

SEMINARS SEMINAIRES

Monday 11 November

TECHNICAL SEMINAR

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

Electromagnetic Compatibility in High Energy Physics

by Fritz SZONCSO / CERN-ECP

After an overview on EMC basics and facts, focus will be given on EMC phenomena relevant to high energy physics installations. Compliance with EMC regulations currently in effect will be an issue for experiments using densely packed electronics. However, EMC regulations are only a starting point because experiments ask for lower susceptibility levels and somewhat more exotic requirements than usual. Problems likely to arise in LHC-experiments will be given coverage as far as known today. Test methods using high energy physics laboratory equipment make preliminary EMC-testing available at small cost.

Monday 11 & Tuesday 12 November

THIRD MEETING OF THE LHC MACHINE ADVISORY COMMITTEE

Open Session

Monday 11 November

at 14.00 hrs – LHC Auditorium, bldg. 30/7th fl.

Tuesday 12 November

at 09.00 hrs – LHC Auditorium, bldg. 30/7th fl.

Provisional Programme

Monday 11 November

14.00	S. Tazzari	General introduction
14.10	L. Evans	Current status of the LHC project
14.55	J.P. Koutchouk	General description of the LHC optics
15.35	A. Verdier	New dispersion suppressor design
15.55	S. Weisz	Optimization of the high-luminosity experimental insertion
16.30	L. Walckiers	Magnet errors
17.15	F. Schmidt	Dynamic aperture

Tuesday 12 November

09.00	J. Miles	Beam-beam effects
09.30	T.M. Taylor	Interaction region: machine experiment interface, collimation
10.00	P. Lebrun	Cryogenics: current progress and forthcoming milestones
10.30	L. Taviani	Cryogenic transients: cool-down, warm-up and quench recovery
11.15	T. Taylor	High-Tc current leads
11.40	N. Siegel	Magnets, the 1 m model programme
12.10	A. Ijspeert	Magnets, the hardware for the corrector magnets
14.00	A. Mathewson	Vacuum system status report
14.35	L. Coull	Failure mode analysis of the quench protection system
15.10	P. Proudlock	Report from the Working Group on Dynamic Effects
15.55	P. Faugeras	Planning update

Pour de plus amples informations, prière de consulter
For full information on these seminars, please see
<http://wwwas.cern.ch/Bulletin/Seminars/current.html>

Tuesday 12 November

TECHNICAL PRESENTATION

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

Systematic software process improvement for improving quality and productivity

by Anton G. BRANZ / Q-Labs Software Engineering GmbH

Q-Labs is a consultancy company in the software engineering field and comprises one of the most prominent groups of experts within the fields of Software Process Improvement, Software Quality Methods, and Systems Analysis. As "technology connectors" we are dedicated to participate in the development within both research and industry, and to provide the bridge between the two communities. Q-Labs is located in Sweden (Lund), Germany (Kaiserslautern), and the USA (College Park, Maryland). The presentation will give an insight into and examples of Q-Labs experiences and knowledge in the following areas:

•Systematic Process Improvement.

Systematic process improvement focuses on organizations to encourage, manage and execute evolutionary process improvement programmes based upon experience data (measurements), to perform software development based upon experiences from previous projects and to achieve efficient technology transfer based upon experiences from experiments.

•Cleanroom Software Engineering.

Cleanroom focuses on the prevention of defects in contrast to other software processes which accept defects as 'unavoidable' and then expend considerable effort in defect removal (e.g., in-house testing, long term maintenance after delivery).

•Reuse.

Software reuse will be one of the major sources of saving in software development over the next 15-20 years. By reusing systems or system parts already developed, an organization enhances its possibilities to both improve the productivity and the quality of the produced software.

Organiser : S. Cannon / CN / 75036

Wednesday 13 November

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

Neutrino oscillations and velocities of pulsars

by Alexander KUSENKO / CERN

Neutrino oscillations, biased by the magnetic field, may result in anisotropy of the momentum of neutrinos emitted from a cooling neutron star following a supernova. This effect can explain the observed rapid motions of pulsars. The connection between the pulsars' velocities and neutrino oscillations yields a prediction for the neutrino mass, thus providing a new astrophysical "laboratory" for neutrino physics.

Wednesday 13 November

COMPUTING COLLOQUIUM

at 16.00 hrs – Auditorium

Applying Object-Oriented Software Engineering at the BaBar Collaboration

by Bob JACOBSEN / UC Berkeley

The BaBar experiment at SLAC will start taking data in 1998. We are attempting to build its reconstruction software using good software engineering practices, including the use of object oriented technology. This talk will summarize our experience to date with analysis and design activities, training, CASE and documentation tools, C++ programming practice and similar topics. The emphasis will be on the practical issues of simultaneously introducing new techniques to a large collaboration while being under a deadline for system delivery.

About the Speaker:

Bob Jacobsen received a B Sc in computer engineering from MIT in 1978. He was a founder and Director of Development for ICCI, a startup company that built data communications processors. After merging with MICOM Systems, Bob was the Director of their Cambridge Development Center. He left industry for graduate school in high energy physics in 1986. He worked at SLAC on the SLC collider and Mark II detector, receiving the Ph D from Stanford University in 1991. He then moved to CERN as a research associate and CERN staff member on the ALEPH experiment. Since 1995, he has been on the faculty of the University of California at Berkeley, where he has been working on the reconstruction software for the BaBar CP violation experiment.

Thursday 14 November

SL SEMINAR

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

SPS Secondary Beams and the Physics Programme

by Konrad ELSENER / CERN

The SPS is running with 450 GeV/c protons for fixed target physics during 6 months and with 158 GeV/c/Nucleon lead ions during 6 weeks per year. In this seminar, after a glance at the physics programme of the SPS, a few experiments and their relevance to particle/nuclear physics are described.

Emphasis is given to the lead ion programme currently under way: First hints at the formation of a new state of matter, the "quark-gluon plasma", found in the 1995 ion run, will be discussed.

A small, personal selection of experiments running during the proton periods is presented, and an outlook to the possible future of the proton physics programme is given. The gigantic test and calibration efforts under way in preparation of LHC experiments, also taking data in the SPS experimental areas, are briefly discussed. In this context, a description is given of the particle beams requested by these users - from the highest energy electron/positron beams at CERN, 300 GeV/c, to demands for pion energy scans from 5 to 400 GeV/c.

(This seminar is intended as an introductory lecture and is therefore not aimed at experts in high energy physics.)

* *Coffee and tea will be served at 15.30 hrs in front of the auditorium*

Friday 15 November

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room

A-dependences of hard processes in QCD

by Yu SHABELSKI / Petersburg Nuclear Physics Institute

The cross-sections of Drell-Yan and heavy flavour pair production on nuclear targets are considered, taking into account the difference of parton distributions in bound and free nucleons. If a cross-section is proportional to A^α , the value of α differs from a trivial value $\alpha = 1$ and is a real function of the initial energy and Feynman-x of the pair.

Monday 18 November

TECHNICAL SEMINAR

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

A custom floating point format for LHC calorimetry

by Valérie HARMEL / LAPP Annecy

Due to their large dynamic range (in excess of 16 bits) signals from LHC calorimeters pose severe problems to the shaping and digitizing circuits. We are investigating a solution for an ADC based on a custom floating point format. Since the calorimeter precision is limited, the full dynamic range can be split into 8 positive subranges and 5 negative ones, each with an 8 bit dynamic. The reduced number of bits (8 for the mantissa, 4 for the exponent and 1 for the sign) translates itself into a reduction of the power consumption both of the ADC and of the following digital filtering stages.

The architecture of the ADC and its implementation on silicon will be given together with results from simulation and some actual measurements.

Monday 18 November

PPE SEMINAR

at 16.30 hrs – Auditorium

Recent results on Top physics with CDF

by Marcus HOHLMANN / University of Chicago

Mardi 19 novembre

PRÉSENTATION TECHNIQUE

09.00 à 17.00 hrs – Salle de conférence bât. 13/3-005

Nouvelles applications du Bus COMPACT PCI

par L. BERNARD / GESPAC SA (CH)

Une conférence "embarquez le PCI dans l'industrie" sera donnée de 14h00 à 15h00 par M. Rémy David sur les *nouvelles applications du Bus COMPACT PCI* dans les calculateurs embarqués.

Langue : français, anglais

Information : L.Abel/FI-A / 79561

Thursday 21 November

LHC SEMINAR

at 16.00 hrs – LHC Auditorium, bldg. 30 (7th fl.)

LHC Prototype Dipole Cryostats

by Lloyd WILLIAMS / CERN-LHC

Friday 22 November

COMPUTING COLLOQUIUM

at 14.00 hrs – Auditorium

**Scaling CMOS for High-Performance Processors
The next Ten Years**

by Robert H. Dennard / IBM Watson Research Center

Vendredi 22 Novembre

SEMINAIRE POUR LES GUIDES DU CERN

à 16.00 h – Amphithéâtre

Accélérateurs de haute énergie en médecine

par Pierre MANDRILLON / Laboratoire du Cyclotron,
Centre A. Lacassagne, Nice

FOR INFORMATION / POUR INFORMATION

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Wednesday 13 November

PARTICLE PHYSICS SEMINAR

at 17.00 hrs – Stuckelberg Auditorium

**Measurement of the left-right $Zb\bar{b}$
coupling Asymmetry using Jet Charge at SLD**

by THOMAS JUNK/CERN

The parity-violating parameter A_b , the asymmetry between the left- and right-handed couplings of the b quark to the Z^0 boson, has been measured by analyzing the polarized forward-backward asymmetry of b quarks in $e^+e^- \rightarrow Z^0 \rightarrow b\bar{b}$. Data were taken at the Stanford Linear Accelerator Center (SLAC), with the Stanford Large Detector (SLD), which records the products of e^+e^- interactions at a center of mass energy $\sqrt{s} = 91.2$ GeV/ c^2 at the SLAC Linear Collider (SLC). The SLD/SLD experimental apparatus provides a unique and ideal environment for measuring electroweak asymmetries. Heavy flavor decays of the Z^0 were identified inclusively by taking advantage of the long lifetime of B hadrons, the small, stable SLD beam spot, and SLD's precise tracking detectors. The sign of the flight direction of the b quark in tagged events was determined using a momentum-weighted jet charge variable, in which the efficiency of correctly signing events was extracted from the momentum-weighted charge in the two hemispheres of each event. From the 1994–1995 sample of 3.6 pb $^{-1}$, having a luminosity-weighted average e^- polarization of 77.2 %, and the 1993 sample of 1.8 pb $^{-1}$, having a luminosity-weighted polarization of 63.1 %, the asymmetry parameter obtained is $A_b = 0.843 \pm 0.046(\text{stat}) \pm 0.051(\text{syst})$.

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**SCIENCE POUR TOUS
par Rafel Carreras**

Jeudi 14 novembre
à 13h.00 – Amphithéâtre

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Information about lectures on WWW:
<http://www.cern.ch/Training/>

**LECTURE SERIES FOR
POSTGRADUATE STUDENTS**

11, 12, 13, 14 & 15 November

11.00 to 12.00 hrs – Auditorium

Quantum Chromodynamics

by M. NEUBERT / CERN-TH

Quantum chromodynamics (QCD) is the fundamental theory of the strong interactions. It is a local, non-abelian gauge theory describing the interactions between quarks and gluons, the constituents of hadrons. In these lectures, the basic concepts and phenomena of this theory will be introduced in a pedagogical way. Topics will include : asymptotically free partons, colour and confinement; non-abelian gauge invariance and quantization; the running coupling constant; deep-inelastic scattering and scaling violations; the operator product expansion; chiral and heavy-quark symmetries. Some elementary knowledge of field theory, abelian gauge invariance and Feynman diagrams will be helpful in following the course.