

COMMUNICATIONS OFFICIELLES

OFFICIAL NEWS

Les membres du personnel sont censés avoir pris connaissance des communications officielles ci-après.

La reproduction même partielle de ces informations par des personnes ou des institutions externes à l'Organisation exige l'approbation préalable de la Direction du CERN.

FERMETURE DE FIN D'ANNEE 1999/2000

Comme annoncé au Bulletin hebdomadaire n° 3bis/99, le Laboratoire sera fermé du samedi 18 décembre 1999 au dimanche 2 janvier 2000 inclus.

Cette période de 16 jours se décompose comme suit:

- 4 jours fériés, à savoir les 24, 25 et 31 décembre 1999, ainsi que le 1^{er} janvier 2000;
- 6 jours de congé spécial rémunéré en application de l'Article R II 4.34 du Règlement du Personnel, soit les 20, 21, 22, 27, 28 et 29 décembre 1999;
- 1 samedi, soit le 18 décembre 1999;
- 2 jours, les 23 et 30 décembre 1999 en compensation des 25 décembre 1999 et 1^{er} janvier 2000 (Article R II 4.33 du Règlement du Personnel);
- 3 dimanches, soit les 19 et 26 décembre 1999 et le 2 janvier 2000.

Le premier jour ouvrable de la nouvelle année sera le lundi 3 janvier 2000.

De plus amples informations pourront être obtenues auprès des secrétariats de divisions, notamment au sujet des conditions applicables aux membres du personnel désignés pour travailler pendant cette période.

Division du Personnel
Tél. 74474-72862

EXERCICE D'AVANCEMENT 1999

Conformément aux procédures publiées dans le Bulletin hebdomadaire 9/99-1.3.1999, l'examen des propositions de changement de filière de carrière pour les titulaires se trouvant dans les filières II à VI est maintenant terminé.

La liste confidentielle des membres du personnel pour qui un changement de filière a été décidé cette année peut être consultée dans les Secrétariats de Division.

Division du Personnel
Tél. 74480

SEMINARS SEMINAIRES

Monday 22 November

DETECTOR SEMINAR

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

**Highlights of the 1999 IEEE Symposium
on Nuclear Science**

by A. ELLIOTT-PEISERT / CERN-EP

Members of the personnel shall be deemed to have taken note of the news under this heading.

Reproduction of all or part of this information by persons or institutions external to the Organization requires the prior approval of the CERN management.

END-OF-YEAR-CLOSURE 1999/2000

As announced in Weekly Bulletin N° 3bis/99, the Laboratory will be closed from Saturday 18 December 1999 to Sunday 2 January 2000 inclusive.

This period consists of 16 days:

- 4 days' official holiday, i.e. 24, 25 and 31 December 1999 and 1 January 2000;
- 6 days' special paid leave in accordance with Article R II 4.34 of the Staff Regulations, i.e. 20, 21, 22, 27, 28 and 29 December 1999;
- 1 Saturday, i.e. 18 December 1999;
- 2 days, 23 and 30 December 1999 to compensate for 25 December 1999 and 1 January 2000 (Article R II 4.33 of the Staff Regulations);
- 3 Sundays, i.e. 19 and 26 December 1999 and 2 January 2000.

The first working day in the New Year will be Monday 3 January 2000.

Further information will be available from Division Secretariats, specifically concerning the conditions applicable to members of the personnel who are required to work during this period.

Personnel Division
Tel. 74474-72862

1999 ADVANCEMENT EXERCISE

Following the procedures given in Weekly Bulletin 9/99-1.3.1999, the review of career path change proposals for staff in career paths II to VI has now been completed.

The confidential list of staff for whom a career path change has been decided may be consulted in Divisional Secretariats.

Personnel Division
Tel. 74480

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

The 1999 IEEE Symposium on Nuclear Science was held in Seattle on 26-30 October. This yearly convention is devoted to instrumentation in high energy and nuclear physics. It covers practically all aspects of particle and radiation detection: gas detectors, photo detection, calorimetry, scintillation detectors, semiconductor detectors and radiation damage, tracking and particle identification, analogue and digital circuits. Presentations ranged from descriptions of new radiation detection techniques to first results from working ex-

periments. Selected papers will be presented at the seminar.
Information:
<http://www.cern.ch/CERN/Divisions/EP/SeminarsWelcome.html>
Organiser: Rui RIBEIRO / EP Division

Tuesday 23 November

SUN SPECIAL INTEREST GROUP MEETING

at 09.00 hrs – IT Auditorium, bldg 31 3-004

Topic: Solaris 7

Organiser : Philippe Defert

Tuesday 23 November

CERN LINUX USERS GROUP MEETING

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

The CLUG meeting is an open forum for Linux users and IT support teams to exchange information on new requirements, open questions and to steer the use of Linux at CERN.

Preliminary Agenda

1. Where do we stand in the certification of RedHat 6.1? compilers, applications, AFS, commercial products
2. AFS: Olivier le Moigne/IT will discuss the pros and cons of AFS/3.5 and AFS/3.6 Beta. What do we need?
3. CERN wide software licenses issues, experiences and new additions:
 - StarOffice
 - PGF77
 - VMware
4. Desktop environment. Feedback on the use of KDE, GNOME. The presentation of Victor Robles in the last CLUG is in <http://home.cern.ch/v/vrobles/www/>
5. Future of the ASIS CD with the CERN Linux release
6. AOB

Organiser : Andres SANDOVAL / EP Division

Tuesday 23 November

SCIENCE, TECHNOLOGY & INDUSTRY SEMINAR

at 11.00 hrs – Conference room, bldg 40/S2-A01

ISTC and its practical achievements

by Norihiko YOKOYAMA / International Science and Technology Centre, Moscow, Russia

Since its official start in March 1994, ISTC finances about 830 projects for the total of 230 million dollars. Including completed projects, 30 thousand scientists are/were receiving grants from these projects. To enhance further self-reliance of participants, use of projects results and IPR protection are largely focused upon in the ISTC activity at present. The reporter will present such and other topics of interest.

Tuesday 23 November

DUALITY WORKSHOP

at 14.00 hrs – TH Conference Room

Issues in AdS/CFT

by Fiorenzo BASTIANELLI / INFN, Bologna

We use the AdS/CFT correspondence to calculate two and three point functions for a class of chiral operators, including the primary ones, in $d = 3$, $N = 8$; $d = 6$, $N = (2,0)$ and $d = 4$, $N = 4$ superconformal field theories at large N . These theories are related to the infra-red world-volume descriptions of N coincident M2, M5 and D3 branes, respectively. The various cases are given a unified treatment by employing a gravitational action in arbitrary dimensions D , coupled

to a $p+1$ form and suitably compactified on $AdS(D-2-p) \times S(2+p)$. The interesting cases mentioned above are obtained setting (D,p) to the values $(11,5)$, $(11,2)$ and $(10,3)$.

Tuesday 23 November

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium, bldg 500*

The KARMEN time anomaly; status and perspectives

by Guido DREXLIN / FZ Karlsruhe

The KARMEN experiment at the pulsed spallation facility ISIS at RAL makes use of neutrinos from the pion-muon decay chain at rest to search for oscillations of muon- to electron-type antineutrinos, as well as to investigate neutrino interactions with nuclei. Analysis of data taken from 1990-1995 (KARMEN1) and 1997-1999 (KARMEN2) show no evidence for oscillations (constraining the allowed LSND parameter space), and experimental CC and NC cross-sections agree with theory. However, a distinct excess of single isolated neutrino events centered around 3.6 microseconds after beam-on-target has been observed, which is called the KARMEN time anomaly. As the probability for a statistical fluctuation is exceedingly small (4.3 sigma effect) and no systematic explanation for the effect has been found, we propose as a working hypothesis that the origin of the 100 excess events observed so far could come from a rare decay of a pion into a muon together with a massive neutral particle X with 33.9 MeV mass. A detailed likelihood analysis of the entire data set for this hypothesis is presented, and prospects for further experimental tests are outlined.

Organiser : Jasper Kirkby / EP Division

* Tea & coffee will be served at 16.00 hrs.

Wednesday 24 November

LHCC COMPUTING BOARD [LCB]

Open Session

11.00 h - Council Chamber

Status Report RD45 (J. Shiers)

Wednesday 24 November

THEORETICAL SEMINAR

at 14.00 hrs - TH Conference Room

CP violation: challenge and hope for low-energy SUSY

by Antonio MASIERO / SISSA, Trieste

The presence of low-energy SUSY gives rise to new sources of CP violation and with it also to several questions. How severe are the CP constraints on (minimal and non-minimal) SUSY realizations? Could CP violation be a purely SUSY effect? To what extent CP violation in flavour-changing phenomena (for instance in the kaon system) probes the possible link between SUSY breaking and origin of the flavour? And, even more important, can we still hope to have some SUSY signal in CP violating phenomena? While trying to answer (some of) the above questions, the talk aims to show that if it is true that CP represents a serious concern for low-energy SUSY, at the same time it could provide some precious clues in the search for SUSY hints.

Thursday 25 & Friday 26 November

TECHNICAL PRESENTATION

09.00-17.00 hrs – Council Chamber, Rooms A & B, Exhibition Gallery

Workshop on PLCs and Fieldbuses

Programmable Logic Controllers (PLCs) and Fieldbuses are

industrial products used for many years in industrial control applications. There are numerous PLC manufacturers; CERN has made a Market Survey and has selected two large manufacturers (Schneider and Siemens) as providers of General Purpose PLCs and supporters of the three CERN recommended Fieldbus Standards (CAN, Profibus and WorldFIP). PLCs and Fieldbuses are basic and complementary elements for control applications. They are already in use in Accelerators and Experiments and current applications will be reported during this Workshop. The CERN management will express their position concerning these recommendations.

Small PLC and Fieldbus-based control systems will be presented by Schneider and Siemens. Demonstrations by the CERN PLC and Fieldbus User's Group (GUAPI) will also be done.

Thursday 25 November

- Recommendations on the use PLC and fieldbuses by the CERN Management
- Technical presentations on PLC by Siemens and Schneider representatives
- Technical presentations on CAN, Profibus and Worldfip by industrial experts
- PLC and fieldbuses support at CERN

Friday 26 November

- Presentation of PLC and Fieldbus Projects at CERN by their authors
- Round Table Discussion and Conclusion

For more details, see

<http://itcowwww.cern.ch/PLCWorkshop/plc-fieldbuses.htm>

Languages: English and French

Organisers: G. Baribaud/SL & R. Rausch/SL

Thursday 25 November

CERN HEAVY ION FORUM

at 11.00 hrs – TH Auditorium, bldg 4

1. Quark masses and chiral symmetry at zero and non-zero temperature

by Matthias JAMIN / Inst. fuer Theoretische Physik, Heidelberg, Germany

The talk is divided in two parts. The first part discusses the phenomenon of chiral symmetry and its breaking at zero temperature.

Different definitions of quark masses will be compared and their extraction from experiment are briefly explained. Also the quark condensate, an order parameter for chiral symmetry breaking, is discussed. Special emphasis will be put on the strange quark mass and condensate. In the second part the temperature dependence of the various quantities introduced in the first part will be described.

We shall briefly comment on modifications at finite density as well.

2. Vector and D-meson production from heavy-ion collisions

by Gennadi LYKASOV / JINR, Dubna, Russia

The possible broadening of omega-and phi-mesons produced by heavy-ion collisions is discussed. The predictions for widths of these mesons as the function of the vector meson momentum at different nuclear densities and initial energies are presented.

Additionally the D-meson production by hadron-hadron and ion-ion interactions is analyzed. The problem related to the possible hidden charm in the hadron and nucleus is discussed.

The predictions for the asymmetry of the produced D-mesons as the function of the Feynman variable x and the transverse momentum p_t are presented.

The possible consequences of the obtained results for heavy-ion collisions at high energies are discussed.

Organisers: Yiota Foka and Ulrich Heinz

<http://home.cern.ch/a/alicedoc/www/chic/>

Thursday 25 November *

COMPUTING SEMINAR

at 11.00 hrs – IT Auditorium, bldg 31/3-005

C++ Code Analysis: an Open Architecture for the Verification of Coding Rules

by Paolo TONELLA / Istituto Trentino di Cultura-IRST, Trento/Italy

The analysis of C++ code is the basic building block of the collaboration between ITC-IRST and CERN/ALICE, aimed at improving the quality of the software by exploiting the information that can be automatically gathered from the code. The first objective of the collaboration is the development of a coding rule check tool. Successive steps will include a reverse engineering module and an intelligent refactoring tool. Since all planned applications, and possibly also those not yet considered, share a common analysis bulk, particular attention was devoted to the development of an open architecture for the analysis of C++ code. In this talk the adopted architectural solutions are presented and discussed, highlighting their generality, the possibilities of extension that they offer, and the way details could be encapsulated within packages, so that a clear and sharp interface between the subsystems is defined. The peculiarities of the C++ language are also described, together with the way they were approached and the state of the current implementation.

Short biography

Paolo Tonella received his laurea degree cum laude in Electronic Engineering from the University of Padua, Italy, in 1992, and his PhD degree in Software Engineering from the same University, in 1999, with the thesis "Code Analysis in Support to Software Maintenance". Since 1994 he has been a full time researcher of the Software Engineering group at IRST (Institute for Scientific and Technological Research), Trento, Italy. He participated in several industrial and European Community projects on software analysis and testing. His current research interests include software engineering, reverse engineering, object oriented programming and code analysis.

Organiser : F.Gagliardi / IT

* Please note unusual DAY and TIME

Thursday 25 November

THURSDAY SEMINAR

at 14.00 hrs – TH Conference Room

Out-of-equilibrium dynamics for N-component scalar quantum fields

by A. PATKOS / Eötvös University, Budapest

Effective equations are derived for the real time dynamics of low frequency modes of the N-component scalar fields in interaction with nearly thermalised high frequency components. The statistics of the latter is determined in the low-frequency background self-consistently. Two dynamical problems will be investigated with help of these effective equations: (I) Propagation of small amplitude on-shell waves through the broken symmetry medium. Special attention is paid to the dynamical manifestation of the Goldstone effect in the linear response function. (II) Relaxation of the order parameter to its equilibrium value, after a sudden change of sign in the external "magnetic" field occurs. Here,

in principle, no assumption is made on the smallness of the deviation from equilibrium of the quenched system.

Thursday 25 November

SL SEMINAR

at 16.00 hrs* – SL Auditorium, bldg 864

The LHC Power Converter Systems

by Gunnar Fernqvist (CERN)

The talk will describe the SL-PO participation in the LHC project. The main ring magnet system in LHC poses new, difficult requirements on power conversion and high current measurement technology.

New power converters are being developed in soft-commutated switch mode technology. New current transducers for the 13 kA main magnets are being developed as well as a complete calibration infrastructure to assure the very high precision, which approaches 10^{-6} .

A new real-time converter remote control system is under development. The beam transfer will be powered mainly by converters from LEP and SPS and use an updated version of MUGEF. The talk will cover the principles, the development work and review progress to date.

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

Friday 26 November

SCIENCE, TECHNOLOGY & INDUSTRY SEMINAR

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

All patent attorneys are originally scientists who had, after the completion of their studies, worked as a scientist for at least one year, and then became acquainted with intellectual property by training on the job for around three years to become a German patent attorney and for four years to become a European patent attorney, after final examinations. Therefore, patent attorneys have acquired an education adapted to become a link or interface between research and spin-off of technology into industrial applications, either within one company, between different companies or between a research center and a company.

About the speaker

Dorothee Weber-Bruns, Dipl.-Phys. Dr.rer.nat., (German Patent Attorney, European Patent and Trademark Attorney, Partner) studied physics and geophysics at the University of Frankfurt and specialized in solid state physics. After graduation she worked at Max-Planck-Institute (Grenoble), Institute Laue-Langevin (Grenoble) as well as Risø National Laboratory, and as a teaching fellow at the University of Frankfurt (PhD in physics), being especially involved in materials science, magnetism, superconductivity as well as measurement and control engineering. Dorothee Weber-Bruns is still particularly interested in these areas of technology

Friday 26 November

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room

Resummation of Sudakov logarithms in electroweak processes

by M. MELLES / PSI

At future linear e^+e^- collider experiments in the TeV range, Sudakov double logarithms originating from massive boson exchange can lead to significant corrections to the cross sections of the observable processes. These effects are important for the high precision objectives of the Next Linear Collider. We use the infra-red evolution equation, based on a gauge invariant dispersive method, to obtain double logarithmic asymptotics of scattering amplitudes and discuss how it can be applied, in the case of broken gauge symmetry, to the Standard Model of electroweak processes. We discuss the double logarithmic effects to both non-radiative processes and to processes accompanied by soft gauge boson emission. In all cases the Sudakov double logarithms are found to exponentiate.

Monday 29 November

ISOLDE AND NEUTRON TIME-OF-FLIGHT EXPERIMENTS COMMITTEE (ISTC)

Closed Session

13.30 hrs – 6th floor Conference room, Main Building

Please note that there will be no Open Session

Tuesday 30 November

TECHNICAL PRESENTATION

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

NEWS from SUN Microsystems

by MM. René WALPEN and Jean-Luc BOCQUET/SUN Microsystems.

Agenda:

SUN Microsystems will present the latest NEWS about their range of products, including:

Sun Ultra 80
Sun Ultra Enterprise E220R
Sun Ultra Enterprise E420R
NETRA TELCO SERVER
SUN STOREDGE L700 TAPE LIBRARY
SUN STOREDGE A3500 FC
Sun Ray 1 (nouveau Intranet Appliance)
Sun Netscape Alliance (Iplanet)
Jiro et Jini

They will also present information on current promotional offers from SUN.

Question/Answers:

This presentation will be in French, question and answers can be in English.

Organiser : S. Cannon / IT / 75036

Tuesday 30 November*

SL SEMINAR

at 16.00 hrs** – SL Auditorium, bldg 864

Status of the LEP Spectrometer Project

by John MATHESON (CERN/SL)

At LEP I, measurement of the beam energy was performed with high accuracy by resonant depolarisation. At physics energies for LEP II, polarisation of the beams is not achievable and measurements of the total bending field are used, calibrated against resonant depolarisation over the range 41-60 GeV/beam. Uncertainties arise from regions of the field which are not sampled adequately.

The LEP Spectrometer was proposed to give a determination of beam energy for LEP II. The instrument consists of a steel dipole flanked by beam position monitors (BPMs) which

allow measurement of changes in the bend angle. The aim is to achieve a relative precision of $1E-4$ on the energy, which requires knowledge of the integral magnetic field to $3E-5$ and 1 micron resolution from the BPMs. The commissioning of the Spectrometer has been ongoing through 1999.

The talk will outline energy measurement at LEP, the Spectrometer hardware and the characterisation of the individual subsystems. The current status of the data analysis from the 1999 running will be reviewed.

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

Organiser: Werner Herr, SL Division

* PLEASE NOTE UNUSUAL DAY !

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

Wednesday 1 December

SPS AND PS EXPERIMENTS COMMITTEE

Open session

at 09.00 hrs – Auditorium

1. Status report from NA59: M. Velasco, 30 min
2. Status report from PS212 / DIRAC: L. Nemenov, 30 min
3. Solar Axion Search using a Decommissioned LHC Test Magnet (SPSC 99-21/P312): K. Zioutas, 30 min
4. Proposal to study Hadron Production for the Neutrino Factory and for the Atmospheric Neutrino Flux (SPSC 99-35/P315): F. Dydak, 30 min

Closed session

After the Open Session – 6th floor Conference room, Main Building

Wednesday 1 December

COMPUTING SEMINAR

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

The use of Globus for heterogeneous and distributed applications

by Giovanni ALOISIO, Paolo FALABELLA/ISUFI-University of Lecce

The Globus project (<http://www.globus.org>) is developing basic software infrastructure for computations that integrate geographically distributed computational and information resources.

Globus is a joint project of Argonne National Laboratory and the University of Southern California's Information Sciences Institute. Led by Ian Foster and Carl Kesselman, it is the work of a talented project team at Argonne, USC/ISI, and the Aerospace Corporation, with significant contributions also being made by other partners.

The talk will show how Globus can be used for the management of on-line scientific data archives and for their on-demand remote processing. Other Globus key points, as the secure management of distributed heterogeneous resources and the mapping of high level user requests into low-level systems procedures, will be described. In the talk we will also present how the Globus functionality is used in the SARA project (a joint project between CACR/Caltech and the HPC Lab/University of Lecce, <http://www.cacr.caltech.edu/sara>), whose goal is to develop a Dynamic Earth Observation System (DEOS).

Speakers' Profile:

Giovanni Aloisio

Giovanni Aloisio is Associate Professor of Information Processing Systems and Director of the High Performance Computing Laboratory of the Department of Innovation En-

gineering (University of Lecce/ISUFI, Italy). His research interests include parallel and distributed computer architectures. Since 1986 to 1990 he contributed to the Caltech Concurrent Computation Program (C3P) led by Geoffrey C. Fox at the California Institute of Technology, investigating the efficiency of the Hypercube architecture in Real-Time SAR data processing. Actually he collaborates with the Center for Advanced Computing Research (CACR) of the California Institute of Technology on High Performance Distributed Computing projects. He also collaborates with Carl Kesselman of the Information Sciences Institute, on the use of "Computational Grids" for the management of "large collections of scientific data".

Paolo Falabella

Paolo Falabella is a member of the High Performance Computing Lab of the University of Lecce/ISUFI, Italy. In July 1999 he graduated "cum laude" in Computer Engineering with Prof. G. Aloisio. His thesis was a study of the use of the GLOBUS toolkit to build a web-based environment for the processing on demand of EOS images. He has been training on Globus with Prof. Carl Kesselman at the Information Sciences Institute of Marina del Rey (Los Angeles, California).

Organiser : G.Folger / IT

Thursday 2 December

TECHNICAL SEMINAR

LabVIEW Features and Technologies

by Steve ROGERS, National Instruments, Austin (US)

Steve Rogers with National Instruments for the last 16 years, Chief Architect of LabVIEW will present you new LabVIEW features and new LabVIEW products.

The morning presentation is targeted at the existing LabVIEW user base that is interested in taking it further in their applications.

The afternoon presentation is targeted at those people that have and keep inquiring about Real Time and Embeddedness, and have hesitated to look at LabVIEW as a possible alternative.

MORNING Session:

09.00 – 12.00 / 2nd December 1999, IT Amphitheater, bldg 31-3-005

LabVIEW Features presentation

Discussion and demos of the following LabVIEW features:

- LabVIEW in the Web (includes discussion on DataSocket, LabVIEW VI Server, etc.)
- LabVIEW Multi-platform
- LabVIEW 6 features, including topic discussions like
 - a) LabVIEW as a generator of DLLs,
 - b) LabVIEW script code

AFTERNOON Session:

14.00 – 16.00 / 2nd December 1999, Technical Training Conference room 593-R-010

LabVIEW Technologies presentation

Discussion of the following LabVIEW technologies soon to become LabVIEW products/features:

- LabVIEW RT
- LabVIEW Embedded in PXI/CPCI chassis
- LabVIEW RT for VME control
- LabVIEW RT and distributed I/O (LV RT in FieldPoint)
- short update on LabVIEW for FPGAs and DSPs

For Information contact: Pierre Baehler IT/CO (75016)

Thursday 2 December

CERN COLLOQUIUM

at 16.30 hrs – Auditorium, bldg 500*

Vision – Gateway to the brain

by Christoph VON DER MALSBURG/Institut fuer Neuroinformatik, Ruhr-Universitaet Bochum and Computer Science Department/University of Southern California, Los Angeles

Is the brain the result of (evolutionary) tinkering, or is it governed by natural law? How can we objectively know? What is the nature of consciousness? Vision research is spear-heading the quest and is making rapid progress with the help of new experimental, computational and theoretical tools. At the same time it is about to lead to important technical applications.

Organiser : Luigi DI LELLA / EP Division

* Tea & coffee will be served at 16.00 hrs.

Friday 3 December

ECFA EUROPEAN COMMITTEE FOR FUTURE ACCELERATORS

at 09.30 hrs – Council Chamber, bldg 503

- | | | |
|-------|-----|---|
| 09.30 | 1. | Adoption of the Draft Agenda (ECFA/99/199) |
| | 2. | Approval of the Draft Minutes of the Sixty-Fifth Plenary ECFA Meeting (ECFA/99/197/Draft) |
| 09.45 | 3. | Chairman's Report |
| 10.30 | 4. | CERN Matters (Director-General) |
| 11.00 | | Coffee |
| 11.30 | 5. | DESY Matters (A. Wagner) |
| 12.00 | 6. | Perspectives on Long-Baseline Neutrino Physics with CNGS (A. Ereditato) |
| 12.45 | | Lunch |
| 13.45 | 7. | Future Computing Requirements for Lattice Field Theory in Europe (C. Sachrajda) |
| 14.30 | 8. | Publication Policy of Large (A. Clark) |
| 14.45 | 9. | Report on NUFAC 99 and Physics Aspects of Muon Storage Rings (B. Gavela) |
| 15.15 | 10. | Report on Machine R&D in Europe for Muon Storage Rings (H. Haseroth) |
| 15.45 | 11. | Particle Astrophysics and Gravitational Waves (PANAGIC) (A. Bettini) |
| 16.30 | 12. | Any Other |
| 16.45 | | End of Meeting |

Friday 3 December

CAS ACCELERATOR SEMINAR

at 14.15 hrs – Auditorium, bldg 500*

The Fifteenth Lecture

in the John Adams' Memorial Lecture Series

WIGGLERS AND UNDULATORS – Recent developments

by Pascal ELLEAUME / European Synchrotron Radiation Facility, Grenoble

Following an introduction to the radiation properties of Undulators and Wigglers, the technology used to build them, namely permanent magnets and electro-magnets, will be addressed. A presentation will then be made of the latest

developments. These include high-field devices, variable polarization (planar/circular) undulators, quasi-periodic undulators and small gap (6–3 mm) devices. The Free Electron Laser is a new field of application for which very long undulators (~100m) are needed, requiring superimposed focusing as well as tight tolerance on the magnetic field.

*Tea and coffee will be served after the lecture (~16.00 hrs) in the Salle des Pas Perdus

POUR INFORMATION / FOR INFORMATION

LAPP - Laboratoire d'Annecy de physique des Particules F74941 – Annecy-le-Vieux

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

Vendredi 26 novembre

SEMINAIRE

à 14.00 h – Auditorium du LAPP

Bruit thermique et effets quantiques dans une cavité optique de grande finesse

par Antoine Heidmann (Laboratoire Kastler Brossel, Université P. et M. Curie, Paris)

Les mesures optiques de très grande précision sont limitées par différents types de bruit, parmi lesquels les bruits thermique et quantique jouent sans doute un rôle plus fondamental. Par exemple, les dispositifs interférométriques de détection des ondes gravitationnelles sont limités à basse fréquence par le bruit thermique des miroirs suspendus de l'interféromètre, et par le bruit de photon à plus haute fréquence. La mécanique quantique impose aussi une limite à la sensibilité, liée aux effets de pression de radiation exercée par la lumière sur les miroirs.

On retrouve les mêmes effets dans une cavité optique de grande finesse dont un miroir est mobile. La phase du faisceau réfléchi par la cavité est très sensible à des petits déplacements du miroir, ce qui permet d'étudier l'influence du bruit thermique et les effets quantiques de la pression de radiation. On peut citer parmi ces derniers l'existence d'une limite quantique standard, la possibilité de produire des états comprimés du champ ou de réaliser une mesure quantique non destructive de l'intensité d'un faisceau lumineux.

Nous réalisons une expérience où un faisceau laser est envoyé dans une cavité optique dont l'un des miroirs est déposé sur un résonateur mécanique de grand facteur de qualité. Nous avons observé le bruit thermique du miroir avec une très grande sensibilité, correspondant à des déplacements du miroir de l'ordre du milliardième d'Angström. Nous avons aussi refroidi le miroir en utilisant la pression de radiation d'un faisceau lumineux.