

SEMINARS SEMINAIRES

Friday 21 October

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room

Is the channel Higgs decaying into b quark/antiquark observable at LHC?

by D. FROIDEVAUX / CERN-PPE, Elzbieta RICHTER-

WAS / CERN -TH & Jagellonian University, Cracow

Presented by Elzbieta RICHTER-WAS

Monday 24 October

DETECTOR SEMINAR

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

The ISPA-tube : a new position-sensitive photon detector based on an Imaging Silicon Pixel Array

by Thierry GYS / CERN-PPE

The ISPA-tube consists of a vacuum-sealed cylinder of 45 mm length and 35 mm diameter, which encloses a 18 mm diameter photocathode confronted at 30 mm distance by a silicon chip (8 mm × 4.8 mm). This chip, developed by the RD19 Collaboration, contains 1024 pixels of 75 microns × 500 microns edges, bump-bonded to their individual front-end electronics. A 20 kV potential difference accelerates the photoelectrons towards this anode chip. Track images, emitted from a fibre tracker (composed of 60 microns diameter scintillating fibres) which was exposed to a 120 GeV/c negative pion beam, were readout within 10 microseconds with this newly developed ISPA-tube. The Gaussians of the track residuals indicate 42 microns standard deviation. The centre-of-gravity precision amounts to 15 microns and the angular precision of the 7 mm long tracks peaks at 8 mrad. The operation performances of this ISPA-tube and future developments like enlarged anode areas and possible improvements of its electronics architecture will also be discussed.

Monday 24 October

SPECIAL THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

Deterministic quantum mechanics with symmetric treatment of position and momentum

by S.M. ROY / Tata Institute of Fundamental Research, Bombay

De Broglie (1927) and Bohm (1952) formulated a deterministic quantum mechanics based on a phase space density $p(x,p)$, whose integral over p reproduces the quantum position probability density $|\Psi(x)|^2$, but whose integral over x differs from the quantum momentum probability density. We describe a proposal (with Virendra Singh) of a deterministic quantum mechanics with a Liouville phase-space density which is positive (unlike the Wigner distribution) and reproduces as marginals the correct position and momentum probability densities of usual quantum theory. In higher dimensions, one could ask whether the quantum joint probabilities involving commuting components of co-ordinate and momentum could also be reproduced. We also show (with André Martin) that a positive definite phase space density whose marginals reproduce the quantum joint distributions for x_i, p_j with i no equal to j for all choices of co-ordinate axes cannot exist. This result does not make any hypothesis that p depends locally on the wave function. Hence it is different from Bell's theorem.

Tuesday 25 October

CERN COLLOQUIUM

at 16.30 hrs – Auditorium*

Binary pulsars and relativistic gravity

by J.H. TAYLOR / Nobel Laureat for Physics 1993,

Princeton University

Spinning freely on their axes, and emitting radio noise detectable over interstellar distances, pulsars make extraordinarily stable natural clocks. Detailed comparisons of “pulsar time” with time kept by atomic clocks on Earth have opened the way for tests of gravity under conditions much more relativistic than found anywhere within the solar system. Among other results, these experiments have demonstrated the existence, quadrupolar nature, and propagation speed of gravitational waves.

* Tea & coffee will be served at 16.00 hrs.

Wednesday 26 October

DETECTOR R&D COMMITTEE

Open session

at 09.00 hrs – Council Chamber

1. RD-8 Status Report: Development of GaAs detectors for physics at the LHC (RWTH Aachen–ANSTO Sydney–Bologna–Florence–Freiburg–Glasgow–Lancaster–IHEP Protvino–RAL–Sheffield; DRDC 94-32; K.M. Smith).
2. RD-20 Status Report: Development of high resolution silicon strip detectors for experiments at high luminosity at the LHC (NCSR Demokritos–Bonn–Comenius–CERN–INP & IPNT Cracow–MPI Heidelberg–Liverpool–Brunel–Imperial College–CPP Marseille–Oslo–SINTEF Oslo–Padova–Rome Sanita–RAL–CRN Strasbourg–Turino–Uppsala–HEPHY Vienna–PSI Würenlingen; DRDC 94-39; G. Hall).
3. RD-23 Status Report: Optoelectronic analogue signal transfer for LHC detectors (CERN–Birmingham–EPFL Lausanne–Lecce–Florence–MTI/MASPEC Parma & INFN Milano–GEC Marconi–Imperial College–Lund–Siegen–RAL; DRDC 94-38; G. Stefanini).
4. RD-35 Status Report: A silicon hadron calorimeter module operated in a strong magnetic field with VLSI readout for LHC (CERN–JINR Dubna–Florence–Milan–Rome; DRDC 94-40; S. Sergueev).

Closed session

following the Open Session continuing on

Thursday 27 October at 09.00 hrs, 6th floor Conf. Room

Wednesday 26 October

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

Fractional statistics and quantum chaos

by Alexios POLYCHRONAKOS / CERN

Wednesday 26 October

COMPUTING SEMINAR

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

Literate programming systems of structured design and documentation

by Marcus SPEH / DESY

An introduction to ‘literate programming’ (LP) environments for a better structured software design and documentation, is given. LP methods were pioneered in the mid-80’s by D.E. Knuth’s WEB tool for the Pascal programming language. Knuth’s much used text-formatting tools TeX and Metafont,

the largest programs ever published in full length, are prominent LP examples. It is argued how LP methods can be used (and misused) in individual or collaborative code development, including an overview of available tools, their advantages and disadvantages. The HTML frontends now provided by some LP processors allow you to effortlessly serve code on the World-Wide Web. For more, see the author's "Literate Programming Library" at URL <http://info.desy.de/user/projects/LitProg.html>
Organiser : D. Kemp / CN

Monday 31 October

SPECIAL SEMINAR

at 14.00 hrs – TH Conference Room
The problems of measurement and the transition from quantum to classical mechanics
by Yuri ORLOV

The main quantum phenomena – unpredictability of the result of a single measurement, impossibility of simultaneously measuring some observables, and interference of probabilities – are explained in terms of symmetries and logic. The special role of a hidden symmetry in the logic of propositions is demonstrated. The source of wave function reduction in the course of measurement is analyzed.

Monday 31 October

PPE SEMINAR

at 16.30 hrs – Auditorium
Search for a new light gauge boson in decays of π^0 , η and η'
by Farid OULD-SAADA / Zürich University

We have searched for new light gauge bosons produced in π^0 , η and η' decays by studying the kinematically well-constrained reactions proton-antiproton $\rightarrow \pi^0 \pi^0 P$, where $P \equiv \pi^0, \eta, \eta'$ decays through the emission of a single photon recoiling against a missing state X (where X is a long-lived weakly interacting particle or $X \rightarrow$ neutrino-antineutrino). No signal has been observed and branching ratio upper limits (90% C.L.) of 6×10^{-5} have been obtained for masses of the gauge boson lying between about 65 MeV and 125 MeV (π^0 decay), 6×10^{-5} , for X masses between about 200 MeV and 525 MeV (η decay), and 4×10^{-5} , for X masses between about 50 MeV and 925 MeV (η' decay). The π^0 -decay limit represents a factor of 4 to 8 improvement when compared to the existing limit, whereas the η and η' decay limits have been measured for the first time, thereby extending the m_X range from 130 MeV up to 925 MeV.

Tuesday 1 November

TECHNICAL PRESENTATION

at 10.00 hrs – CN Auditorium, bldg 31/3-005
Migration to AIX V4.1 at CERN
by Markus BAERTSCH, / Tim Bell, IBM Switzerland
Organiser : S. Cannon / CN / 5036

Mercredi 2 novembre

PRESENTATION TECHNIQUE

09.00 -17.00 h – bât. 65, Service Feu
NILFISK, l'aspirateur qui permet d'obtenir la sécurité et la propreté
par Nilfisk SA (DK/CH)
Langues : allemand, anglais, français.
Renseignements : M. Diraison / FI-A / 4585

Wednesday 2 November

CERN COMPUTING COLLOQUIUM

at 16.00 hrs – Auditorium
How do biological computers work?
by Prof. Daniel BERTRAND / Medical Faculty, University of Geneva

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**LECTURE SERIES FOR
POSTGRADUATE STUDENTS**

24, 25, 26, 27 & 28 October
11.00-12.00 hrs – Auditorium
Quantum chromo dynamics
by G. MARTINELLI / University of Roma, Italy & CERN-TH

- 1. Hadrons as bound states of quarks and gluons
- 2. Quark models, confinement and asymptotic freedom
- 3. The parton model; Deep Inelastic Scattering (DIS) processes
- 4. The parton model and QCD
- 5. Phenomenology of the parton model; muon and neutrino DIS, structure functions and parton distributions
- 6. W and Z production at Colliders
- 7. Weak decays and strong interactions
- 8. Heavy flavours effective theories and QCD
- 9. Non-perturbative QCD

31 October, 2 & 3 November

11.00-12.00hrs – Auditorium
Beyond the standard model
by S. DIMOPOULOS / CERN-TH

**ENSEIGNEMENT GÉNÉRAL
Tél. 5811**

Jeudi 27 octobre
à 13.00 h – Amphithéâtre
Science pour tous
par Rafel CARRERAS