

d'administration s'est encore penché sur la procédure à suivre dans les cas de recours contre une décision de l'Administrateur.

En ce qui concerne l'expertise actuarielle, l'actuaire-conseil de la Caisse a rappelé que le but de l'expertise consistait à vérifier que le financement actuel et futur de la Caisse est assuré dans le cadre des conditions de prévoyance et des bases financières et démographiques. Pour tenir compte des différents paramètres quant à l'évolution de ces bases (effectifs, longévité, départs anticipés, rendement de la fortune, adaptations des traitements et des pensions, allocations, taux d'intérêt technique), l'actuaire a calculé pas moins de 27 modèles différents. Dans ses conclusions, il constate que la situation de la Caisse s'est améliorée au cours des trois dernières années. En effet, de fin 1994 à fin 1997, le déficit technique — réserves non incluses — est passé de 293 MCHF à 246 MCHF et, parallèlement, le montant du fonds de réserve est passé de 109 MCHF à 333 MCHF. Malgré la persistance d'un certain déséquilibre technique, l'actuaire-conseil estime que la situation de la Caisse peut être considérée comme étant présentement en ordre, en particulier si la Caisse considère une adaptation annuelle moyenne des pensions et des traitements de l'ordre de 2 % au cours des dix prochaines années. Le Conseil d'administration a pris note de cette présentation et a décidé de revenir sur l'étude actuarielle lors de sa prochaine réunion en y apportant ses propres commentaires et recommandations à l'intention du Comité des finances. Il a également décidé de soumettre l'expertise aux commissaires aux comptes pour avis, conformément à la demande du Conseil du CERN.

Le Conseil d'administration a pris note avec regret du décès de dix bénéficiaires de la Caisse, MM. Pierre GAY, Pierre PERRET, Antoine JEAN-ALEXIS, Fadenz WISZNIOWSKI, Thomas BALL, Günther ULLMANN, Delphin PLOUJOUX, Raymond CHALON, Glen SPINNEY, Pierre CHUTEAUX.

With regard to the Actuarial Review, the Fund's consulting actuary recalled that the aim of the Review is to check the adequacy of the Fund's present and future financing taking account of the benefit conditions and the financial and demographic bases. In order to take account of the various parameters affecting the development of these bases (staff numbers, life expectancy, early departures, return on assets, salary and pension adjustments, allowances, technical interest rate), the actuary has calculated no fewer than 27 different models. In his conclusions, he states that the Fund's position has improved during the last three years. From the end of 1994 to the end of 1997, the technical deficit — excluding reserves — fell from 293 MCHF to 246 MCHF and, at the same time, the reserve fund increased from 109 MCHF to 333 MCHF. Despite the continued existence of a certain technical imbalance, the view of the consulting actuary is that the Fund's position can be considered to be in order at present, particularly if the Fund assumes an annual average pension and salary adjustment of the order of 2 % in the next ten years. The Governing Board took note of the actuary's presentation and decided to discuss the Actuarial Review again at its next meeting together with its own comments and recommendations to the Finance Committee. It also decided to submit the Review to the external auditors for comment in accordance with a request by the CERN Council.

Finally, the Governing Board took note with regret of the death of ten beneficiaries of the Fund, Pierre GAY, Pierre PERRET, Antoine JEAN-ALEXIS, Fadenz WISZNIOWSKI, Thomas BALL, Günther ULLMANN, Delphin PLOUJOUX, Raymond CHALON, Glen SPINNEY and Pierre CHUTEAUX.

SEMINARS SEMINAIRES

Monday 12 October

COSMOLOGY MEETING

at 14.00 hrs – TH Conference Room, bldg. 4

Gravitational waves from cosmological populations of sources

by Sabino MATERRESE / University of Padova

I will review some recent results on estimating the gravitational-wave background generated by a cosmological population of core-collapse supernovae (Ferrari, Matarrese & Schneider 1998a,b) and compare these results with the gravitational radiation expected from more primordial sources like inflation in the early Universe.

In particular, both the radiation emitted during the collapse to black holes and the spin-down radiation emitted by hot, young, rapidly rotating neutron stars are considered. Within their peculiar emission properties these astrophysical sources of gravitational radiation are likely to have formed since the onset of star formation. Realistic source rates of formation throughout the Universe have been estimated

Vous pouvez aussi consulter

For information on these seminars, please see

<http://wwwas.cern.ch/Bulletin/Seminars/current.html>

from an observation-based determination of the star formation rate density evolution. We have investigated the overall signal produced by the ensemble of sources exploring the parameter space and discussing its possible detectability.

References:

Ferrari V., Matarrese S. & Schneider R., 1998a MNRAS in press (E-print astro-ph/9804259)

Ferrari V., Matarrese S. & Schneider R., 1998b MNRAS in press (E-print astro-ph/9806357)

Monday 12 October

ISOLDE SEMINAR

at 15.30 hrs – TH Conference Room, bldg. 4

Application of high gas pressure in study of diffusion mechanisms and in GaN crystal growth

by Witold LOJKOWSKI / High Pressure Research Center Polish Academy of Sciences, Warsaw

Carrying out processes under high gas pressure permits a

purely hydrostatic stress state, high temperatures and well controlled temperature gradients to be combined. Application of argon as a high pressure medium allows research on the purely mechanical effect of pressure on materials to be carried out. The fact that the pressure transmitting medium is a gas is particularly important when plastic deformation must be avoided, like during study of diffusion mechanisms. This is the basis for application of high gas pressures in the study of diffusion mechanisms. According to the absolute reaction rate theory, generation of an activated complex of atoms during an elementary diffusion process causes lattice expansion. The degree of expansion - the activation volume of the process can be measured during high pressure diffusion experiments. An example will be provided concerning the identification of the diffusion mechanism in Ti. When nitrogen is the pressure medium, additional research possibilities are open: study of diffusion in nitrides, like GaN. GaN is a material for blue light and high power electronics, which decomposes at temperatures above 1000 °C unless the annealing is carried out under nitrogen pressures of the order of 1 GPa and more. The basics of crystal growth of GaN under high nitrogen pressure will be presented. Furthermore, the potential of high pressure annealing of GaN for improvement of GaN microstructure, recovery of implantation defects and for carrying out diffusion processes in GaN will be presented.

Monday 12 October

CERN EP SEMINAR

at 16.30 hrs – Auditorium, bldg. 500*

Highlights of the Tau 98 Workshop

by Attilio ANDREAZZA / CERN-EP

The high statistics data samples collected at LEP and CLEO have driven τ physics into the era of high precision measurements. The τ lepton has proven to be an effective laboratory for tests of the electroweak theory and QCD and an interesting field for searches of physics beyond the Standard Model. The present status of knowledge about the τ lepton and the τ neutrino, as discussed at the 5th Workshop on Tau Lepton Physics, will be reviewed.

Organiser : *Fabiola Gianotti / EP Division*

* Tea & coffee will be served at 16.00 hrs.

Tuesday 13 October

TECHNICAL PRESENTATION

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

Gigabyte System Network Overview

by Greg CHESSON / Silicon Graphics Inc.

This technical presentation is part of a workshop organised jointly by CERN, the **High Performance Networking Forum**, and its European User Group EHUG.

GSN, or Gigabyte System Network, is the product name selected by the "High performance Networking Forum" for Hippi-6400 compliant systems.

The HIPPI-6400 project began in January 1996. The technology of GSN is embodied in several ANSI documents, a MAC chip that implements the PHY standard, switching technology, and a new transfer protocol called ST (Scheduled Transfer Protocol).

A GSN link, simply described, employs a cellular unit of

transmission called a micropacket, which consists of 32 data bytes and 8 control bytes with a transmission data rate of 1000 MBytes/sec. A sequence of micropackets makes up a message, or frame. The first micropacket contains a header structure that is identical to Ethernet plus a 32-bit message length field. One could think of GSN as a kind of Gigabyte Ethernet.

The PHY-level chip, named SuMAC, has been operational since December 1997. Multi-vendor hardware incorporating SuMAC chips is now beginning to emerge.

This chip incorporates sufficient buffering for a 1 Km link. The presentation will include detailed information on the design of the links and chips as well as background information on some of the history and motivation represented by the design.

In addition to the Ethernet-like header, the ANSI standard for ST specifies an optional 40-byte ST header. This header is used to capture the semantics of bulk transfer, remote memory access, and the notion of end-to-end data movement transactions. The presentation will present ST concepts in some detail as well as the status of works in progress.

GSN Workshop Agenda

High Performance Networking Forum, and its European User Group EHUG.

13.30 Carl Pick, **HNF**

General tendencies and Industrial Products for GSN.

14.15 Arie Van Praag, **CERN:-**

The CERN GSN Lab

14.30 Alberto Guglielmi, **DIGITAL**

Do we need GSN in High Energy Physics data acquisition. Results of simulations around LHC detector architectures.

14.50 Jim Lunney, **Patriot Scientific**

SHBOOM, a 100 MHz + microprocessor.

15.10 John Freisinger, **Essential (ODS)**

GSN activities at Essential (ODS).

15.30 GSN demonstration Networks from SGI on Origin Machines and from Genroco connecting a COMPAQ Alpha to a SUN.

For the latest information see URL: <http://www.cern.ch/HSI/hippi/hug/gsnwshop.html>

Further information : Arie Van Praag / IT / 75034

Organiser : S. Cannon / IT / 75036

Tuesday 13 October

SEMINAR FOR CERN GUIDES

at 16.00 hrs – Council Chamber, bldg. 503

When scientists turn to the public: alternative routes in science communication

by Massimiano BUCCHI / Ph. D Social Sciences, University of Trento, Italy

This seminar is OPEN to all interested people.

In the days of global warming and BSE, science is increasingly a public issue. But what should scientists communicate to the general public? To what extent can the public understand and be involved in scientific debate? How does this involvement affect the shaping and organisation of scientific activity? Why do scientists sometime turn to the media and publicize their findings rather than communicating their findings only with their peers? In this presentation, Massimiano Bucchi reviews the existing literature in this field and highlights the pitfalls of current approaches. He then develops his core argument that turning to the public is not simply a response to inaccurate

reporting by journalists or to public curiosity, nor a wish to gain recognition and additional funding. Rather, it is a tactic to which the scientific community are pushed by certain "internal" crisis situations. Three cases of scientists turning to the public are examined: the cold fusion case, the COBE/Big Bang issue and Louis Pasteur's public demonstration of the anthrax vaccine, a historical case of "public science". Finally, Bucchi presents his unique model of communications between science and the public, a theoretical framework that allows us to understand why and how scientists address the general public.

Organiser: Paola Catapano/AS

Wednesday 14 October

THEORETICAL SEMINAR

at 11.00 hrs* – TH Conference Room, bldg. 4

Our Universe as a brane world

by S.-H. Henry TYE / Cornell University

Recent developments in string theory have suggested a new picture of our universe in which our four-dimensional world resides within a so-called p-brane compactified down to four dimensions, while gravity is free to propagate in the full ten-dimensional bulk of space-time. In this talk, we review the origins of this picture in string theory and describe some of its features and implications for particle physics.

** Please Note Special Morning Time!*

Wednesday 14 October

PS SEMINAR

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

Study of Antihydrogen with ATHENA at the Antiproton Decelerator

by Rolf LANDUA / CERN

Is there a difference between matter and antimatter? The standard model predicts perfect symmetry - a challenge for experimentalists to push measurements of antimatter properties to the highest level of precision. The comparison of the 1S-2S energy difference in hydrogen and antihydrogen atoms could provide the most precise direct symmetry test. The ATHENA experiment at the Antiproton Decelerator (AD) aims at the production and study of antihydrogen atoms at very low kinetic energy. The various phases of the experiment, from the capture of antiprotons and positrons, to recombination, detection, and laser spectroscopy of antihydrogen atoms will be discussed.

Organiser : Bruno AUTIN / CERN-PS

Thursday 15 October

THURSDAY SEMINAR

at 14.00 hrs – TH Conference Room, bldg. 4

Bose-Fermi Degeneracy in Non-Supersymmetric Strings

by S.-H. Henry TYE / Cornell University

Bose-Fermi degeneracy is well known to be a consequence of supersymmetry. However, it is not a feature one expects in non-supersymmetric theories. Recently, examples have been found in string theory where the Bose-Fermi degeneracy appears at every mass level, and is conjectured to be exact to all loops.

Friday 16 October

TECHNICAL PRESENTATION

at 14.00 hrs – IT Auditorium, bldg.31/3-004-5

ORSI Technical Presentation

Cube – the Open Control System:

product presentation and solutions offered

by Orsi Automazione (I) Sales and Technical Support Departments

Cube is the suite of innovative products for process control & production management developed by Orsi Automazione, a company of more than 250 people operating since 1982 in the industrial automation field, present worldwide with its headquarter in Genoa, subsidiaries in various Italian towns and in Spain (Barcellona), UK (London), Germany (Frankfurt) and the USA (Boston), distributors in France (Chambery), Brazil (Curitiba) and South Africa (Durban) and partners all over the world. Orsi, member of the MESA and of the OPC Foundation, with the Cube suite, offers an integrated solution for both the Execution Layer (MES/PIM) and the Control Layer (Supervision and Control). Being qualified ISO 9001 since 1992 and having a partnership with Microsoft Italia S.p.A. as a *Solution Provider* since 1994, Orsi's products follow the most advanced standards of the software industry and is totally integrated with the Windows NT operating system. It adopts a 3-tier Client / Server modular architecture so that the user can distribute the modules on different network machines or concentrate them in a powerful central server maintaining exactly the same functionality. Powerful servers and thin and flexible clients, both sizeable, put the right information on user's desks, while giving an excellent price/performance ratio and an easy evolution path. The suite can integrate real time (third party) devices for data acquisition and control, relational database management systems, custom applications and standard productivity tools. Cube modules can assure functionality as Data Collection, Historical Archiving, Alarm Management, Event Management, Data Engine, Operator Data Logger, Production Management, Internet/Intranet Data Distribution, Public APIs, HMI interface, Statistical and Quality Process Control, Maintenance Management, Batch Management, Expert System (S88 compliant), ODBC interface, Control Core technology and a Programming Development Environment (IEC 1131-3 compliant). Therefore Orsi can offer a highly reliable system, combining the flexibility and distributed structure of the Client / Server architecture with the availability of Hot-Backup redundancy of the server modules, networks and controllers.

Organisers: A.Daneels / IT/72581

C.Nebout / IT/77160

Friday 16 October

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room, bldg. 4

Models of neutrino masses from oscillations with maximal mixing

by Guido ALTARELLI / CERN-TH

Following the experimental results from Superkamiokande a lot of attention has been devoted to the problem of a natural explanation of the observed nearly maximal mixing angle for atmospheric neutrino oscillations. It is possible that also solar neutrino oscillations, e.g. if explained by vacuum oscillations, occur with a large mixing angle. Large mixing angles are somewhat unexpected because the

observed quark mixings are small and the quark, charged lepton and neutrino mass matrices are to some extent related in Grand Unified Theories. We discuss this problem and review some of the ideas and models that have been considered for a natural explanation of large neutrino mixings. Among others we discuss a simple mechanism that has been recently proposed by F. Feruglio and myself.

Monday 19 October

DETECTOR SEMINAR

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

Layout techniques to enhance the radiation tolerance of standard CMOS technologies demonstrated on a pixel readout chip

by W. SNOEYS / CERN-EP

Two new pixel readout prototypes have been developed at CERN for application in the Alice experiment. The radiation tolerance of these full mixed mode analog digital circuits implemented in commercial CMOS technologies has been enhanced by modifying the circuit layout. The first circuit implemented in a 0.5 μm CMOS technology tolerated up to about 1.7 Mrad in a particle beam. The second one was designed in a 0.25 μm CMOS technology and remained functional up to a 30 Mrad X-ray dose. In the presentation the layout techniques will be explained and their effectiveness demonstrated on various irradiation measurements on individual transistors and on the pixel readout prototypes. Implications of such a layout approach on the circuit design will also be discussed.

Information:

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

Organiser: Rui Ribeiro / CERN-EP

Monday 19 October

CERN EP SEMINAR

at 16.30 hrs – Auditorium, bldg. 500*

The structure of real and virtual photons at HERA

by Hartmut RICK / CERN-EP

The electron-proton collider HERA is a unique facility to study the hadronic structure of the photon. The photon's

parton content is measured by the H1 and ZEUS collaborations via hadronic jet production, using the constituents of the beam proton as probes. The complex structure of the proton makes the interpretation of the measurement somewhat more difficult than that of deep inelastic scattering experiments at e^+e^- colliders. This is however compensated by a higher center of mass energy and larger cross sections, which make a larger kinematic range accessible. In addition, the HERA data contain information about the gluonic content of the photon which is almost unconstrained by other experimental results. In this seminar, the latest HERA results on the hadronic structure of both real and virtual photons are presented.

Organiser: Fabiola Gianotti / CERN-EP

* Tea & coffee will be served at 16.00 hrs.

Vendredi 23 octobre

PRÉSENTATION TECHNIQUE

10.00-12.00 h – Amphithéâtre PS, bât. 6/2-024

Présentation de ACCEL (P-CAD) 14

par Nicolas BOUDOT / ACCEL Technologies France;
Peter DRATWA / ACCEL Technologies Europe &
Gérard SCHNELL / Connexe SA, Suisse

Organisation des bibliothèques et critères de recherche (Rappel des possibilités du logiciel et de l'utilité de la fonction Query).

Création d'une bibliothèque propre à un job (nouveau de la version 14: les composants utilisés dans un schéma sont copiés dans une bibliothèque ad hoc, utile pour l'archivage).
Création d'un cadre et de zones intelligentes: report automatique des nets d'une feuille à l'autre (automatic off-sheet references).

Table d'alimentation créée et mise à jour automatiquement.
Index des références (renvoi des nets) créé et mis à jour automatiquement.

Print Preview et net tracker (possibilité de marquer une net par une couleur lors d'une impression).

Différenciation des trous métallisés et des non-métallisés.
Table de perçage générée automatiquement ainsi que sa mise à jour (PCB).

Organisateur: Chris Eck / CERN-IT-CE