



SEMINARS SEMINAIRES

Monday 22 May

EF SEMINAR

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

Fast RICH with VLSI electronics

by François PIUZ / CERN-EF

Beside a successful application in the field of solid state devices, VLSI front-end electronics associated to wire chambers activates the development of large area two-dimensional detection. An illustration is given with a RICH counter where the UV photon localization is achieved at a segmented cathode of a thin MWPC. Radiator and window are made of Calcium (Sodium) Fluoride, that allows an operation with TEA at atmospheric pressure without 'cloisonning'. Cathode pads are equipped with VLSI C-Mos circuits, AMPLEX, and a fast analog-multiplexed read out. These first results and a survey of some present developments in microelectronics and detectors open a discussion about further applications, such as fast RICH, high resolution pad chamber. Fast timing performance from the detection of single electrons and gas amplification will also be mentioned.

Monday 22 May

EP SEMINAR

at 16.30 hrs – Auditorium

New results on central meson production in WA76 and observation of the $\Theta/f_2(1720)$

by A. PALANO / Dipartimento di Fisica and Sezione INFN, Bari

New results are presented on the study of mesonic states X^0 produced centrally in the reaction $pp \rightarrow pX^0p$ at 300 GeV/c, with some emphasis on those states which are candidates for being glueballs. The results come from experiment WA76 at the CERN Omega Spectrometer. Evidence is found for the $f_1(1420)$, whose quantum numbers have been measured in the $K_s^0 K \pi$ decay mode. No evidence for an $\eta \pi^+ \pi^-$ decay mode is seen. The S^ problem has been studied in the $\pi^+ \pi^-$ and $\pi^0 \pi^0$ channels.*

Evidence is found, for the first time in hadron collisions, for the gluonium candidate $\Theta/f_2(1720)$ in the $K^+ K^-$ and $K_s^0 K_s^0$ decay modes, and its spin parity has been measured. Indications for new states are seen in the $2\pi^+ 2\pi^-$ channels.

Mardi 23 mai

PRESENTATION TECHNIQUE

de 09.30 à 12.00 h et de 14.00 à 17.00 h
Amphithéâtre LEP, bât. 30, 7e étage

Gould Elektronik AG (CH) propose en exposition démonstration

1. Instrumentation (GB, USA)

oscilloscopes, oscilloscopes à mémoire numérique, oscilloscopes 'intelligent' 100 MHz à mémoire numérique, analyseurs logique.

2. Enregistreurs graphiques (F, GB, USA)

enregistreurs multipistes Yt, traceurs XY analogiques et numériques (Plotter), enregistreurs OEM Yt et XY, préamplificateurs universels, enregistreurs magnétiques portables

3. Nouvelle génération des systèmes d'analyse logique et systèmes de tests d'ASIC

Les applications du système d'analyse logique CLAS 4000 sont principalement liées aux développements avec microprocesseurs 32 bits, CISC, RISC (88000, SPARC, Transputer, etc.) et bus rapides. Le système d'analyse d'ASIC est prévu pour l'ingénieur de développement amené à tester ses développements de manière fonctionnelle et facile.

Langues : allemand, anglais, français

Renseignements : M. Diraison / FI / 4585

Mercredi 24 mai

PRESENTATION TECHNIQUE

de 09.00 à 12.00 h et de 14.00 à 17.00 h
bât. 6, salle 2-002

Vérélec SA (F), spécialisé dans les composants pour le vide et l'ultra-vide, la soudure verre-métal et la brasure alumine-métal, expose :

1. Passages électriques

passages 50 Ohms verre-métal étuvables à 400°C, passages de courant A12 03-kovar-cuivre, connecteurs BTJ compatibles Jaeger 6 et 19 broches, passages multibroches pour photomultiplicateur, supports filaments pour générateur à rayons X, connecteurs triaxiaux en A12 03 et titane, isolateurs pour la fusion thermonucléaire contrôlée, isolateur situé entre 2 brides, entretoise A12 03-inox

2. Passage de lumière

hublots niveau zéro, hublots saphir double, hublots quartz amagnétiques

3. Passages de fluides

raccords rigides et souples, raccordements vide et ultra-vide

Remarque importante

En dehors de ces produits sur catalogue, Vérélec étudie toute demande pour prototype, moyenne et grande série sur tout matériau.

Langues : anglais, français

Renseignements : M. Diraison / FI / 4585

Mercredi 24 mai

PRESENTATION TECHNIQUE

de 09.30 à 12.00 h et de 14.00 à 16.30 h

Salle de conférence EF, bât. 13, salle 2-005

Thomson Hybrides (F) : hybridation des fonctions électroniques

- 09.30 à 12.00 h – filières technologiques : couche épaisse, multicouche épaisse, coccuit basse température – couche mince, multicouche mince – puissance – filière composants à montage de surface – filière puces
- 14.00 à 16.30 h – applications circuits ‘analogique’ (domaine de précision / stabilité plus ou moins $2 \cdot 10^{-4}$) – circuits ‘numérique’ (très haute intégration) – circuits ‘puissance’ (forte puissance).
- Méthodologie et moyens de traitement des projets d'intégration suivant les contraintes imposées – solutions technico-économiques optimisées.

Langues : français, anglais selon auditoire

Renseignements : M. Diraison / FI / 4585

Wednesday 24 May

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

Modular invariance in supersymmetric field theories

by D. LÜST / CERN

The spectrum of the closed string, when compactified on a circle of radius R , is invariant under the discrete duality transformation $R \rightarrow 1/2R$. An extension of this duality transformation is given by the modular transformations $SL(2, \mathbb{Z})$ acting on a complex background scalar field which appears in

more general compactification schemes. We show how the requirement of duality (i.e. modular) invariance of the string-induced supergravity action restricts the Kähler potential and the superpotential and connects them to the theory of modular forms.

Wednesday 24 May

DD SEMINAR

at 16.00 hrs – DD Auditorium

bldg 31/3-005

A high-speed data acquisition and off-line reconstruction system

by Don SUMMERS / FERMILAB

An innovative Data Acquisition system is being built for Experiment 791 (TPL) at Fermilab to find large numbers of heavy quarks. New digitizers under construction include 20 microsecond TDCs, ADCs and Silicon Microstrip Scanners. Events fragments are stored in large FIFOs to smooth the spill structure. Event building proceeds continuously in several parallel VME crates. Assembled events are then written to a wall of very high-density tape drives at a continuous speed of over 8 Megabytes/second. By ‘buffering’ terabytes of data to tape, off-line filtering and reconstruction may proceed year-round on large farms of UNIX-based RISC processors. Progress by the Fermilab ACP group on MIPS R3000 processors will be outlined. A number of commercial RISC computers at various production stages will also be discussed.

Thursday 25 May

CERN COLLOQUIUM

at 16.30 hrs – Auditorium*

Magnetoencephalography – a non-invasive method of experimental brain research

by O. V. LOUNASMAA / Helsinki University of Technology

Transfer of information from one neuron to another in the brain involves electric currents : when thousands of neighbouring nerve cells act in concert they produce weak (about 100 fT) magnetic fields than can be measured non-invasively outside the skull. The magnetic field detector used is the Superconducting Quantum Interference Device (SQUID). This talk gives a brief overview of the neuromagnetic technique and describes several of the current MEG experiments in our Laboratory, where a very sensitive 7-channel SQUID magnetometer is in operation and a 24-channel device is being put to use. With instruments of this type, rapid advances are possible in the use of MEG to investigate the dynamics of the brain function. These studies will elucidate signal processing in the brain, the memory function, and they will also lead to general clinical applications.

* Tea & coffee will be served at 16.00 hrs.

Friday 26 May

ISOLDE SEMINAR

at 11.00 hrs – Council Chamber

Evidence for octupole deformation in nuclei

by R.K. SHELINE / Florida State University

New experimental and theoretical evidence has recently revived the possibility of intrinsic reflection asymmetry in limited regions of actinide and rare earth nuclei. This evidence will be discussed with special emphasis on odd-odd nuclei and on the coexistence of reflection asymmetry and reflection symmetry in the same nucleus. The different symmetry involved in octupole shapes implies that nuclear models and their corresponding theories are tested in different ways. The question of octupole deformation versus octupole vibration will be briefly discussed.

Friday 26 May

SPS SEMINAR

at 11.00 hrs – SPS Auditorium

Self-consistent beam beam model

by M. FURMAN / SSC-CDG

A simple but self-consistent model for the beam beam interaction is presented and studied analytically. The beam sizes are determined dynamically, as in Hirata's model. There are stationary solutions with equal or unequal beams ('flip-flop' solutions) and also solutions in which the beams change in size from turn to turn in a determined way, corresponding to higher-order fixed points of the map. A brief discussion of results for asymmetric colliders is also presented.

Friday 26 May

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

Some important topics in low-energy $\bar{p}$ physics and their relation to experiments at LEAR

by I. SHAPIRO / Lebedev Institute

Puzzles associated with the angular distribution and polarization in $p\bar{p} \rightarrow \Lambda\bar{\Lambda}$ at low momenta will be discussed, as well as $p\bar{p} \rightarrow p\bar{p}$ and $n\bar{n}$. Hermitian and optical models will be contrasted.

Friday 26 May

SCHOPPER FEST

Programme :

10.30 LEP tunnel. Placing of the last LEP magnet (invited guests only)

14.30 Main Auditorium (chairman : V. Soergel)

C. Rubbia

Welcome address

Sir Hermann Bondi *The political rôle of scientific projects : Europe and beyond*

D. Wegener *Particle physics : from table top to factory*

Tea and coffee (Salle des pas perdus)

Nigel Calder *Big science and the man in the street*

17.15 End

Sir Hermann Bondi, KCB, FRS, Master of Churchill College, Cambridge, has been a prominent figure in shaping the UK's science policy for two decades.

D. Wegener, Professor of physics at Dortmund University, now working on the ARGUS experiment at DESY, started his career as a student of H. Schopper.

Nigel Calder is a well known science writer and author of a number of TV programmes and books.

Monday 29 May

EF SEMINAR

at 11.00 hrs – EF Conference Room
bldg 13, 3-005

Architectural design of a new VLSI FASTBUS integrated master

by Alessandro MARCHIORO / CERN-EF

The performance and flexibility of the present generation of Fastbus master modules can be greatly enhanced by using VLSI technology for the integration of such modules. We will describe architectural aspects and design trade-offs involved in building a new high performance VLSI coprocessor for a RISC cpu. The system design and integration aspects will be covered, with results on the preferred architecture. The design methodology used will also be discussed with emphasis on the simulation aspects and top-down approach to the system integration. The trade-offs involved in a future single chip, fully integrated design, where the FASTBUS master port is merged with the integer unit core and native FASTBUS instruction are added to the instruction set, will be discussed.

Monday 29 May

PROTON SYNCHROTRON AND SYNCHRO-CYCLOTRON COMMITTEE

Open session

at 14.00 hrs – Auditorium

1. Potential move of ISOLDE to PS Booster
 - machine aspects (B. Allardyce)
 - experimental aspects (H. Ravn).

2. Status report on experiment PS 200 – A measurement of the gravitational acceleration of the antiproton (Los Alamos Nat. Lab. - NASA Ames Research Center - Rice University - Texas A&M University; M.H. Holzschneider).

3. *Progress report on Expt. PS 196 – Precision comparison of $\bar{p}$ and p masses in a Penning Trap (Harvard - Mainz - Washington - Fermilab; G. Gabrielse).*
4. *Proposal : ISOL technique for nuclear medicine (CERN - Dresden - Jena; PSCC/89-17/P119; 89-18/S119; G.J. Beyer).*
5. *Progress report and beam time request for Proposal P108 – Measurements of wake-riding electrons in antiproton-carbon-foil collisions (Tokyo - Aarhus - CERN; PSCC/88-32/P108 Add. 1; PSCC/89-6/P108 Add. 2; Y. Yamazaki).*
6. *Proposal : High resolution spectroscopy of X-rays from antiprotonic hydrogen and helium isotopes using a crystal spectrometer (Jülich - PSI Villigen - Aarhus - Islamabad - Mississippi; PSCC/89-11/P117; 89-12/S117; D. Gotta).*
7. *The Canadian KAON Factory at TRIUMF – A brief report on the project (A. Astbury, Univ. of Victoria).*

Closed session

Tuesday 30 May at 09.00 hrs in the 6th floor
Conference Room, Main Building

Tuesday 30 May

TECHNICAL PRESENTATION

at 09.00 hrs – bldg 6, 2-004

Daisy Systems AG (CH) Seminar on CAE-Systems of Daisy Cadnetix (USA)

Thursday 1 June

ISOLDE COMMITTEE

Open session

Thursday 1 June at 13.00 hrs
in the DD Auditorium, bldg 31-3-005

1. *Introductory remarks (B. Jonson)*
2. *ISOLDE operation in 1989 (G. Weyer)*
3. *Report on target tests (H. Ravn)*
4. *Potential move of ISOLDE to the PS-Booster*
a) *Machine aspects (B.W. Allardyce)*
b) *Experimental aspects (H. Ravn)*
5. *Status Report IS120 and Proposal : The determination of static nuclear moments and other nuclear structure parameters at NICOLE (Bonn - CERN - Daresbury - Delft - Gent - Louvain - Lyon - München - Orsay - Oxford - Paris - Strasbourg; IP-60; N. Stone)*
6. *Proposal : Fabrication of a ^{22}Na target (CERN - Münster - Bochum - Caltech; IP-59; C. Rolfs)*
7. *Proposal : Complete beta-delayed one- and two proton emission study of ^{22}Al (Berkeley - Jyväskylä - Bonn - Manchester; IP-58; D.M. Moltz)*
8. *Status Report IS01-26 and Proposal : Determination of quadrupole deformation of neutron-rich $A \approx 100$ nuclei (Mainz - Gent - Zagreb; IP-62; G. Lhersonneau)*
9. *Proposal : Measurement of the quadrupole moment of the exotic ^{11}Li nucleus (Mainz - Marburg - CERN; IP-61; E. Arnold)*
10. *Status Report IS01-32 and Proposal: Microscopical studies of structural and electronic properties of semiconductors (Konstanz - Erlangen; IP- 56 Add. 1; M. Deicher)*
11. *Status Report : PAC spectrometer for ISOLDE (T. Butz)*
12. *Any other business*

Closed session

Friday 2 June at 08.30 hrs
in the DG Conference Room, bldg 60, 6th floor

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22, 23, 24 May

11.00 to 12.00 hrs – Auditorium

Major mathematical achievements of recent years

by R. F. CHURCHHOUSE / Department of
Computing Mathematics, University of Wales,
College of Cardiff

Lectures 1 to 3