

SEMINARS SEMINAIRES

Lundi 7 mai*

SEMINAIRE AT

à 11.00 h – Amphithéâtre LEP

bât. 30, 7e étage

Le(s) vide(s) des accélérateurs CERN

par H.P. REINHARD / CERN-AT/VA

Depuis la récente restructuration, toutes les activités 'vide des accélérateurs' sont regroupés au sein d'un seul groupe (AT/VA). La taille des machines va du plus petit (LEAR) au plus grand (LEP), la gamme du vide du 10^{-6} Torr (lignes de transfert) au 10^{-12} Torr (LEAR). Les projets à l'étude ou en cours sont LEP 200, LHC (= une énorme cryopompe) et les ions plomb qui nécessitent d'améliorer le vide du Booster et du PS d'un facteur 10.

* Attention, nouvelle date!

Monday 7 May

TALK

Information from P. Yepes, tel. 4024

Elementary particles and superstrings

Is there a difference between mathematics and physics?

by John ELLIS / CERN

In superstring theory the different types of elementary particles correspond to different ways for a loop to oscillate, rather like different notes you can play on the same violin string. In principle there are an infinite number of different ways for this superstring to oscillate. The elementary particles that we actually see nowadays, the things that we are made of, correspond to just the lowest harmonics, much like the lowest notes you could play on a given string. Is superstring theory saying that the world around us is a cosmic symphony? With superstrings we also begin to explain the world in terms of topology. Are elementary particles topological properties? What is the difference between mathematics and physics?

Monday 7 May

EP SEMINAR

at 16.30 – Auditorium

CASA : a detector for Gamma Ray Astronomy

by Leslie ROSENBERG / Univ. of Chicago

The Chicago Air Shower Array (CASA) is a large-area above-ground scintillator array designed to study PeV sources. The detector consists of more than 1000 subdetectors distributed on a 15m square grid. Half of the detector is built and taking data.

This detector, coupled with a companion large underground muon detector, constitutes a powerful instrument for the study of point sources. We report our current status, and give a very preliminary peek at data.

Tuesday 8 May

SPECIAL PS SEMINAR

at 14.30 hrs – PS Auditorium, bldg 6, 2-024

Pulse power applications

by Rolf DETHLEFSEN / Maxwell

Laboratories

The storage density for electric energy has been increased manyfold in recent years, allowing compact and even mobile applications. Inductive and capacitive storage will be reviewed for such applications as radiation sources, mass accelerators, or metal forming.

Tuesday 8 May*

CN SEMINAR

at 16.00 hrs – CN Auditorium

bldg 31, 3-005

Does Santa Fe lie at the end of the trail?

by D.O. WILLIAMS / CERN-CN

The eighth conference in the series 'Computing in High Energy Physics' was held recently at Santa Fe, New Mexico, and David Williams gave the summary talk on 'Data analysis, data storage and networks'. This seminar will be based on, but not limited to, this summary talk. One theme emerging from the conference was the huge price-performance advantage that Unix-based RISC high performance workstations possess over conventional mainframes. Ways in which we might integrate workstation servers into CERN's central computing services will be discussed. Other topics to be briefly addressed include :

- Object oriented programming
- Mass storage
- Gigabit networking
- Computing for theory.

The overall conclusion is probably that Santa Fe lies at the head of the trail.

* Please note unusual day!

Wednesday 9 May

PS SEMINARS

at 11.00 hrs – PS Auditorium

bldg 6, 2-024

**Please note : two separate sessions,
half an hour each**

Stochastic cooling progress at FNAL

by Dave MC GINNIS / Fermilab

The talk will describe the present state of operation of the 4-8 GHz cooling system in the Fermilab Accumulator. Preliminary results of bunched beam cooling studies will be presented and the design status of Tevatron bunched beam stochastic cooling electrodes will be described.

Fermilab booster – present intensity limits and upcoming improvements

by Vinod BHARADWAJ / Fermilab

At present the intensity in the Fermilab Booster is limited by space charge effects at injection and longitudinal emittance growth due to coupled bunch instabilities during acceleration. An overview of these limitations is presented and preparations for the forthcoming 400 MeV Linac upgrade are discussed.

Wednesday 9 May

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

Failure of perturbation theory in non-abelian models

by A. PATRASCIOIU / University of Arizona, Tucson, USA

The outline of a proof that the $O(N) \geq 2$ non-linear σ models in 2D possess a phase characterized by algebraic decay of correlations is presented. The argument is based upon an analysis of the percolating properties of certain clusters. The result implies that the true Callan Symanzik β -function of such models is vanishing, in contradiction to the well-known predictions of asymptotic freedom obtained in perturbation theory for $N \geq 2$. The connection between topological properties and the phase structure of such models, as well as the expected extension of the results to QCD_4 is also addressed.

Wednesday 9 May

COMPUTER SEMINAR

at 16.00 hrs – Auditorium*

Major developments in telecommunications technology and its application

by A. M. RUTKOWSKI / International Telecommunications Union

The most profound development in telecommunications technology today is the virtually complete conceptual transformation of 'telecommunications' into distributed information systems. Above the physical device level, all significant work is proceeding on the basis of logical abstractions partitioned into various Planes containing aggregates of Information Objects. Physical devices – especially in optical, opto-electronic, and VLSI semiconductor domains – continue to push both the laboratory and operational states-of-the-art. Coding and signal

processing techniques continue to advance rapidly, having a significant effect on speech and video transport and display, and should have a very significant impact on telecommunication availability and costs. Because the technology is so available, usable, and intrinsically malleable on such a wide scale, there has been an associated migration away from the notion of 'telecommunication services' to the concept of 'tools', where a diverse array of information capabilities are available to and manageable by user agents.

Anthony M. Rutkowski is Senior Counsellor to the Secretary-General of the ITU in Geneva. He is also a Research Associate with the Massachusetts Institute of Technology. He has been involved in standards-making activities for more than 15 years in international and US forums.

* Tea & coffee will be served at 15.30 hrs.

Jeudi 10 mai

PRESENTATION TECHNIQUE

à 08.30 h – Amphithéâtre LEP
bât. 30, 7^e étage

Microcos SA (CH) présente les logiciels LEX (UK), la bureautique intégrée, de MS-DOS à VMS, ses composantes, ses passerelles avec l'extérieur, sa transportabilité. Disponible dans toutes les langues européennes.

08.30 h	Accueil
09.00 h	LEX intégration
09.30 h	LEX-TEXTE
10.00 h	LEX-BASE
10.30 - 10.45 h	Pause
10.45 h	LEX-CALC
11.15 h	LEX-GRAPH
11.30 h	LEX-MANAGER
14.00	LEX intégration
14.30 h	LEX-TEXTE
15.00 h	LEX-BASE
15.30 h	LEX-CALC
15.45 - 16.00 h	pause
16.00 h	LEX-GRAPH
16.30 h	LEX-MANAGER

Langues : français ou anglais selon auditoire
Renseignements : M. Diraison / FI / 4585

Monday 14 May

CN SEMINAR

at 16.00 hrs - CN Auditorium
bldg 31, 3-005

More news from the Old West

by Bob DOBINSON / CERN-ECP

Following on from David Williams' talk, 'Does Santa Fe lie at the end of the trail?', this seminar will summarize topics covered in the Architectures and Algorithms sessions of the Santa Fe Conference on

Computing in High Energy Physics. It is essentially an expanded version of a summary talk given at Santa Fe. The emphasis will be on present and future data acquisition and triggering systems.

Tuesday 15 May

CERN COLLOQUIUM

at 16.30 hrs – Auditorium

Electron Spectroscopy – a link between physics and chemistry

by Kai SIEGBAHN / University of Uppsala

Mercredi 16 mai

PRESENTATION TECHNIQUE

de 14.00 à 16.00 h : exposé

de 16.00 à 17.00 h : discussion

bât. 17, 1-007

Traitement des eaux

Watcotec SA (CH) propose une présentation approfondie des produits Polaris de UCIO, Union Chimique et Industrielle de l'Ouest (F).

Langue : français

Renseignements : M. Diraison / FI / 4585

Mercredi 16 mai

PRESENTATION TECHNIQUE

de 14.00 à 18.00 h – bât. 73, 2-027

Philips SA (CH/NL) propose en exposition démonstration l'ensemble de son équipement bureautique.

Langues : anglais, français

Renseignements : M. Diraison / FI / 4585

TRAINING AND EDUCATION ENSEIGNEMENT

ACADEMIC TRAINING

Tél. 2844-3364

10 & 11 May

11.00 to 12.00 hrs – Auditorium

Parallel computers : architectures, models and software

by I.M. WILLERS / CERN-CN

15, 16, 17 & 18 May

11.00 to 12.00 hrs – Auditorium

An introduction to curved space-times

by Ruth M. WILLIAMS / University of Cambridge

These lectures will focus on understanding relativity from a geometrical viewpoint, based on the use of space-time diagrams and without the tools of tensor calculus. After a brief discussion of flat space-times, curved space-times will be introduced and it will be shown how many of their properties may be deduced from their metric interval. The space-time around a spherically-symmetric star and its possible collapse to form a black hole will be described. Finally, some simple cosmological models will be discussed, with emphasis on their causal properties and the existence of horizons.

Lecture titles :

- 1. Flat space-times*
- 2. Curved space-times*
- 3. Spherical stars and stellar collapse*
- 4. Simple cosmological models*