

Les divisions du CERN continueront d'être dirigées par:

Physique théorique (TH)	:	John R. Ellis
Expériences en Physique des Particules (PPE)	:	James V. Allaby
Electronique et Informatique pour la physique (ECP)	:	Pier G. Innocenti
Informatique et Réseaux (CN)	:	David O. Williams
Mécanique et Technologies (MT)	:	Gérard Bachy
Synchrotron à Protons (PS)	:	Kurt Hübner
Division SPS + LEP (SL)	:	Lyndon R. Evans
Technologie des Accélérateurs (AT)	:	Horst Wenninger
Support Technique (ST)	:	Fritz A. Ferger
Support Administratif (AS)	:	Frans R. Heyn
Division du Personnel (PE)	:	Willem Middelkoop
Division des Finances (FI)	:	André J. Naudi
Commission de l'Inspection technique et de la Sécurité (TIS)	:	Bastiaan De Raad

The leadership of the CERN Divisions remains unchanged, as follows :

Theory (TH)	:	John R. Ellis
Particle Physics Experiment (PPE)	:	James V. Allaby
Electronics and Computing for Physics (ECP)	:	Pier G. Innocenti
Computing and Networks (CN)	:	David O. Williams
Mechanical Technologies (MT)	:	Gérard Bachy
Proton Synchrotron Division (PS)	:	Kurt Hübner
SPS + LEP Division (SL)	:	Lyndon R. Evans
Accelerator Technologies (AT)	:	Horst Wenninger
Technical Support (ST)	:	Fritz A. Ferger
Administrative Support (AS)	:	Frans R. Heyn
Personnel Division (PE)	:	Willem Middelkoop
Finance Division (FI)	:	André J. Naudi
Technical Inspection & Safety Commission (TIS)	:	Bastiaan De Raad

SEMINARS SEMINAIRES

Lundi 13 janvier

PRESENTATION

à 14.00 h– Amphithéâtre CN
bât. 31/3-005

Souder / dessouder sans endommagements
par PACE / Sibalco

L'exposé couvre en premier lieu les bases de l'aspect physique et métallurgique d'un joint de soudage. La comparaison avec des méthodes de travail et des installations actuelles aboutit à une évaluation objective et nous conduit à d'intéressants résultats touchant l'installation et les coûts surtout dans la technique SMT.

Aperçu de la présentation

1. Bases physiques et métallurgiques de la technique de soudage
2. Bases techniques de la production
3. Bases techniques du soudage et réparations
4. Discussions sur les méthodes de préparation actuelles
5. Présentation d'une solution technique
(Station de soudage et réparation PACE MBT-250)

Information : Robert Maclaren / ECP

Monday 13 January*

PPE/ECP DETECTOR SEMINAR

at 16.30 hrs – Auditorium

Scintillating fiber tracking for high luminosity colliders using Visible Light Photon Counters (VLPC)

by Muzaffer ATAC / Fermi National Accelerator Laboratory & University of California, Los Angeles

Scintillating fiber tracking using Visible Light Photon Counters (VLPCs) that are developed by Rockwell International Science Center has been tested at UCLA. Tests done with 0.83 mm diameter Kuraray fiber ribbons of 7 meters length produced over 6 photoelectrons in the average for minimum ionizing particles passing through at the end of the fibers. There was no cross-talk detectable between the fibers. Data obtained from 16 and 32 channel system aspects of high luminosity tracking using scintillating fibers and VLPCs will be discussed.

*** Please note change of date & room**

Tuesday 14 January

PRESENTATION

at 10.00 hrs – CN Auditorium
bldg 31/3-005

CM5 Connection Machine

by John MUCCI & David DOUGLAS / Thinking Machines

With the announcement of the CM5 Connection Machine, parallel supercomputers have entered the world of mainstream supercomputers. With CM2 and CM200 systems Thinking Machines has proven performance and cost effectiveness. Over the 8 years of its existence the company has made very significant progress in the field of operating systems, subroutine libraries and compilers. The CM5 is a totally new design offering a mainstream production platform. The CM5 Hardware architecture and software will be discussed in detail. The presentation will focus on the user aspects of the CM5, will discuss scalable software, address data parallel programming and message passing in relation to the CM architecture and will relate CM application code to be existing F77 code.

Tuesday 14 January

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium*

The search for light Scalars/Pseudoscalars

by Yannis SEMERTZIDIS / Brookhaven National Laboratory & University of Rochester

Several models in Elementary Particle Physics require the existence of light pseudo-Goldstone bosons due to their high symmetry breaking scale. As an example the much celebrated axion is the result of the Peccei-Quinn symmetry breaking scale which is required to solve the strong CP problem. An optical rotation experiment was performed at Brookhaven National Laboratory in which the coupling of axions to two photons was utilized. A polarized laser beam with about 10^{18} photons/sec enters a high dipole magnetic field region of 4 Tesla. The magnetic field interacts selectively with the field of the light electric that is parallel to it and produces the pseudoscalar axions. As a result of this the original light polarization rotates and/or acquires ellipticity depending on the axion mass versus coupling constant M . Observing no rotation at the 4×10^{-10} rad level we were able to put a limit on $M > 3 \times 10^{-6}$ GeV.

*Tea & coffee will be served at 16.00 hrs

Wednesday 15 January

ECP ELECTRONICS SEMINAR

at 10.30 hours – Theory Conference Room

Development of a CMOS time memory cell VLSI and other microelectronics activities in Japan

by Yasuo ARAI / KEK

The talk will cover the following subjects:

- 1) Integrated circuit developments at KEK;
- 2) Time Memory Cell VLSI;
- 3) Radiation damage to integrated circuits.

Wednesday 15 January

PS SEMINAR

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

Rockets and spaceflight : an introduction to the technologies and the problems of space travelling

by Felix HUBER / Institut für Raumfahrtssysteme, Universität Stuttgart, Germany

An introduction to the basic equations of rocket propulsion and the laws of celestial mechanics will be given. The technologies and the limits for space vehicles will be presented. Furthermore, the general problems for humans in space (medical problems, psychology, daily life, etc.) will be explained. Finally there will be an outlook to future propulsion technologies.

Wednesday 15 January

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

Instability of hot electroweak vacuum: bounds on m_t and m_H

by Stamatis VOKOS / Argonne

Wednesday 15 January

PRESENTATION

at 14.00 hrs – CN Auditorium
bldg 31/3-005

Object-oriented database applications using Objectivity/DB

by Jeffry ANWYLL & Ralf KRUEGER / Objectivity, Menlo Park, California

Objectivity/DB is an acknowledged leader in the Object-Oriented DataBase Management Systems (OODBMS) marketplace. Representatives from Objectivity will focus on OODBMS concepts, and on requirements for OODBMS production applications.

The technical presentation will be followed by a demonstration of several applications using Objectivity/DB, and a question and answer session.

Thursday 16 January

CAS ACCELERATOR SEMINAR

at 14.15 hrs – Council Chamber

The PEP-II B factory

by Andrew HUTTON / SLAC

PEP-II is an asymmetric B factory in the PEP tunnel re-using many components of the PEP ring. Electrons of 9.0 GeV will collide with 3.1 GeV positrons in a single interaction point with a luminosity of $3 \times 10^{33} \text{ cm}^{-2} \text{ s}^{-1}$. Construction funding has been requested for the financial year 1993. Meanwhile an aggressive R&D programme is under way, both to refine the theoretical design and to develop prototypes of the new hardware required. The machine design will be presented and R&D progress on the rf, vacuum, feedback and interaction region will be discussed in detail.

Friday 17 January

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room

Looking for charged Higgs in the top quark decay at hadron colliders

by D.P. ROY / CERN

We shall explore the prospect of charged Higgs search in top quark decay at hadron colliders. The roles of kinematic cuts and of tau polarisation will be discussed in detail. The search strategies and discovery limits will be presented for Tevatron upgrade and LHC/SSC.

Monday 20 January

DETECTOR SEMINAR

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

Report on the IEEE 1991 Nuclear Science Symposium

by Fabio FORMENTI / CERN-ECP

This seminar summarizes the sessions of the symposium with the object of giving an overview of the present/future activities of the HEP international environment. An introduction presents some statistics and general comments and it is followed by a closer look at some specific topics of particular interest.

Monday 20 January

PPE SEMINAR

at 16.30 hrs – Auditorium

Muon production of J/ψ mesons and the gluon distribution in nucleons

by M. DE JONG / NIKHEF, The New Muon
Collaboration

The production of J/ψ mesons in muon interactions with hydrogen, deuterium, carbon and tin is studied at incident energies of 200 and 280 GeV. The cross section ratio per nucleon for J/ψ production in deuterium and hydrogen was found to be $R(D/H) = 0.96 \pm 0.08$. The cross section ratio of tin and carbon $R(\text{Sn}/C)$ is studied as a function of the energy fraction z and the transverse momentum p_T of the J/ψ . We find an enhancement for coherent J/ψ production, a suppression

for quasielastic production and an enhancement for inelastic production. In the framework of QCD, the cross section of inelastic J/ψ production is related to the gluon distribution in the nucleon. The normalised gluon distribution of free nucleons could be parametrised as $xG(x) = (\eta+1)/2 (1-x)^\eta$, with $\eta = 5.1 \pm 0.9$ (stat). The inelastic cross section ratio of tin and carbon can be interpreted as an increase of the gluon distribution in tin with respect to that in carbon.

Tuesday 21 January

SPS AND LEAR EXPERIMENTS COMMITTEE

Open session

at 09.00 hrs – Auditorium

1. Status report from PS202 – JETSET – Physics at LEAR with an internal gas jet target and an advanced general purpose detector : N. Hamann.
2. Status report from PS201 – OBELIX – Study of $\bar{p}$ and $\bar{n}$ annihilations at LEAR with OBELIX, a large acceptance and high resolution detector based on the open axial field spectrometer: C. Guaraldo.
3. Status report from PS195 – CP LEAR – Tests of CP violation with $\bar{K}^0$ and K^0 at LEAR : P. Pavlopoulos.
4. Status report from PS189 – High precision mass measurements with a radio-frequency mass spectrometer. Application to the measurement of the $\bar{p}p$ mass difference: C. Thibault.
5. Status report from NA44 – A focussing spectrometer for one and two particles: H. Bøggild.

Closed session

at 14.00 hrs to be continued on
Wednesday 22 January
at 09.00 hrs – 6th floor Conference Room

Tuesday 21 January

PRESENTATION

at 10.00 hrs – CN Auditorium
bldg 31/3-005

The modular VMEbus analysis tool set from VMETRO

by Tore ENGEBRETSEN / VMETRO

Tuesday 21 January

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium

The first observation of the beauty baryon Λ_b in the decay channel $\Lambda_b \rightarrow J/\psi \Lambda$ and other beauties from UA1

by K. EGGERT / CERN

Using 4.7 pb^{-1} of data collected with a muon trigger in the 1988/89 proton-antiproton collider runs, the UA1 collaboration has studied beauty production and decays. The beauty production cross-section has been measured over a wide range of transverse momentum and is in good agreement

with recent $O(\alpha_s^3)$ QCD calculations. From the higher order contributions an estimate of the coupling constant α_s is obtained. Our earlier measurements of beauty mixing have been improved. We have also searched for specific rare beauty decays. The first observation of the beauty baryon λ_b in the decay channel $\lambda_b \rightarrow J/\psi \lambda$ will be reported.

* Tea and coffee will be served at 16.00 hrs.

Thursday 23 January

CERN COLLOQUIUM

at 16.30 hrs – Auditorium*

Inertial Fusion : A possible contribution of Accelerator Technology to the World's Energy problem ?

by Carlo RUBBIA/CERN

With the exception of thermo-nuclear explosions, high power Lasers have been so far the almost unique tool for bringing matter to high temperatures and densities. A remarkable amount of work has been carried out in this field which has permitted to highlight an exceedingly exciting field of physics and rich of applications. Most important, but not the only ones, are the contributions to the energy problem through the possibility of inertially confined fusion.

I would like to take this opportunity to elaborate on the possible contributions of particle accelerators as drivers to bring matter to such extreme conditions. The idea to make use of heavy ions to heat up matter is an old idea dating back to the mid-sixties. But the tremendous progress in particle accelerators in recent years, which has permitted the realization of beam-beam colliders of extraordinary performances, has important fall-outs also in this field. There is today an enormous amount of new developments and expertise in the field of elementary particle physics accelerators. This could lead to important fall-outs in other domains, including inertial confinement.

An accelerated beam of high energy heavy ions could be used to produce extremely hot filaments which in turn could emit intense radiation in the 200-500 eV temperature range. Heating matter with beams, which is considered as a great inconvenience in particle accelerators, can therefore become an extremely powerful research tool with the help of dedicated machines. The first pioneering step in this field is now possible by the operation of the dedicated accelerator complex SIS/ESR in Darmstadt.

Matter at high temperature and density becomes radiation dominated. For instance the radiation of 500 eV Stefan-Boltzmann black radiator has a flux of 10^{16} watts/cm and it exercises an ablative pressure of the order of 10^8 bars. This radiation in turn becomes a most powerful tool for instance in order to ensure the implosion of small pellets, the so-called indirect drive.

In my presentation I shall try to look at the future and delineate a number of conceptual progresses which could further extend the already important possibilities of the SIS/ESR programme, one step closer to the ultimate goals of practical applications, for instance in the field of energy production.

* Tea & coffee will be served at 16.00 hrs.

FOR INFORMATION / POUR INFORMATION

LAPP

Laboratoire d'Annecy de Physique des Particules

Chemin de Bellevue
BP 110
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Tél. 50 23 32 45

Vendredi 17 janvier

LAPP SEMINAR

à 10.45 h – Amphithéâtre LAPP

Atomes refroidis par laser dans le domaine du microKelvin : quelques applications

par C. SALOMON / Laboratoire de Spectroscopie
Hertzienne de l'Ecole Normale Supérieure
(PARIS)

Information : Sylvie LEES-ROSIER, LAPP / ext. 328 /
SROSIER@FRCPN11

TRAINING AND EDUCATION ENSEIGNEMENT

ENSEIGNEMENT GENERAL

Tél. 5811

Jeudi 16 janvier

à 13.00 h – Amphithéâtre
Science pour tous
par Rafel CARRERAS

ACADEMIC TRAINING

Tel. 2844

Lectures series for postgraduate students

13, 15, 20, 22 & 24 January

11.00–12.00 hrs – Auditorium
Particle Detectors
by H.J. HILKE / CERN-PPE

* Please note change of dates