

SEMINARS SEMINAIRES

Monday 13 March

DETECTOR SEMINAR

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

VMEbus Extensions for Physics

by Chris PARKMAN / CERN-ECP

In recent years a serious attempt has been made to improve and complement the basic VMEbus specification to bring it up to date and to assure its place in the market into the next millennium. The existing specification (IEEE1014-1987) will soon be superseded by a major revision (VITA-1, "VME64") with further developments ("VME64 Extensions") already under very active discussion. Last year the CERN VMEbus Steering Committee began work on the formulation of a set of recommended practices for HEP applications and to propose further extensions.

In March 1994 the VSC held a one day workshop to launch the activity, and has since entered into discussion with the VITA Standards Organisation, the patron of the VMEbus standard, with other institutes and industry in Europe under the ESONE banner, and in North America with the recently formed NIM VME-P committee. This collaboration has been confirmed with the creation of the VMEbus International Physics Association - VIPA. More recently, on 13 and 14 February of this year, the VSC held a well attended, open meeting at CERN, where the position of European users and industry to the current proposals was formulated.

The seminar will cover the background to VMEbus extensions as well as the status of the discussions.

Monday 13 March

PPE SEMINAR

at 16.30 hrs – Auditorium

The Search for Supersymmetry with D0

by Marc PATERNO / University of Rochester

We report on the current status of the searches for supersymmetry undertaken with the D0 detector at the Fermilab Tevatron ppbar collider. We present the results of two searches, using data collected during the 1992-1993 run of the Tevatron: a search for squarks and gluino in the missing Et + jets channel, and a search for charginos and neutralinos in the trilepton channel.

Tuesday 14 March

TECHNICAL PRESENTATION

at 10.00 hrs – CN Auditorium, bldg 31/3-005

Digital Signal Processors : applications

by Loughborough Sound Images PLC

Loughborough Sound Images (LSI) PLC provides a wide range of hardware and software solutions for digital-signal processor (DSP) applications. VMEbus and PC compatible products are available.

Covering both the hardware and software aspects of system integration, the presentation will show how the close coupling of the two allows system design engineers to quickly and efficiently implement their DSP based solutions. The proposed agenda is as follows:

- Introduction
- DSP processor roadmap and features (Texas Instruments and Analog Devices)
- PC and VMEbus development and OEM systems
- Image processing and multi-media solutions
- Software development tools
- New DSP silicon and application in future LSI products

Organiser : S. Cannon / CN / 5036

Tuesday 14 March

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium*

Observation of the Top Quark

by B. WINER / University of Rochester

In April of 1994, CDF presented direct evidence for the existence of the top quark. Employing techniques similar to those we previously published, we observe a signal consistent with tt-bar decay to WWbb, but inconsistent with the background prediction. By reconstructing the candidate events as tt-bar, we find a peak in the mass distribution. We measure the top quark mass to be $176 \pm 8(\text{stat}) \pm 10(\text{sys})$ GeV/c² and a production cross section of $6.8 \pm 3.6 \pm 2.4$ pb.

* Tea & coffee will be served at 16.00 hrs.

Wednesday 15 March

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

Gauge-invariant effective action for high-energy scattering in QCD

by Lev LIPATOV / St. Petersburg

The production amplitudes for a quasi-multi-Regge kinematics of the final state particles are constructed in accordance with the Feynman rules including, apart from the usual Yang-Mills vertices, also an infinite number of effective vertices corresponding to the interaction of usual quarks and gluons with the reggeized gluons. The non-linear gauge-invariant effective action reproducing these vertices is constructed in terms of the Wilson contour integrals. The approach is generalized to the case of quantum gravity.

Wednesday 15 March

COMPUTING SEMINAR

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

GOLEM, a language (and a program) for writing (and checking) mathematical proofs

by Ettore REMIDDI

Golem is a language for writing mathematical proofs. It is hoped to be not too different from the usual human language, to allow human reading; but it is also sufficiently not ambiguous, so that it can be read and automatically checked by a suitable program (called also Golem). The user is requested to write axioms and theorems with their proofs as paragraphs of an input file, which is then processed (checked) by the program. The proofs are carried out by referring to the previous

paragraphs already accepted. The structure is rather open. It is left to the user to introduce the desired axioms, as well to decide whether a given paragraph is an axiom or a theorem. The program is also able to check proofs by induction (Peano like) or by absurd.

A few examples, mostly concerning elementary properties of the integers, will be illustrated.

Thursday 16 March

COMPUTER PRESENTATION

09.30-12.30 hrs & 14.00-17.00 hrs

CN Auditorium, bldg 31/3-005

Omega, a 16-bit extension of the TeX System

by John PLAICE / Université de Laval, Québec, Canada, Yannis HARALAMBOUS / Université de Lille, France & Michel GOOSSENS / CERN

Omega, the first generally available extended version of TeX, will be presented to the world on March 16th at CERN. Omega is an significant upgrade of TeX, using 16-bit data types, multiple character sets, and programmable translation filters. It is based upon the universal 16-bit Unicode ISO 10646 standards and it improves TeX's multilingual abilities by allowing TeX users to cope with multiple or complex languages, like Arab, Hebrew, Greek, Russian, Chinese, or Japanese. It can also form the basis for future developments in other areas, such as native color support and hypertext features. The presentation will give a general introduction to the Omega system, and present several examples of high quality typography in many of the above languages. At the end of the day a round-table discussion will allow the participants to provide input to the Omega team.

Friday 17 March

MICROPROCESSOR USERS MEETING

at 10.00 hrs – CN Auditorium, bldg 31/3-005

The programme is as follows :

1. "Power to the People", Use of the Power-PC with Lynx-OS for accelerator controls
(Marc Vanden Eynden / SL)
2. "Raindrops Keep Falling..", CASCADE: the data acquisition system using OS-9 or Lynx-OS
(Yves Perrin / ECP)
3. "Heavy-Metal", NA49's data-acquisition system using OS-9 for lead-ion collisions
(Eric Schaefer / PPE)
4. "What's New Pussy-Cat..", Updates on OS-9 and Lynx-OS
(Julian Blake / CN & Douglas Kemp / CN)

Information : Douglas Kemp / CN

Friday 17 March

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room

QCD corrections to the Higgs decays into massive bottom quarks : methods and results

by K.G. CHETYRKIN / Institute for Nuclear Research, Moscow & Univ. Karlsruhe, Germany

We review available methods for studying light/heavy quark mass effects in higher orders of perturbation theory. As a practical example we discuss quark mass effects in the total

hadronic and the partial decays of a scalar or pseudoscalar Higgs boson into bottom quarks. The flavour singlet contribution containing two closed fermion loops is calculated for a non-vanishing bottom mass in the heavy top limit. Its leading contribution is of the same order as the quasi-massless non-singlet corrections and has been neglected in the literature so far. Additional subleading terms are also calculated. We find large logarithms arising due to the separation of the pure gluon final state from the bottom final states and discuss the way of their summation.

Thursday 23 March

LHCC REVIEW BOARDS (LCRB, LDRB, LERB)

Open session

at 09.00 hrs – Council Chamber

09.00-09.30 RD29 Status Report : DMILL – A mixed analog-digital radiation hard technology for high energy physics electronics (CEA DSM DAPNIA Saclay–CEA DTA LETI Grenoble–CEA Bruyères le Châtel–Thomson TCS Grenoble–IN2P3 : CPP Marseille & LAL Orsay; LHCC 95-13/LERB Status Report/RD29; M. Dentan).

09.30-10.00 RD31 Status Report: NEBULAS- High performance data-driven event- building architectures based on an asynchronous self-routing packet-switching networks (CERN–CEA DSM DAPNIA Saclay–Massachusetts Institute of Technology–Institute of Radiation Sciences Uppsala–KTH Stockholm–Alcatel Bell Telephone Antwerp–Hewlett Packard Geneva; LHCC 95-14/LCRB Status Report/RD31; J.-P. Dufey).

10.00-10.30 RD38 Status Report: CICERO – Control information system concepts based on encapsulated real-time objects (BARC Bombay–CERN–CIEMAT Madrid–IVO International Helsinki–KFKI Budapest–OBLOG Lisboa–SEFT Helsinki–SPACEBEL Brussels–User Interface Design AB Linköping–USDATA Brussels–Bristol–Valmet Automation Tampere–VTT Oulu; LHCC 95-15/LCRB Status Report/RD38; J.M. Le Goff).

10.30-11.00 Proposal: High resolution tracking devices based on capillaries filled with liquid scintillator (NIKHEF–Anada–Humboldt Univ. Berlin–IIHE [ULB-VUB] Brussels–JINR Dubna–CERN–Technion Haifa–Westf. Wilhelms Univ. Münster–Univ. "Federico II" & INFN Napoli–IHEP Protvino–Univ. "La Sapienza" & INFN Rome; LHCC 95-7/P60 LDRB; G. Martellotti).

Friday 24 March

CERN COMPUTING COLLOQUIUM

at 16.00 hrs – Auditorium

Creating the American National Information Infrastructure – The Interaction of Science, Technology, Business, Legislation and Politics

by Robert E. KAHN / President, Corporation for National Research Initiatives, Washington D.C.

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Wednesday 15 March

SEMINAR ON PARTICLE PHYSICS

at 17.00 hrs – Stückelberg Auditorium

Diffractive Processes in ep Collisions at HERA

by Nikolaj PAVEL / Institute of Experimental Physics,
Hamburg University

A new class of events has been identified in deep inelastic ep collisions at HERA, which is characterized by a large rapidity gap between the proton beam direction and the observed hadronic final state. The characteristics of these events at high 4-momentum transfer Q^2 are suggestive for diffractive scattering. Diffractive scattering has been extensively studied in hadron-hadron collision and photoproduction (γp) events. At HERA however diffractive scattering can be studied not only in γp events at much higher values of the γp c.m.s. energy, but for the first time also in deep inelastic scattering. Recent results from both HERA experiments will be presented and discussed in the context of the different models for diffractive scattering. The plans for future analyses at the HERA experiments will be also briefly described.

EDUCATION SERVICES EDUCATIFS

ACADEMIC TRAINING

Tel. 3127

LECTURE SERIES

13, 14, 15, 16 & 17 March

11.00 to 12.00 hrs – Auditorium

New detector techniques

by E. IAROCCHI / INFN, Frascati, Italy

The lectures will concentrate on the particle detectors which are under development for LHC. Many of them feature enough conceptual simplicity so to be useful examples to introduce the basic principles of the various detector types.

The main detector areas will be covered as follows :

1. Detectors of ionization charge, in liquids gases, and solids. These mostly cover the tracking devices. The emphasis will be on the operation of the detector elements.
2. Calorimeters based on liquids and scintillators. Here the emphasis will be on the subsystem aspects.

20, 21 & 22 March

11.00 to 12.00 hrs – Auditorium

Physics and Archaeology

by M. AITKEN / Oxford University, Oxford, UK

ENSEIGNEMENT GÉNÉRAL

Tél. 5811

Jeudi 16 mars

à 13.00 h – Amphithéâtre

Science pour tous

par Rafel CARRERAS

Jeudi 16 mars

PERMANENCE BUREAUTIQUE

Bâtiment 864, salle Adams

Dès 09.00 h. – **Atelier Word 6**

Vous pouvez poser vos questions par courrier électronique à

Valerie_Huret@adminmail1