

SEMINARS SEMINAIRES

Monday 6 February

PPE SEMINAR

at 16.30 hrs – Auditorium

Observations of π -B charge-flavor correlations and resonant $B\pi$ and BK production

by Bob KOWALEWSKI / CERN-PPE

Evidence will be presented for kinematic and charge correlations of B mesons with charged pions and kaons. Using a new technique, a sample of over 80,000 partially reconstructed B mesons is obtained in 3.5×10^6 hadronic Z^0 decays recorded using the OPAL detector at LEP. The invariant mass distributions of $B^+\pi^-$ and B^+K^- combinations show enhancements consistent with the decays of P-wave resonances of a b antiquark and a light quark. We observe an excess of $1,738 \pm 195$ $B^+\pi^-$ pairs with invariant masses in the range 5.60-5.85 GeV and an excess of 149 ± 31 B^+K^- pairs with invariant masses in the range 5.80-6.00 GeV. From a study of π^- -B charge-flavor correlations we conclude that the production flavor of a B meson can be tagged with the charge of a pion in an appropriately chosen kinematic region, and that the performance of this flavor tag compares favorably in Z^0 decays with lepton-based tags.

Tuesday 7 February*

COMPUTING SEMINAR

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

Entering Spaceland

by Jean-Francis BALAGUER & Enrico GOBBETTI / CRS4, Italy

The desktop user-interface metaphor, a key feature of nowadays computers, starts to show limitations when interacting with 3D environments. Recently, several research programs on advanced concepts for human-machine interaction have gradually made it possible to develop applications in which the user directly manipulates aspects of 3D synthetic worlds, ideally without feeling the mediation of the computer. The goal is to create the illusion of a virtual reality by simulating operator presence in a remote or computer synthesized world. In this talk, we present this new user-interface paradigm and its application domains, discuss its perceptual and technological requirements, and present standard and advanced 3D interaction techniques. The talk concludes with a discussion of the research issues related to the construction of applications where all the interaction is done in three dimensions. In particular, an integrated environment to visually construct 3D animations and an application for navigation in 3D worlds will be used to illustrate the talk.

Jean-Francis Balaguer and Enrico Gobetti are 3D interaction consultants for the Center for Advanced Studies, Research and Development in Sardinia. They received their Ph.D. in computer science from the Swiss Federal Institute of Technology in Lausanne. Their research interests include 3D interaction, virtual reality and object-oriented graphics.

Organiser : D. Kemp / CN

* Please note unusual day

Wednesday 8 February

THEORETICAL SEMINAR

at 14.00 hrs - TH Conference Room

Bethe ansatz for the QCD pomeron

by Gregory KORCHEMSKY / Stony Brook

The goal of the talk is to report on the recent progress in understanding the pomeron from the viewpoint of QCD. The pomeron structure naturally appears in QCD as a result of the calculation of hadronic scattering amplitudes in the generalized leading logarithmic approximation. The "bare" gluons interact with each other to form a collective excitation, the Reggeon. The partial waves of the scattering amplitude satisfy the Bethe-Salpeter equation whose solutions describe the colour singlet compound states of Reggeons - pomeron, odderon and higher Reggeon states. We show that the QCD Hamiltonian for reggeized gluons coincides with the Hamiltonian of the XXX Heisenberg magnet of spin $s = 0$ and the spin operators are the generators of the conformal $SL(2,C)$ group. Using the Bethe ansatz solution of high-energy QCD, we investigate the properties of the Reggeon compound states which govern the Regge behaviour of the total hadron-hadron cross-sections and the small-x behaviour of the structure functions of deep inelastic scattering.

Thursday 9 February

CAS ACCELERATOR SEMINAR

at 14.30 hrs – AT Auditorium, bldg 30/7-018

What are accelerators good for in every day life?

by G. BRIANTI

An impression from the 13th International Conference on Applications of Accelerators in Research, Medicine and Industry (Nov. 7-10, 1994, Denton, Texas)

Accelerators and accelerator-based techniques are increasingly used for:

1. **Medical installations**
(Diagnostic and Therapeutic)
2. **Industrial processes** of various kinds

A review of the most important types of applications will be given, with particular emphasis on novelties and trends for the future. Concerning the medical applications mainly hadron therapy and synchrotron radiation diagnostics will be treated. Among the industrial processes attention will focus on modifications of materials and inspection.

Thursday 9 February

CERN COLLOQUIUM

at 16.30 hrs – Auditorium*

Hubble Space Telescope Images : From collisions with Jupiter to ancient clusters of galaxies

by A. KINNEY / Space Telescope Science Institute, Baltimore

The images from Hubble Space Telescope cover a wide range of astronomical phenomena, from the solar system, to distant, young clusters of galaxies. The collision of the comet Shoemaker-Levy with Jupiter was observed by HST, and provides a closeup view of the explosion and dispersal of a cataclysmic celestial event. Moving farther from Earth, deep

images of the starforming region in the Orion Nebula show proto-planetary disks which are of comparable size and mass to that of our solar system. The majority of the pre-Main Sequence stars in the Nebula show evidence of disks, implying that planetary systems may be an integral part of star formation. Observations of external galaxies are allowing astronomers to attack a number of important questions about galaxy formation, the size and age of the universe, and cosmology. High resolution images of the nuclei of galaxies reveal a surprising variety of structure, including double nuclei, spiral structure down to the smallest observable scales, and dusty circumnuclear disks. Powerful evidence for the existence of a black hole in the center of a nearby active galaxy is presented. Measurements of variable stars in a Virgo Cluster galaxy, M100, lead to a more accurate measurement of the Hubble constant than previously possible. And finally, images of clusters of galaxies taken at unprecedented distances lead to important new insights into galaxy formation, cluster formation, and eventually cosmology.

* Tea & coffee will be served at 16.00 hrs.

Friday 10 February

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room

QCD scaling violation at small x

by Keith ELLIS / CERN & Fermilab

We investigate the evolution of parton densities at small values of the momentum fraction, x , by including resummed anomalous dimensions in the renormalization group equations. The resummation takes into account the leading-logarithmic contributions $(\alpha_s \ln x)^k$ given by the BFKL equation and the next-to-leading-logarithmic corrections from quark evolution. We present numerical results for the parton densities and the deep inelastic structure function F_2 .

Monday 13 February

ISOLDE EXPERIMENTS COMMITTEE

at 14.00 hrs – Council Chamber

Open session

1. Introductory remarks by the Chairman.
2. Progress report by the Isolde Technical Group Leader.
3. Isolde Coordinator's report.
4. Enzymatic Mercury Detoxification: The regulatory protein MerR; ISC 95-1/P69; W. Tröger.
5. Meson-exchange enhancement of first-forbidden beta transitions in the lead region; ISC 95-2/P70; N. Severijns.
6. Speciation of aquatic heavy metals in humic substances by $^{111m}\text{Cd}/^{199m}\text{Hg}$ -TDPAC; ISC 95-3/P71; H. Kupsch.
7. b-NMR study on microscopic structure and diffusion behaviour of Li implanted into ZnSe; ISC 95-7/P67; B. Ittermann.
8. Request of additional beam time for IS318 (Surface and interface studies with radioactive ions); ISC 95-4/P29 Add.1; H.H. Bertschat.
9. Status report and request for beam time: (IS304: Measurement of nuclear moments and radii by collinear fast-beam laser spectroscopy); ISC 95-6/P9 Add.1; R. Neugart.
10. Status report and beam time request (IS302: High accuracy mass determination of unstable nuclei with a penning trap mass spectrometer); ISC/95-8 P6 Add.1; G. Bollen.

11. Status report: Hyperfine spectroscopy on unstable Eu^+ isotopes in an ion trap; ISC 95-10/P51 Add.1; G. Werth.

Closed session

after the Open Session, 6th Floor Conference Room,
Main Building, continuing on
Tuesday 14 February from 09.30 hrs, if necessary.

Tuesday 14 February

TECHNICAL PRESENTATION

at 10.30 hrs – CN Auditorium
bldg 31/3-005

O2, an ODMG compliant object database, and its W3 interface.

(Speaker to be announced)

Organiser : S. Cannon / CN / 5036

Wednesday 15 February

COMPUTING SEMINAR

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

Future Internet Protocols

by Ben SEGAL / CERN-CN

Organiser : D. Kemp / CN

Wednesday 15 February

ISOLDE SEMINAR

at 16.00 hrs – TH Conference Room, bldg 4

Exotic structures at the drip lines

by Karsten RIISAGER / Aarhus University

Thursday 16 February

CERN ASTROPHYSICS SEMINAR

at 16.30 hrs – Auditorium

"Gamma-Ray Bursts :

Twinkle brightly, gamma-star

For still we know not what you are"

by R. WIJERS / Institute of Astronomy, Cambridge, UK

COGNE MEETING OF THE SPS & LEAR COMMITTEE

Please note that the SPSLC meeting at Cogne/
Val d'Aosta, scheduled for 23 to 29 April has been
postponed.

It will now take place from

29 May to 3 June 1995.

The deadline for submitting documents is now
28 March 1995.

SPSLC Secretariat (tel. 4270)

E-mail: SPSC@CERNVM.CERN.CH

POUR INFORMATION / FOR INFORMATION

UNIVERSITY OF GENEVA
Particle Physics Department
24, quai Ernest-Ansermet
1211 Geneva 4
Tel. 022 702 6273
Fax 022 781 2192

Wednesday 8 February

SEMINAR ON PARTICLE PHYSICS

at 17.00 hrs – Stuckelberg Auditorium
**Measurement of CKM matrix elements and
meson decay constants with CLEO**

by Franz MUHEIM/DPNC, University of Geneva

The elements of the Cabibbo-Kobayashi-Maskawa (CKM) matrix are free parameters in the Standard Model and have to be measured experimentally. To have CP violation within this model all CKM elements have to be non-zero. I'll present the measurement of charmless semileptonic decays of B mesons which determines the CKM element V_{ub} and the measurement of the leptonic decays $D_s^+ \rightarrow \mu^+ \nu$ which determines the meson decay constant f_{D_s} . This measurement can be used to check calculations of f_B which in turn when combined with the measurement of $B\bar{B}$ mixing allows us to determine the CKM element V_{td} .

EDUCATION SERVICES EDUCATIFS

ACADEMIC TRAINING

Tel. 3127

LECTURE SERIES

6, 7, 8, 9 & 10 February

11.00 to 12.00 hrs – Auditorium

History of the XXth Century Physics

by S. KAPITZA / Academy of Sciences, Moscow, Russia

The meaning and message of the history of science will be discussed with relevance to XX century physics. This decisive period began in 1894-95 with the discoveries of the electron, X-rays and radioactivity, with the consequent development of relativity and quantum physics. Connections of the development of science and society in XX century with culture and the influence on industry will be examined. Finally, the corruption of physics by the military will be considered. The influence of physics on chemistry and biology will be briefly treated and the impact of the approach and method of physics on modern thinking will be assessed. It should be kept in mind that the history of science is not a way of getting a simplified or adulterated presentation of the subject, in this case of physics and so some understanding of general physics will be assumed. On the other hand, the broader generalisations of the history of ideas and events are to be illustrated (if not proven) by the facts (and myths) of science. Finally, as an exercise in a study of science and society, history of physics may lead to a better understanding of the present predicament of humankind, that is certainly now facing a decisive period of its development. That is why the whole subject as a chapter of history may be of some immediate, if not practical interest today.

13, 14, 15, 16 & 17 February

11.00 to 12.00 hrs – Auditorium

Fuzzy logic

by P. SMETS / IRIDIA, Free University of Brussels,
Belgium

We start by describing the nature of imperfect data, and giving an overview of the various models that have been proposed. Fuzzy sets theory is shown to be an extension of classical set theory, and as such has a prominent role for modelling imperfect data. The mathematics of fuzzy sets theory is detailed, in particular the role of the triangular norms. The use of fuzzy sets theory in fuzzy logic and possibility theory, the nature of the generalized modus ponens and of the implication operator for approximate reasoning are analysed. The use of fuzzy logic is detailed for application oriented towards process control and database problems.

ENSEIGNEMENT GÉNÉRAL

Tél. 5811

Jeudi 9 février

à 13.00 h – Amphithéâtre

Science pour tous

par Rafel CARRERAS