

SEMINARS SEMINAIRES

Monday 19 October

DETECTOR SEMINAR

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

Layout techniques to enhance the radiation tolerance of standard CMOS technologies demonstrated on a pixel readout chip

by W. SNOEYS / CERN-EP

Two new pixel readout prototypes have been developed at CERN for application in the Alice experiment. The radiation tolerance of these full mixed mode analog digital circuits implemented in commercial CMOS technologies has been enhanced by modifying the circuit layout. The first circuit implemented in a 0.5 μm CMOS technology tolerated up to about 1.7 Mrad in a particle beam. The second one was designed in a 0.25 μm CMOS technology and remained functional up to a 30 Mrad X-ray dose. In the presentation the layout techniques will be explained and their effectiveness demonstrated on various irradiation measurements on individual transistors and on the pixel readout prototypes. Implications of such a layout approach on the circuit design will also be discussed.

Information:

<http://www.cern.ch/CERN/Divisions/EP/Seminars/Welcome.html>

Organiser: Rui Ribeiro / CERN-EP

Monday 19 October

COSMOLOGY MEETING

at 14.00 hrs – TH Conference Room, bldg. 4

Clumping of cold dark matter from the cosmological QCD transition

by Christoph SCHMID / ETH, Zurich

The cosmological QCD transition affects the evolution of primordial density perturbations. If the QCD transition is first order, the sound speed in the bulk fluid vanishes during the transition, pressure gradients are zero, and density perturbations fall freely. The subhorizon spectrum develops large peaks and dips, which grow with wave number approx. linearly both for the hadron-photon-lepton fluid and for cold dark matter. If there is significant super-cooling with subsequent sudden reheating at the onset of the transition, the amplification factor grows approx. quadratically in wave number far below the Hubble radius. The peaks in the hadron-photon-lepton fluid and in SUSY-CDM are far below the Hubble radius. The peaks in the hadron-photon-lepton fluid and in SUSY-CDM are wiped out during the decoupling of neutrinos and neutralino. For cold dark matter which is kinetically decoupled at the QCD transition (e.g. axions or pre-existing primordial black holes) these peaks lead to the formation of CDM clumps of 10^{-10} to 10^{-20} solar masses. This changes the expected rates for axion searches drastically. At the horizon scale the amplification factors are small. This by itself does not lead to the formation of black holes at the QCD transition.

Vous pouvez aussi consulter

For information on these seminars, please see

<http://wwwas.cern.ch/Bulletin/Seminars/current.html>

Monday 19 October

CERN EP SEMINAR

at 16.30 hrs – Auditorium, bldg. 500*

The structure of real and virtual photons at HERA

by Hartmut RICK / CERN-EP

The electron-proton collider HERA is a unique facility to study the hadronic structure of the photon. The photon's parton content is measured by the H1 and ZEUS collaborations via hadronic jet production, using the constituents of the beam proton as probes. The complex structure of the proton makes the interpretation of the measurement somewhat more difficult than that of deep inelastic scattering experiments at e^+e^- colliders. This is however compensated by a higher center of mass energy and larger cross sections, which make a larger kinematic range accessible. In addition, the HERA data contain information about the gluonic content of the photon which is almost unconstrained by other experimental results. In this seminar, the latest HERA results on the hadronic structure of both real and virtual photons are presented.

Organiser: Fabiola Gianotti / CERN-EP

* Tea & coffee will be served at 16.00 hrs.

Wednesday 21 October

THEORETICAL SEMINAR

at 11.00 hrs – TH Conference Room, bldg. 4

Supersymmetry at a crossroad

by Nir POLONSKY / Rutgers University

The search for supersymmetry is one of the main goals of the LEP experiments, as well as future collider experiments. Since LEP reaches its final phases, evidence for neutrino masses has been established, and new colliders are either being built or planned, a fresh look at supersymmetry is timely. Some of the main lessons for supersymmetry learned already (at LEP) will be summarized. Models for neutrino masses within supersymmetric frameworks will be discussed next, as an example of the implications of indirect searches. The complementary role that collider experiments such as LEP can play in testing some of the models will be emphasized. It is the next generation of colliders, however, that will play the most important role in discovering (or in disproving) supersymmetry. New channels for discovery of some of the more elusive sparticles will be suggested and the issue of characterization of the effective theory via measurements of various theoretical parameters will be discussed. It will be shown that many of the results discussed stem from the interplay between the restrictions and the freedom of low-energy supersymmetry.

Thursday 22 October

LHC PROJECT SEMINAR

at 14.15 hrs – LHC Auditorium, bldg. 30/7th floor

The BEM-FEM coupling method for the accurate calculation of magnetic fields in superconducting magnets

by Stefan KURZ / University of Stuttgart

In this seminar a new technique for the accurate calculation of magnetic fields in superconducting magnets will be presented. This method, which couples boundary elements and finite elements, is specially suited for the calculation of 3-dimensional effects in the magnets, as the coils and the air regions do not have to be represented in the finite-element mesh. This is important as the field in the superconducting magnets is dominated by the layout of the superconducting coils. The method has been recently implemented in a collaboration with the University of Stuttgart, Germany, into the ROXIE program package which was developed at CERN for the design and optimization of the LHC magnets. Another interesting field of application of the method is the analysis of electro-mechanical devices with moving parts where the treatment of motion usually requires re-meshing or mesh distortion in the air gaps. The BEM-FEM method avoids such difficulties in an elegant way as will be shown by several examples.

Thursday 22 October

TECHNICAL PRESENTATION

at 15.00 hrs – EST LEA Conference Room
bldg. 530/R018

Optical Fibre Temperature Measurement System

by W. SHEPHERD / BICC Thermoheat

This new sensing technology uses a laser light source to project a light pulse along an optical fibre.

The pulse mostly travels to the end of the fibre and disappears, but a small proportion of the light is reflected back along the fibre.

The reflected, or backscattered signal is collected and analysed within an opto-electronics unit to provide temperature information about the fibre.

The essence of the output is a profile of the temperature along the whole length of the fibre, in our particular case, for lengths up to 10 km, which is at the leading of current capability.

Information and organiser : Joseph Nebout / EST 74009

Vendredi 23 octobre

PRÉSENTATION TECHNIQUE

10.00-12.00 h – Amphithéâtre PS, bât. 6/2-024

Présentation de ACCEL (P-CAD) 14

par Nicolas BOUDOT / ACCEL Technologies France;
Peter DRATWA / ACCEL Technologies Europe &
Gérard SCHNELL / Connexe SA, Suisse

Organisation des bibliothèques et critères de recherche (Rappel des possibilités du logiciel et de l'utilité de la fonction Query).

Création d'une bibliothèque propre à un job (nouveau de la version 14: les composants utilisés dans un schéma sont copiés dans une bibliothèque ad hoc, utile pour l'archivage).
Création d'un cadre et de zones intelligentes: report automatique des nets d'une feuille à l'autre (automatic off-sheet references).

Table d'alimentation créée et mise à jour automatiquement.
Index des références (renvoi des nets) créé et mis à jour automatiquement.

Print Preview et net tracker (possibilité de marquer une net par une couleur lors d'une impression).

Différenciation des trous métallisés et des non-métallisés.
Table de perçage générée automatiquement ainsi que sa mise à jour (PCB).

Organisateur: Chris Eck / CERN-IT-CE

Friday 23 October

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room, bldg. 4

Problems with atmospheric neutrino oscillations

by John LOSECCO / University of Notre Dame

The neutrino oscillation hypothesis does a poor job of representing the atmospheric neutrino anomaly. The anomaly is observed over 4 decades in path length and at least a factor of 30 in energy. This restricts the potential oscillation solutions to those with large amplitudes and mixing mass differences that are ruled out by other observations. The Δm^2 region in the range 10^{-4} – 10^{-2} leads to inconsistencies within the atmospheric neutrino data itself. The observed value of R seems to be incompatible with the Δm^2 implied by recent results.

Monday 26 & Tuesday 27 October

RD49 RADTOL WORKSHOP

Monday 26 October

14.00-18.00 hrs – Conference room bldg. 160/1-009

COTS, power systems and system aspects

14.00 Welcome

14.10 Len Adams, Visiting Professor in Radiation Effects, Brunel University
Commercialization of COTS for Space and LHC

15.00 S. Caruso, ST Microelectronics
Development of a radiation tolerant voltage regulator for LHC and Space applications

15.20 R. Richter, MPI Munich and CERN
Results of neutron radiation testing of COTS at Prospero facility

15.40 Raymond Raush, CERN
Industrial COTS Electronics and Systems for the LHC Machine

16.00 *Coffee break*

16.30 B. Lane, NMRC-UK
Solid state dosimeters for monitoring total dose in Space mission and LHC experiments

16.50 Olle Martinsson SAAB Sweden
System aspects in avionics

17.10 J.F. Coldefy, MMS Velizy France
Circumventing Radiation Effects by Logic Design

17.30 M.L. Andrieux, IN2P3 Grenoble France
Testing performances of optical components for LARG/ATLAS under neutron and gamma

Tuesday 27 October

09.00 to 18.00 hrs – Council Chamber, bldg. 503

SEE and deep submicron CMOS technology

09.00 Welcome. P. Jarron CERN
RD49 RADTOL status

- 09.10 E. Normand, Boeing USA
Study of the SEU rate induced by neutrons in integrated circuits
- 10.00 *Coffee break*
- 10.30 R. Velazco and T. Calin TIMA Grenoble France
Synergetic approaches for SEU hardening in deep sub micron CMOS
- 11.15 W Dulinski LEPSI Strasbourg France
Measurement of Single Event Latch-up on the ALICE Si-Tracker front end chip
- 11.40 F. Faccio CERN
Results of the SEU rate measurement of 0.25 μm static and dynamic digital test circuits
- 12.15 M. Huhtinen CERN
Simulation of SEU rates in the radiation environment of CMS
- 12.45 *Lunch*
- 14.00 M. Bucher, EPFL Lausanne
EKV model for deep sub micron CMOS technology
- 14.25 K. Kloukinas CERN
Development of a radiation tolerant standard library in 0.25 μm CMOS technology
- 14.50 A. Giraldo University of Padova I
Modeling of enclosed MOSFETs
- 15.15 G. Anelli, CERN
Noise measurement of a 0.25 μm CMOS technology
- 15.35 M. Campbell /W. Snoeys CERN
Results of the radiation tolerant pixel electronics demonstrator in 0.25 μm CMOS
- 16.00 *Coffee break*
- 16.30 F. Faccio, M Del Mastro CERN
Characterisation of the radiation tolerance of a 0.25 μm CMOS technology
- 16.55 R. Yarema FERMILAB USA
Measurements of standard and enclosed Structures in the HP 0.5 μm process
- 17.20 K. Torki CMP TIMA-FR
ASIC fabrication in deep sub micron technology through CMP Services.
- 17.25 O. Flament CEA-FR
A new process-screening system for X-ray irradiation at 10 keV of wafers up to 12 inches: PROBIX 10-12
- 17.50 J. Vandenbussche KUL-B
Total dose test Results on an analogue circuit in Alcatel Mietec 0.7 μm technology in the framework of an ESA contract.

Tuesday 27 October

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium, bldg. 500*

The Amsterdam Neutrino Oscillation Workshop : NOW98

by Piero ZUCHELLI / INFN-Ferrara

Recent results presented in the summer conferences are strengthening the hypothesis of neutrino oscillations, particularly in view of the Super-Kamiokande results. The recent Neutrino Oscillation Workshop (NOW) in Amsterdam, 7-9 September, gathered together most of the specialists to discuss the available data, current plans and future options in a critical way. Is the experimental situation totally understood? Is the data interpretation unique? What should be the next steps? The NOW answers are reported.

Organiser : Jasper KIRKBY / CERN-EP

* Tea & coffee will be served at 16.00 hrs.

Wednesday 28 October

COMPUTING SEMINAR

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

The SWISS-TX Project

by Ralf GRUBER & Marie-Christine SAWLEY / EPFL

The EPFL has launched a research project together with Digital/Compaq, Supercomputing System in Zurich, ETHZ and CSCS to develop a teraflop/commodity supercomputer by the 1st quarter of the Year 2000.

During the different phases of the project, a highly innovative communication system will be tested on a wide range of scientific applications, while important pieces of the software environment are being developed. The new communication system, using a write-only concept that guarantees low latency (micro-seconds) and high bandwidth (100 to 400MB/sec), offers wide possibilities for customizing high performance, parallel, versatile and highly scalable systems based on commodity elements.

This presentation is likely to be of special interest to developers of riggers for the LHC experiments.

Information: <http://consult.cern.ch/seminars>

Organiser: E. McIntosh / CERN-IT

Thursday 29 October

SL SEMINAR

at 16.00 hrs* – SL Auditorium, bldg. 864

Design and development of the injection kicker systems for the LHC

by Laurent DUCIMETIERE / CERN

In an accelerator complex, fast pulsed magnet systems, so called kickers, are key elements for injection and extraction. As an introduction an overview is presented of different kicker systems operating at CERN.

Thereafter the attention will be focused on the injection kickers for the LHC. These systems will inject proton beams into the LHC at the energy of 450 GeV. They must produce a magnetic field pulse of approximately 900 ns rise time and 6.6 μs flat top duration.

A stringent design requirement is a flat top ripple of less than +/-5% to avoid dilution of the beam emittance during injection. For each beam, the injection kicker is composed of 4 travelling wave magnets of 2.7 m length each, powered by pulse forming networks (PFN's). To achieve the required high kick strength of 1.3 Tm, a comparably low characteristic impedance have been chosen. The design and the development for this demanding system are presented together with the first prototype results, and a comparison is made with similar systems operating in the SPS.

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

Organiser: Werner Herr / CERN-SL

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

Thursday 29 October

CERN COLLOQUIUM

at 16.30 hrs – Auditorium, bldg. 500*

Kamiokande and Super-Kamiokande

by Masatoshi KOSHIBA / University of Tokyo

The flow of physics thoughts which have led to the conception of the experiments in the Kamioka Mine will be presented. A discussion will follow on the three main results from these experiments, i.e.,

- 1) the observation of neutrinos from SN1987a;
- 2) the study of solar neutrinos;

3) the observation of the atmospheric neutrino anomaly. A new branch of physics, Observational Neutrino Astrophysics, has thereby been established. This has opened the way to studies of new physics related to non-zero neutrino masses. Some future possibilities will be discussed.

Organiser : Luigi Di Lella / CERN-EP

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

EDUCATION SERVICES EDUCATIFS



Information sur les cours, dates et places disponibles sur WWW:
Information about the courses, dates and places available on WWW :
<http://www.cern.ch/Training/>

PLACES DISPONIBLES

Des places sont disponibles dans les cours suivants :

Places are available in the following courses :

ACCESS 97 : level 1 21 -22.10.98 2 days

C++ programming 26 - 30.10.98 5 days

FileMaker sur Mac et PC 27 - 30.10.98 4 jours

Object-Oriented Analysis & Design 27 - 30.10.98 4 days

Cotation selon les normes ISO - présentation générale 27.10.98 1 journée

Cotation selon les normes ISO - Application des normes ISO 28 - 29.10.98 2 jours

Introduction to Ansys 5.4 28 - 30.10.98 3 days

Java Programming level 1 29 & 30.10.98 2 days

Software Configuration Management 3 - 6.11.98 4 days

Généralités WorldFIP 16.11.98 1 journée

Présentation de la Librairie MicroFIP 17.11.98 1 journée

Présentation de la Librairie FIP DEVICE MANAGER 18 - 20.11.98 3 jours

UNIX for programmers 23 - 27.11.98 5 days

C++ for Physicists 30.11 - 4.12.98 5 days (20 hrs.)

Si vous désirez participer à l'un de ces cours, inscrivez-vous électroniquement en direct depuis les pages de description des cours dans le Web que vous trouvez à l'adresse : <http://www.cern.ch/Training/>, ou remplissez une "demande de formation" disponible auprès du Secrétariat de votre Division ou de votre DTO (Délégué divisionnaire à la formation). Les places seront attribuées dans l'ordre de réception des inscriptions.

If you wish to participate to one of these courses, please apply electronically directly from the course description pages that can be found on the Web at : <http://www.cern.ch/Training/> or fill in an "application for training" form available from your Divisional Secretariat or from your DTO (Divisional Training Officer). Applications will be accepted in the order of their receipt.