERN/FC/4150), which members and beneficiaries may obtain from Divisional Secretariats or the Administration of the Fund (Tel. 7679194) respectively. The Annual Report contains detailed information on all aspects of the Fund's activities, including movable assets and real-estate investments, trends in the situation concerning members and beneficiaries, and the main matters dealt with and the work done by the Fund's bodies. If you are interested in the affairs of your Pension Fund, we strongly encourage you to read the Annual Report and to attend the Annual General Meeting, whose agenda you will find above.

SEMINARS SEMINAIRES

Vous pouvez aussi consulter
For information on these seminars, please see
<http://Bulletin.cern.ch/Seminars/>

Tuesday 12 October

DUALITY WORKSHOP

at 11.00 hrs – TH Conference Room, bldg 4

Aspects of super Yang-Mills thermodynamics

by M. VAZQUEZ-MOZO / ITF, Amsterdam University
& Spinoza Institut, Utrecht University

I will study the thermodynamics of supersymmetric Yang-Mills theories by computing the two-loop correction to the canonical free energy and to the equation of state for theories with 16, 8 and 4 supercharges and the first non-analytic contribution in the 't Hooft coupling to the free energy in four dimensions, arising from the resummation of ring diagrams. To conclude, I will discuss some applications to the study of the Hagedorn transition in string theory in the context of Matrix strings and speculate on the possible physical meaning of the transition.

Wednesday 13 October

PS SEMINAR

at 11.00 hrs – PS Auditorium, bldg 6/2-024

Initial Experiences with RHIC Commissioning

by Johannes VAN ZEIJTS / BNL, USA

The systems involved in the successful acceleration of a beam in one ring of RHIC include magnet, RF, orbit and beam diagnostics. The bulk of the talk will deal with the control-room accelerator physics applications used to pull all these systems together with an emphasis on the software environment, the resulting Client-Server application environment and the automatic sequencing tools.

Organiser: B. Autin/PS

Thursday 14 & Friday 15 October

THE PLENARY MEETING OF THE CERN WORKSHOP ON STANDARD MODEL PHYSICS (AND MORE) AT THE LHC

Thursday 14 October

at 09.00 hrs – Auditorium, bldg 500

09.00-10.30 Top physics: Presentations

10.30-11.00 Discussion

11.00-11.30 *Coffee break*

11.30-12.30 Electroweak physics: Presentations

12.30-14.00 *Lunch*

at 14.00 hrs – Auditorium

14.00-15.00 Electroweak physics: Presentations (cont.)

15.00-15.30 Discussion

15.30-16.00 *Coffee break*

at 16.00 hrs – Council Chamber

16.00-17.30 Bottom quark production: Presentations

17.30-18.00 Discussion

Friday 15 October

at 09.00 hrs – Auditorium

09.00-10.30 Bottom quark decays: Presentations

10.30-11.00 *Coffee break*

11.00-12.00 Bottom quark decays: Presentations (cont.)

12.00-12.30 Discussion

12.30-14.00 *Lunch*

at 14.00 hrs – Auditorium

14.00-15.30 QCD: Presentations

15.30-16.00 *Coffee break*

16.00-17.00 QCD: Presentations (cont.)
 17.00-17.30 Discussion
 17.30-17.45 Conclusions; plans for the preparation of the Yellow Report

*More details on this agenda will be given on the web at
<http://home.cern.ch/~mlm/lhc99/oct14ag.txt>*

Please note that a 30 min discussion is planned at the end of each Working Group's presentation

Thursday 14 October

COSMOLOGY WORKSHOP

at 14.00 hrs – TH Conference Room, bldg 4

Preheating after inflation

by L. KOFMAN / University of Toronto

Thursday 14 October

SL SEMINAR

at 16.00 hrs* – SL Auditorium, bldg 864

The LHC Beam Dump Kicker Systems

by Eugene VOSSENBERG / CERN

The kicker magnets of the LHC beam dump system have the task to extract the beams out of the two rings and to dilute them sufficiently to allow safe deposit on the beam absorbers, housed many hundred meters away in caverns, separated from the main ring tunnel. Triggering will be either on demand at the end of a collider run, or automatic in case of emergency situations, e.g. equipment failure or beam loss. A tracking system adapts the kick strength to the momentary beam energy, from 450 GeV at injection to 7 TeV at collision energy.

In order to meet the requirements on bending strength and of reliability a number of technical choices had to be taken, like the employment of thin steel tape yokes of high saturation induction for the magnets instead of ferrite and of semiconductor power switches instead of thyristors. In total a number of 24 kicker systems are required per ring, i.e. 14 for extraction and 10 for dilution. The generators of the extraction kickers produce pulses of 20 kA amplitude with 3 microseconds rise time and 90 microseconds useful flat top duration, for a maximum charging voltage of 30 kV. The kicker magnets for dilution are powered by quasi sinusoidal current pulses of 26 kA at a maximum voltage of 10 kV.

After a brief overview of the LHC Beam Dump System, the seminar presents the main parameters of the kicker systems, the layout in the LHC tunnel and discusses the technical choices made and aspects specially related to the required high reliability.

Finally the construction and the performance of a prototype are shown as well as the plans of series fabrication.

Information: <http://www.cern.ch/CERN/Divisions/SL/news/news.html>

Organiser: Werner Herr / SL Division

** Tea and coffee will be served at 15:30 in front of the Auditorium*

Thursday 14 October

SCIENCE & SOCIETY

at 16.30 hrs – Auditorium, bldg 500*

Physics and information technology – an interplay between science and engineering

by Stig B. HAGSTROM / Stanford University

In the last decade of this century and millennium, the computer and communication revolution has shown its power to transform society.

In this talk I will reflect on my personal experience of witnessing this revolution from an observation post in Silicon Valley. In particular, I will emphasize the role of physics and the interplay between science and engineering in this development.

Information technology is often viewed as based on some physics discoveries and inventions such as the transistor and the semiconductor laser. Much of the subsequent development, the integrated circuit being a good example, has been an engineering feat.

With shrinking dimensions of the circuits we are approaching the quantum limitations, requiring new types of computer architectures based on fundamental physics concepts. In this context we may ask if we should include the basic concepts of information and information handling as part of physics.

Finally I will include some remarks on the views of physics as seen in the eyes of a group of politicians.

This is based on a personal experience as past chairman of a parliamentary committee on science policy in Sweden.

Organiser: James GILLIES / AS Division

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

Friday 15 October

SL CONTROLS SEMINAR

at 11.00 hrs – SL Auditorium, Prévessin, bldg 864, 1st floor

Gigabit Ethernet deployment at CERN

by J.-M. JOUANIGOT

Gigabit Ethernet is here. We have been looking at this technology since 1997, and most of the Computer center is now connected to Gigabit Ethernet switches.

This seminar will present the new Ethernet Hierarchy, the impressive evolution of switches and routers, the current deployment status of Gigabit Ethernet for Central Data Recording, PC farms, and Data Analysis, as well the new Gigabit Ethernet Backbone.

Monday 18 October

DETECTOR SEMINAR

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

The ISPA-tube, an imaging single photon detector

by D. PUERTOLAS / INFN-ROME

The Imaging Silicon Pixel Array (ISPA)-tube is a position-sensitive photon detector based on hybrid technology. Originally developed at CERN for particle tracking with scintillating fibers, this kind of device has demonstrated excellent intrinsic performances as well as an interesting flexibility. So it can be exploited for many other purposes: for

instance, by coupling it to adapted scintillating detectors, we have built either γ - or β -cameras, achieving spatial resolutions as good as $\sim 100\ \mu\text{m}$.

Several tube prototypes have already been manufactured according to various designs. An overview of the most significant achievements will be presented with a particular attention paid to γ -imaging investigations.

An outlook of present and future studies, aimed at developing a new detector that could be used for SPECT applications in nuclear medicine, will also be presented.

Information:

<http://www.cern.ch/CERN/Divisions/EP/Seminars>Welcome.html>

Organiser: Rui Ribeiro /EP Division

Wednesday 20 October

LARGE HADRON COLLIDER COMMITTEE

Open Session

at 09.00 hrs – Auditorium, bldg 500

09.00-09.15 Status of the LHC project: L. Maiani

09.20-09.50 Status of the LHC machine: L.R. Evans

10.05-10.30 ALICE Photon Multiplicity Detector Technical Design Report (LHCC 99-32/ALICE TDR 6; Y. Viyogi)

Wednesday 20 October

COMPUTER SEMINAR

at 16.00hrs – IT Auditorium, bldg 31/3-005

Java-based Linear Collider Detector Simulations

by Michael RONAN / LBNL

The Java Analysis Studio (JAS, pronounced jazz...) and the `hep.lcd` class library provide a general framework for performing Java-based distributed analysis. The package is being developed to fully reconstruct 500 GeV to 1.5 TeV annihilation events for studying the e^+e^- and $\mu^+\mu^-$ detector options for future colliders. The current U.S. effort includes first-pass pattern recognition, vertex finding, clustering, track-cluster association and jet finding for use in detailed detector studies. This talk will describe the JAS/`hep.lcd` distributed analysis framework, some aspects of the reconstruction object modeling, a concrete example of our tracking code, and show our latest effort to reconstruct W 's from hadronic jets using various energy flow algorithms.

Organiser: G.Folger / IT

Thursday 21 October

COMPUTING COLLOQUIUM

at 14.00 hrs – Auditorium, bldg 500

The State-of-the-Art in Magnetic Tape Data Recording

by Charlie FAREL / STC

Digital magnetic tape remains the lowest cost method of storing data and information for computing. A brief history of magnetic tape data recording will be presented. Current state-of-the-art magnetic tape systems will be reviewed, with particular emphasis on fast-access linear designs. Trade-offs with the supporting technologies of recording channels, tape paths, recording and reproduce heads, servo control systems, and the media itself will be

discussed. Future developments hold the promise of still lower costs.

About the speaker

Charlie Farel is vice president of Enterprise Nearline Development for Storage Technology Corporation. He is responsible for developing new tape drives and automated tape library products and solutions for StorageTek's enterprise customers.

Since joining StorageTek in 1981, Charlie has held engineering management positions in optical disk, magnetic disk, tape drives and libraries, and advanced technology.

Charlie holds degrees in electrical engineering from the University of Minnesota and Stanford University.

Thursday 21 October

SCIENCE, TECHNOLOGY & INDUSTRY SEMINAR

at 14.00 hrs – Conference Room bldg 40/S2-A01

The HIDAC Story: from CERN Laboratory Bench to World-wide Sales

by Alan JEAVONS / Oxford Positron Systems Ltd, UK

The High Density Avalanche Chamber (HIDAC) is a development of the Multiwire Proportional Chamber in which the cathodes consist of thick, laminated, perforated, lead plates for imaging non-ionising radiation to a high spatial precision in two dimensions. It was invented by Alan Jeavons at CERN in 1973 and subsequently used at Geneva University and Cantonal Hospital for positron imaging. In 1985, Alan Jeavons left CERN and founded Oxford Positron Systems to realise HIDAC's scientific and commercial potential. The first product was the *InstantImager*TM for digital autoradiography and, under licence to Packard Bioscience, over 400 units have now been sold in 25 countries. Currently, a camera for 3D Positron Emission Tomography is undergoing trials and will be marketed next year.

This story will be told with particular reference to the personal trials and tribulations of achieving the technology transfer and establishing an independent high-tech company.

Thursday 21 October

LHC PROJECT SEMINAR

at 14.15 hrs – LHC Auditorium, bldg 30, 7th floor

Electro-Topological Analysis and Diagnostics of LHC Superconducting Magnets

by Piotr KOMOROWSKI / LHC

The presentation addresses the design and implementation of diagnostic systems capable of detecting and localizing possible electrical faults in the superconducting coils and in the instrumentation circuits of the LHC magnets. Two different techniques are discussed on the examples of practical cases encountered in the LHC String and in dipole model magnets. The first method is based on the measurement and analysis of the transient magnetic field generated inside the aperture of the magnet by a pulsed discharge. It allows both the longitudinal and azimuthal position of the fault-affected area (e.g. a possible inter-turn short-circuit) to be identified in the fully assembled magnet system with a precision of a few millimeters. The possible electrical failures encountered in the instrumentation circuits of the magnets (e.g. voltage tap, temperature, and pressure transducer circuits) are analyzed with the second technique based

on the standard Time Domain Reflectometry (TDR) methods. This approach involves the excitation of the circuit under test with either a fast edge step function or a well-defined impulse and thereafter detection of the amplitude and time of reflections.

Thursday 21 October

SCIENCE & SOCIETY

at 16.30 hrs – Auditorium, bldg 500*

Scientists as Shamans, Shamans as Scientists

by Jeremy NARBY / Organisation "Nouvelle Planète"

Shamanism and science share unsuspected common ground, cast light on each other and confirm each other as paths to knowledge.

Organiser : James GILLIES / AS Division

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

POUR INFORMATION / FOR INFORMATION

Science, Technology & Industry Seminars

This series of seminars explores various aspects of Technology Transfer with a strong accent on the CERN scientific culture and the specific needs of an internationally funded organisation.

The topics include:

- Presentations by CERN "alumni" - personnel who have left CERN (or other physics institutes) to start their own businesses - of their experiences, in particular highlighting the advantages and disadvantages of their (CERN) origins.
- Cross-fertilisation between industry and particle physics in terms of the formal and informal exchange of ideas and know-how inherent in the Technology Transfer process. This includes spill-over into industry from CERN-based developments and the spin-off of technology into industrial applications.

- Aspects of the management of technology including good practices in the licensing of technology and the essential good management of intellectual property through the rational use of patent and copyright protection. In addition, the seminars will explore the employment of technology incubators and science parks to aid the transfer of technology by supporting new entrepreneurs in the initial phases of their endeavours.

Further information can be found on our Web site:

<http://www.cern.ch/CERN/Technology>

Organiser: François Bourgeois/DSU Division

Future seminars:

Thursday 21 October

at 14.00 hrs – Conference Room 40-S2-A01

The HIDAC Story: from CERN Laboratory Bench to World-wide Sales

by Alan JEAUVONS / Oxford Positron Systems Ltd, UK

Thursday 11 November

at 11.00 hrs – Conference Room bldg 40/S2-B01

Technology Transfer from Space: The ESA Experience

by Pierre BRISSON / European Space Agency,
Head of Technology Transfer Programme

Friday 26 November

at 11.00 hrs – Conference Room bldg 40/S2-B01

From Research to actual use via Technology Transfer – The background and role of a patent attorney

by Dorothee WEBER-BRULS / Boehmert & Boehmert,
Frankfurt am Main

Thursday 9 December

at 11.00 hrs – Conference Room bldg 32/1-A24

On applications of accelerators in industry and medicine (title to be confirmed)

by Yves JONGEN / Ion Beams Applications IBA,
Louvain-la-Neuve - Belgium