

SEMINARS SEMINAIRES

Monday 5 February

DETECTOR SEMINAR

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

Towards the Realization of Microstrip Gas Counters in High Volumes

by Risto MUTIKAINEN / VTT Electronics, Finland

During operation, anode plates within microstrip gas counters (MSGC) face hostile conditions. Fast ageing and drifting of detector characteristics have generally been problems with MSGC detectors, especially when targeted for large applications like particle trackers. Furthermore, in such high-volume use, additional criteria are set for the price and the scalability of fabrication technologies.

Various approaches have been proposed as solutions for the issues mentioned. This presentation will concentrate on such development work. Special emphasis is given to the issues related to scalable and economical solutions required for large scale applications. Fabrication techniques enabling the use of low-cost glass substrates and material-efficient electrolytical deposition methods are presented.

Monday 5 February

UMTF USER MEETING

14.00-15.30 hrs – CN Auditorium, bldg 31/3-004&5

User Forum on Electronic Mail

Chaired by M.MARQUINA / CERN CN

You are still processing your mail on CERNVM?

It is a good moment to think carefully about your possible choices concerning where to move your mail, as CERNVM will disappear at the end of June.

This User Forum will address these alternatives, which are essentially using:

- the MailServer from a Unix machine
- MS Mail on a PC
- Quickmail on a MAC

and will help you making the choice and tell you what to do next. The details of the presentation, which should just establish the grounds for later discussion, may be found in WWW: <http://consult.cern.ch/umtf/user-meetings/>

Wednesday 7 February

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

A new look at supernova neutrino and axion emission

by Georg G. RAFFELT / MPI, Munich

Supernovae are among the most important astrophysical laboratories to study the properties of low-mass particles, notably of neutrinos and axions. However, the commonly-employed naive interaction rates of these particles with the hot and dense medium of a SN core are quantitatively meaningless because of the large nucleon spin fluctuation rate caused by nucleon-nucleon interactions. This problem, which is closely related to the Landau-Pomeranchuk-Migdal effect, is explained. Phenomenological attempts at a patch-

up in terms of exact sum rules of the dynamical spin-density structure function, and practical consequences for SN physics and axion bounds are discussed.

Wednesday 7 February*

CCIP PRESENTATION

(CCIP : Coordination des Contrôles Industriels de Processus)

at 14.30hrs – AT Auditorium bldg 30/7th

Presentation of EPICS (Experimental Physics and Industrial Control System): a generic supervision system

by Matthias CLAUSEN / DESY

Organizer: G. Leo CERN / LHC-IAS

***Please, note unusual day and time!**

Wednesday 7 February

COMPUTING SEMINAR

at 16.00 hrs – CN Auditorium, bldg 31/3-004&5

World-Wide Web for Physics Experiments

by Mark DONSZELMANN / CERN/ECP-IPT

Due to the topology of CERN and its institutes all over the World, the World-Wide Web has become very popular as a means to provide distributed access to information regarding the experiments. However WWW is more than a static information delivery system. Several gateways in DELPHI show instant access to dynamic information.

The 'life cycle' of an experiment ranges from its detector and electronics design, through on-line control software, off-line reconstruction software and physics analysis software to the final publication of the results. At all these stages WWW technology has been used or could be used in the near future.

Access to static and dynamic information has been exploited in past projects, such as:

- On-line Gateways, such as HIP-WWW and DIM-WWW, to gain access to the on-line control values of DELPHI.
- Converters, such as WebMaker, SDML2HTML and LaTeX2HTML, to convert existing documents to hypertext info-structures.
- Information Systems, such as DDD (Detector Data Digest) a handbook of the principles, construction and utilization of detectors.
- Event Displays, such as EDWIN, a server-based system to view Physics events from a remote site.

New developments in WWW technology open up interesting possibilities for the use of WWW in High Energy Physics. With the introduction of JAVA language and its interpreter it is now also possible to transfer code across the Internet, to be executed locally.

Current projects, we are working on or participating in, include:

- WWW and EDMS, an Engineering Data Management System, to be used for the construction of the LHC experiments.
- LIGHT, a Life Cycle Global Hypertext system to browse source code and software design documentation.
- WIRED, a WWW Interactive Remote Event Display from which we can display and manipulate Physics events using WWW.
- a Formula Applet, which can not only be used to display mathematical formulae, but also generate C or Fortran code.

All of these subjects will be discussed in more detail during the talk.

Mark Donszelmann has been with the IPT (Information and Programming Technology) group of ECP since 1995. Before that he was working for 5 years in the DELPHI experiment on the on-line data acquisition and control system. Currently he is working on information and documentation systems for experiments.

Thursday 8 February

UMTF COMPUTING TUTORIALS

Requesting or Modifying a Network Connection at CERN

by Jean-Michel JOUANIGOT

Postponed

Thursday 8 February

ISOLDE SEMINAR

at 15.30 hrs – TH Conference Room

Solving the puzzle of abnormal ^{41}Ca radiative electron-capture decay

by Jan ZYLICZ / University of Warsaw

In a radiative electron-capture (EC) beta decay, emission of neutrino is accompanied by emission of a photon, and both these particles statistically share the transition energy. Probability of this higher-order process is a few orders of magnitude lower than the probability of the non-radiative EC decay, accompanied by emission of the neutrino alone. For a number of allowed EC decays, total intensities and spectral distributions of photons were studied experimentally and found to agree well with the internal-bremsstrahlung (IB) theory.

Careful studies of the first forbidden unique (1u) radiative EC decay of ^{41}Ca , performed with the Aarhus-Warsaw collaboration, indicated that the number of photons per decay is by a factor of 6.6 higher than predicted by the IB theory. Also the shape of the photon spectrum was found to deviate from the theoretical predictions. This observation was shocking because the theory of IB includes quantum electrodynamics and weak interactions on such a level that should provide a good agreement with the experiment.

After considering various possible explanations, the anomaly of the ^{41}Ca photon spectrum was associated with a contribution from detour γ/β transitions via intermediate virtual nuclear states. The detour transitions, composed of E1 gamma transitions followed by allowed Gamow-Teller beta transitions, or vice versa, can compete with the direct beta transitions because the latter is forbidden, and thus very slow. Due to a recent study performed by A. Brown, M. Pfitzner, G. Rohozinski and J. Zylicz, probability of the ^{41}Ca detour transitions is now understood in terms of the shell-model matrix elements. Presentation of the shell-model picture of the ^{41}Ca radiative decay will be the main part of the talk.

Thursday 8 February

LHC TECHNICAL SEMINAR

at 16.00 hrs – AT Auditorium, bldg. 30, 7th fl.

Electrical Powering Strategy of LHC

by P. PROUDLOCK / CERN-SL

The characteristics and integrated nature of superconducting machines, coupled with the need to make maximum use of existing LEP infrastructure, have meant that new powering

techniques, as well as tighter power converter performance specifications, will be required for LHC. A description of the powering system of LHC will be given along with the reasons for adopting certain solutions. The static and dynamic requirements of the machine will also be considered and the first ideas for solving some of these problems will be presented. The on-going studies to achieve a better optimization of the powering system will also be discussed.

Jeudi 8 février

SÉMINAIRE POUR LES GUIDES DU CERN

organisé par le Service des visites – Groupe DSU/CP

à 16.00 h – Salle du Conseil

La découverte de l' anti-hydrogène au CERN

par Mario MACRÌ / INFN Gênes, Italie

Mario Macrì présentera les résultats de l'expérience PS210, obtenus à l'anneau LEAR (Low Energy Anti-proton Ring) du CERN. Les sujets suivants seront abordés: la méthode de formation (antiprotons sur jet de gaz xénon), la cible interne à jet de gaz xénon, les détecteurs d'état final et la procédure d'analyse.

Ce séminaire, donné en français, a été spécialement organisé pour les guides du CERN, mais il est ouvert à tous les intéressés.

Thursday 8 February

CERN COLLOQUIUM

at 16.30 hrs – Auditorium*

The Companion of the Star 51 Pegasus A Jupiter in Hell

by Michel MAYOR / Geneva Observatory

After unsuccessful searches for planets around other stars during more than ten years, a first detection has been done. A Jupiter-mass companion has been discovered in orbit around a solar-type star, 51 Peg.

After the discussion of the nature of the companion of 51 Peg and problems related to its formation, I will discuss the different technics used in searches for exoplanets.

Do we have a realistic chance to detect life on other planets ? New experiments are proposed for such a goal.

* Tea & coffee will be served at 16.00 hrs.

Friday 9 February

TECHNICAL PRESENTATION

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

MOTOROLA Technical Presentation

by Paul STEVENS / Marketing Program Manager
Europe

Motorola Computer group will present an update on its 1996 product plans for 68K and PowerPC based VME modules and motherboards.

The 68040 based MVME162 product family will be enhanced with new configurations implementing the VITA-4 (IndustryPack) mezzanine specifications.

All 1996 enhancements will be presented and an overview on the status of the VITA-4 module specification and recent organisational changes within GrouPIPC will be given.

The PowerPC product line will be enhanced with new modules with higher CPU clock speeds and cache and with new PCI and PMC implementations.

Motorola is also expanding its PowerPC motherboard family with new products particularly suited to industrial and embedded applications with support for IP and PMC modules.

Information: C. Moine /ECP / 5035

Organiser: S. Cannon / CN / 5036

Friday 9 February

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room

Analytic continuation by duality: does it really work?

by Tatsu TAKEUCHI / CERN

I discuss whether the Analytic Continuation by Duality (ACD) technique can be used to obtain a reliable estimate of the S parameter.

Lundi 12 février

SEMINAIRE DETECTEUR

à 11.00 h – Salle de conférence ECP, bât. 13/2-005

Photomultiplicateurs céramiques

par Georges COMBY / Sacle

L'emploi de la technologie des céramiques multicouche offre la possibilité de fabriquer des multiplicateurs d'électrons compacts et performants. Associés à une photocathode à l'étage d'entrée et à une structure anodique à l'étage de sortie, on obtient des photomultiplicateurs mono ou multi-voie de faible encombrement.

Au cours de ce séminaire nous décrirons la structure multiplicatrice ainsi que son mode de fabrication puis les principaux résultats de l'étude de faisabilité. Nous montrerons ensuite les caractéristiques dynamiques de fonctionnement de ces nouveaux composants et notamment leur comportement dans un environnement magnétique. La réalisation de photomultiplicateurs à 256 voies, adaptés à des applications spécifiques sera suggérée.

Note: the talk will be given in French from slides written in English.

Monday 12 February

ISOLDE EXPERIMENTS COMMITTEE

Open session

at 14.00 hrs – Council Chamber

1. Introductory remarks by the Chairman.
2. Progress report by the Isolde Technical Group Leader.
3. Isolde Coordinator's report.
4. Identification and decay studies of new, neutron-rich isotopes of bismuth, lead and thallium by means of a pulsed release element selective method; CERN/ISC 96-1/P76; K. Rykaczewski.
5. Search for detour transitions in the radiative EC decay of ^{81}Kr ; CERN/ISC 96-2/P77; M. Pfützner.
6. Single-neutron states in ^{133}Sn : Status report and beam time request (IS 338); CERN/ISC 96-6/P53 Add.1; P. Hoff.
7. Neutron-rich silver isotopes produced by a chemically selective laser ion-source: Status report on experiment IS333 part II and request for beam time; CERN/ISC 96-4/P34 Add.1; K.-L. Kratz.

8. Nuclear electrical and optical studies of hydrogen in semiconductors (IS345) : CERN/ISC 96-3/P65 Add.1; D. Forkel-Wirth.

Closed session

after the Open Session, 6th Floor Conference Room, Main Building

Monday 12 February

UMTF COMPUTING TUTORIALS

14.00-16.00 hrs – CN Auditorium, bldg 31/3-004&5

How to Set Up Your Unix Shell Environment

by Arnaud TADDEI

Ce séminaire sera donné en français.

Wednesday 14 February

TECHNICAL PRESENTATION

10.00-11.00 hrs & 14.00-15.00 – bldg 304/1-001 room B

WEKA Cryogenic Valve with Intelligent

Electropneumatic Positioner SIPART PS

Information : Lazslo ABEL / FI-A/9561

Language : English, French and German

Wednesday 14 February

CAS ACCELERATOR SEMINAR

at 14.30 hrs – Auditorium

The Eleventh Lecture

in the John Adams' Memorial Lecture Series

Light- and heavy-ion acceleration at CERN

by Helmut HASEROTH / CERN

Thursday 15 February

UMTF COMPUTING TUTORIALS

14.00-16.00 hrs – CN Auditorium, bldg 31/3-004&5

Windows and NICE as your desktop environment

by David FOSTER

Thursday 15 February

SL SEMINAR

at 16.00 hrs – SL Auditorium, Preveessin, bldg. 864

Ponderomotive Oscillations in the LEP

Superconducting Cavities

by J. TUCKMANTEL / CERN-SL

Friday 16 February

CERN COMPUTING COLLOQUIUM

at 14.00 hrs – Auditorium

The MBone: Enabling Live, Multiparty, Multimedia Communication on the Internet

by Steve DEERING / Xerox PARC

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Wednesday 7 February

PARTICLE PHYSICS SEMINAR

at 17.00 hrs – Stuckelberg Auditorium

Tests of Lepton-Flavor Conservation

by Andries van der SCHAAF / Zurich University

Lepton-flavor Conservation (LFC) is one of the corner stones of the Standard Model, but may be violated in almost any extension of it.

By studying transitions between leptons from different generations, one ultimately hopes to learn about the origin of the generation structure itself. The status of laboratory tests of LFC will be reviewed, with emphasis on LFC-violating ("forbidden") μ decays. Ongoing searches with the two SINDRUM spectrometers at PSI will raise the present sensitivity by two to four orders of magnitude.

EDUCATION SERVICES EDUCATIFS

ENSEIGNEMENT GÉNÉRAL
Tél. 5811

Jeudi 8 février

à 13.00 h – Amphithéâtre

Science pour tous

par Rafel CARRERAS

ENSEIGNEMENT ACADEMIQUE ACADEMIC TRAINING

Françoise Benz ☎ 3127

Informations détaillées sur le WWW
Information about the lectures on WWW
<http://www.cern.ch/Training/>

5, 6, 7, 8 & 9 February

11.00 to 12.00 hrs – Auditorium

A Phenomenological Theory of World Population Growth and Global Problems

by S. KAPITZA / Institut for physical problems,
Moscow, Russia

Of all global problems world population growth is the most significant one. To describe this process in its past and project it into the future a mathematical model is worked out. It treats the world population as an entity, seen as an open and evolving dynamic system. The approach is phenomenological and growth over very many generations is assumed to be selfsimilar and described by scaling. In terms of kinetics, the growth rate is proportional to the square of the total number of people and the nonlinear hyperbolic growth describes the sum outcome of all mechanisms that contribute to our development in a collective interactive process.

The model gives an estimate of the beginning of human evolution c.a. 4.4 million years ago and of the total number of people who ever lived c.a. 100 billion. In the scope of the model large scale cycles defined by history and anthropology are shown to be

uniformly spaced in time on a logarithmic scale, expressing and inherent periodicity. As we approach the present, this progression of cycles is now terminated by the demographic transition. This is a singular epoch in all human development, a very rapid transition centered on a year 2007 and is to lead to a fundamental change in the age profile of population with profound effects on society. In the near future this critical period will result in an ultimate levelling off of the world population at c.a. 14 billion. The transition is seen to be determined by the intrinsic dynamic properties of the global population system, rather than by an external lack of resources.

The model provides a consistent quantitative framework of interest for anthropology and history, demography and sociology, population genetics and human evolution. As an attempt of an interdisciplinary study it provides insight into the systemic behaviour of the world population, seen as an entity at a decisive time of our growth and can lead to an understanding of the trends and stability of development both on a long term scale encompassing the whole human story and the present predicament of humankind.

Consideration will be given to global problems of resources, energy and sustainable development.

The concepts and ideas of the Club of Rome will be examined and the agenda for the future of humankind considered in some detail.

12, 13 & 14 February

11.00 to 12.00 hrs – Auditorium

Virtual Reality for Engineering

by S. DE GENNARO / CERN-CN

Virtual Reality for Engineers.

Virtual Reality is a very powerful visualization technique for 3D data, which can bring enormous benefits to engineering design. CAD models can be exported to a VR application and used as "Virtual Prototypes".

Virtual Prototypes are an ideal replacement for wooden models as they can be generated automatically from most CAD products. They are totally reliable, they can be updated in a matter of minutes, and they allow designers to explore them from inside, on a one-to-one scale and using a 3D-stereo vision. Navigation can be performed using a number of instinctive tools, such as joysticks, spaceballs, VR helmets and 3D mice.

The lectures will cover today's Virtual Reality products and methods, and describe how to transform CAD models into Virtual Prototypes. A "hands on" VR experience featuring the LHC detectors models can be organized for people interested.