

Au plan démographique, la Caisse a franchi au cours de l'année 1998 le cap des 2000 bénéficiaires. Les comptes de l'exercice 1998 marquent un tournant, avec pour la première fois un mouvement de trésorerie négatif de 22 MCHF. Ce mouvement va s'accroître durant la première décennie du prochain millénaire avec des prestations qui seront considérablement plus élevées que les cotisations.

### **Conclusions**

Ces graphiques et ces données sont tirés du rapport annuel 1998 de la Caisse de pensions (CERN/2277-CERN/FC/4150), disponible dans les secrétariats de division pour les membres ou auprès de l'Administration de la Caisse (tél. 767 91 94) pour les bénéficiaires. Le rapport annuel contient des informations détaillées sur toutes les facettes de l'activité de la Caisse, que ce soit en matière de placements mobiliers ou immobiliers ou en matière d'évolution de la situation des membres et bénéficiaires ou encore sur les principaux sujets traités et sur le travail effectué par les organes de la Caisse. Si les questions touchant votre caisse de pensions vous intéressent, nous vous engageons vivement à lire le rapport annuel et à participer à l'Assemblée générale annuelle dont l'ordre du jour figure ci-dessus.

*The English version will be published next week.*

## **SEMINARS SEMINAIRES**

### **Tuesday 5 October**

#### **CERN PARTICLE PHYSICS SEMINAR**

at 16.30 hrs – Auditorium, bldg 500\*

#### **Searching for gravitational waves with cryogenic resonant detectors : from EXPLORER to the future**

by Eugenio COCCIA / Univ. di Roma "Tor Vergata"  
and INFN

Direct detection of gravitational waves (gw) is one of the great challenges of contemporary experimental physics. Today, while large interferometric antennae are under construction and a space experiment is being planned, five cryogenic resonant-mass detectors are in operation, monitoring the strongest gw sources in our Galaxy and in the Local Group.

One of them, EXPLORER, has been operating at CERN since 1985. In the first part of the seminar I will review the state-of-the-art of such detectors and the main results obtained so far. In the second part I will focus on the future perspectives. A number of groups around the world have begun to study the possibility of building large spherical detectors. A spherical detector is capable of detecting gw from all directions and with any polarization, and is capable of determining the direction and tensorial character of the incident wave, opening new possibilities in the study of gravitational physics. A comparison with the sensitivities of the large interferometers will be made.

*Organiser : J. KIRKBY / EP Division*

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

**Vous pouvez aussi consulter**

*For information on these seminars, please see*  
<http://Bulletin.cern.ch/Seminars/>

### **Wednesday 6 October**

#### **PS SEMINAR**

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

#### **High-Current Beam Physics Studies at GSI**

by Ingo HOFMANN, GSI Darmstadt

Space-charge-dominated beams are of increasing interest in the light of proposed high-current projects like spallation sources, proton drivers, radioactive beam facilities and inertial fusion. Coherent space charge effects associated with space charge raise new issues. Some of them have been studied experimentally with the SIS and ESR machines at GSI and interpreted by means of computer simulation programs developed for this purpose. Examples are measurements on longitudinal instabilities as well as on transverse quadrupolar oscillations used for emittance measurements. We also present results on coherent tune shift effects during resonance crossing and apply them to multiturn injection with skew quadrupoles and to bunch compression. Possible applications to future projects at GSI are discussed.

*Organiser: B. AUTIN/PS*

### **Wednesday 6 October**

#### **THEORETICAL SEMINAR**

at 14.00 hrs – TH Conference Room, bldg 4

#### **Logarithmic gauge unification in TeV-scale string theories**

by John MARCH-RUSSELL / CERN

## Thursday 7 October

### LHC PROJECT SEMINAR

14.15 hrs – LHC Auditorium, bldg 30, 7th fl

#### **Why and when might thin-walled structures get unstable ?**

**(Examples not only from the world of accelerators)**

by Blazej SKOCZEN / LHC

Thin-walled structures are omnipresent in our everyday life. Typical examples are that of soda cans, egg shells, car bodies, roof panels or aircraft wings. In the world of accelerators, vacuum chambers, thermal shields and bellows belong to the same group of thin-walled objects.

What conditions have to be satisfied in order to provoke buckling? What are the forms of instability of thin shells? How does the process of buckling start and what is its dynamics? When does the plastic deformation occur and what are the consequences for the post-buckling forms? What is the effect of material defects (micro-voids, micro-cracks) on mechanical instability of structures? Finally, how do the structures buckle at cryogenic temperatures? These and other questions will be addressed in the presentation where a new approach to coupling of fatigue and buckling shall be explained. Also, an application of this idea to design of the LHC mechanical compensation systems against buckling will be presented.

## Thursday 7 October

### CERN COLLOQUIUM

at 16.30 hrs – Auditorium, bldg 500\*

#### **Will relativistic heavy-ion colliders destroy our planet ?**

by A. DE RUJULA / CERN-TH

Experiments to start at the Brookhaven National Laboratory (BNL) in the fall of 1999 will study collisions between gold nuclei at unprecedented energies. The concern has been voiced that "strangelets" —hypothetical products of these collisions— may trigger the destruction of our planet. We study the extent to which naturally occurring relativistic heavy-ion collisions can be used to estimate the risk incurred in running the BNL experiments.

*Organiser : Luigi DI LELLA / EP Division*

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

## Friday 8 October

### GSN NETWORKING SEMINAR AND DEMONSTRATIONS

from 09.30 hrs – IT Amphitheatre, bldg 31

09.30 Opening (Manuel Delfino / CERN, IT Division)

09.45 GSN and ST; a Technology Overview  
(John Gibbon / ODS-Essential, Albuquerque, USA)

10.30 Ethernet and HIPPI Converge in GSN  
(Roger Ronald / PMR, Dallas, USA)

11.15 1.25 Gbit/s AC PAROLI: An Optical link for HIPPI-6400 Operation (Elmar Droege / Infineon Technologies, Berlin, Germany)

11.30 GSN Activities at CERN (Arie Van Praag / CERN, IT Division)

12.00 ST: The Key to Network Independent SANs  
(Chris Good / Genroco Inc., Slinger, USA)

14.00 How GSN and ST can be compelling solutions for specific markets (John Gibbon / ODS Essential, Albuquerque, USA)

14.30 GSN at SGI: Now to day and coming

(Joe Gervais / SGI, Mountain View, USA)

15.15 What is going on in HNF, an Industry Overview  
(Carl Pick / HNF, Slinger, USA)

15.30 TECHNOLOGY DEMONSTRATION IN THE CERN  
COMPUTER CENTRE

Gigabyte System Network (GSN) is 10-Gigabit network technology with a data throughput of 800 Mbyte/s. It is an ANSI standard since autumn 1998. It is based on parallel copper and parallel fibre optics connections. Network connections are made using switches and bridges allow connections to different technology networks such as HIPPI, Fibre Channel and Gigabit Ethernet. Together with GSN comes the Scheduled Transfer (ST) protocol, a protocol that bypasses the operating system and as such has a very low latency.

Encapsulation of other network protocols is foreseen and makes ST extremely flexible. ST is also a vehicle for implementing non-proprietary, media independent Storage Area Networks. ST's small control messages and pre-arranged information transfers provide full-rate, flow controlled non-congesting data movements regardless of the specific network media. ST creates a uniform access method across the heterogeneous range of servers and networks. SAN's based on ST are scalable far beyond the possibilities of a single interconnect such as Fibre Channel.

Due to its high throughput and its low latency, the combination of GSN and ST can also be an attractive solution for data acquisition in large HEP experiments. An S-Link connection to GSN should be easy to develop and can have a large fan-in.

The workshop is organized in collaboration with the High Performance Networking Forum (HNF). Many of the speakers are members of HNF and worked on the specifications of the GSN and ST standards.

*Information and last moment modifications: A. Van Praag 75034,  
<http://www.cern.ch/HSI/hippi/hug/demo99/Demo99.html>*

## 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

### SL SEMINAR

at 16.00 hrs\* – SL Auditorium, bldg 864  
**The LHC Beam Dump Kicker Systems**  
 by Eugene VOSSBERG / CERN

*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 AND 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 the 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.

## POUR INFORMATION / FOR INFORMATION

### **LAPP - Laboratoire d'Annecy de physique des Particules**

Chemin de Bellevue  
 BP 110

F-74941 – Annecy-le-Vieux

*Informations :* Frédérique MARION, tél. 04 50 09 16 00

## Vendredi 8 octobre

### SEMINAIRE

à 14.00 heures – AUDITORIUM du Laboratoire

Recherche du Higgs : la situation au démarrage du LHC  
 par Luc POGGIOLI | LPNHE, Paris VI & VII

La recherche du Higgs dans le cadre du Modèle Standard et des modèles supersymétriques est présentée, en particulier dans la région  $m_H < 200$  GeV. Les potentiels respectifs du Tevatron et du LHC sont discutés en détail.