

SEMINARS SEMINAIRES

Monday 15 June

SEMINAR

Organized by the Center of Quantum Philosophy of Geneva (CQPG)*

at 12.00 hrs – TH Conference Room

Quantum-mechanical evolution and Hilbert-space structure

by Milos LOKAJICEK / Institute of Physics of Czech Academy of Sciences

Time-dependent Schroedinger equation is commonly regarded as the basic quantum rule and practically as the only one. In fact the current quantum-mechanical mathematical model starts from two different assumptions:

- a) *all possible states of a given physical system are represented by vectors of a Hilbert space which is spanned on eigenfunctions of the corresponding Hamiltonian;*
- b) *time-evolution is established with the help of the time-dependent Schrödinger equation.*

It will be argued that the first assumption does not correspond to physical reality if changing characteristics of a time-evolving system are to be described. Arguments will be given that the actual Hilbert space must be doubled. Some important physical characteristics following from the considered extended quantum-mechanical model will be presented. Properties required by an ensemble interpretation are fulfilled.

* **Center of Quantum Philosophy of Geneva (CQPG)** aims to promote the discussion on the philosophical and scientific challenges raised by the interpretation of the quantum theory and of the information theory, and particularly by the principles of **nonlocality, indeterminism and undecidability**. The CQPG addresses itself to people who think that quantum theory is not only a practical summary of mathematical recipes, but that it is now an integral part of knowledge and culture.

Monday 15 June*

COMPUTING SEMINAR

at 14.00 hrs – CN Auditorium
bldg 31/3-005

DIANE Standard Installation system for PCs

by Ian MITCHELL / CN-CE

Over the past few months at CERN increasing numbers of PCs have been running the DIANE Standard Installation system. Since the advent of the NICE fileserver topography, DIANE is now going to be installed on virtually every networked PC at CERN. This has been made feasible by the standard fileserver drive mappings that NICE provides. It is no longer necessary that DIANE installation routines be put on every fileserver; it is now possible for the DIANE installation to be downloaded from a central Hyperserver (or mirrored Hyperserver cluster). In essence, the DIANE-NICE

environment enables every PC and fileserver to be configured in a standard way, with standard key applications, boot files, and directory structure. This will make user support a lot easier and it will make conflict free inter-server migration possible. A standard Windows 3.1 version is a key feature of the new environment. Everyone who uses a networked PC at CERN is welcomed to attend this seminar.

* Please note unusual day & time!

Monday 15 June

PPE SEMINAR

at 16.30 hrs – Auditorium

Electroweak results from CDF

by Young Kee-Kim / LBL-CDF

We have studied electroweak physics from $p\bar{p}$ collisions at a centre-of-mass energy of 1.8 TeV with the 4 pb^{-1} data accumulated by CDF during the 1988-1989 run. We have determined $M_W = 79.91 \pm 0.39\text{ GeV}/c^2$ from an analysis of $W \rightarrow e\nu$ and $W \rightarrow \mu\nu$ data; using this an upper bound on the top-quark mass has been derived. The branching ratio of $W \rightarrow l\nu$, the W width, and a decay-mode independent lower bound on the top-quark mass have been deduced from measurements of the W and Z production cross sections and rates for decay into leptons. We have also measured the charge asymmetry of leptons in W decays, the forward-backward asymmetry in Z decays, and have searched for heavy gauge bosons, Z' and W' . A very recent result sets lower limits on leptoquark mass. The prospects for the 1992 run are discussed.

Mardi 16 juin

PRESENTATION TECHNIQUE

09.00–12.30 h & 13.30–17.00 h – bât. 73/2-027

Kontron Elektronik AG (D/CH) propose en démonstration six produits de sa gamme de PCs industriels.

La gamme des ordinateurs Kontron se compose de différents appareils pour montage en rack 19" ou portables. La classe de protection contre les vibrations, chocs, températures ou champ électromagnétique prédispose ces appareils à un environnement industriel agressif. Equipés du bus passif EISA, les PCs Kontron sont donc compatibles IBM et peuvent recevoir toutes les cartes du marché. Trois modèles en rack et trois modèles portables seront exposés.

Langue : français

Renseignements : M. Diraison / FI / 4585

Tuesday 16 June

CERN COLLOQUIUM

at 16.30 hrs – Auditorium*

A high sensitivity search for a 17 keV neutrino

by J. SHIRAI / Institute of Nuclear Study Tokyo University

We have measured the beta ray spectrum of ^{63}Ni with an iron-free spectrometer at INS (Institute for Nuclear Study, Tokyo University) to search for a 17 keV neutrino around its threshold region. The accumulated events are 2.4×10^9 counts. We obtained for the mixing strength of the 17 keV neutrino $[1.8 \pm 3.3(\text{stat.}) \pm 3.3(\text{syst.})] \times 10^{-4}$ and no indication of the 17 keV neutrino with 1% mixture. An upper limit at the 95% confidence level of 0.1% is set for a heavy neutrino with a mass between 10 and 24 keV.

* Tea & coffee will be served at 16.00 hrs

Wednesday 17 June*

PPE SEMINAR

at 11.00 hrs – Auditorium

CLEO's Beauty : recent B-results from CLEO-II

by Gerald EIGEN / Caltech

We will discuss a number of recent results derived from detailed studies of semileptonic and hadronic B decay modes.

* Please note unusual day & time!

Wednesday 17 June

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

Baryon number violation at high energies : a threshold behaviour?

by D. DIAKONOV / St. Petersburg

Wednesday 17 June

CERN COMPUTING COLLOQUIUM

at 16.30 hrs – Auditorium*

The Computing Universe

by Konrad ZUSE

In theoretical physics the concept of a field can be applied to various phenomena in space, usually satisfying certain differential equations. In contrast to that, the theory of automata operates with discrete states. Cellular automata allow the construction of moving state structures which are digital representations of physical particles. The theory of automata is relevant to the study of determination and causality, time reversal, superlight velocity, locality and the continuum.

Konrad Zuse received his engineering diploma in Berlin in 1935 when he began work on the development of programmable computing machines. In 1938 he completed the Z1, the first mechanical computer under control of a program. His Z3 was, in 1941, the world's first working general-purpose programmed computer, making use of such innovations as programs on punched tape, binary floating-point arithmetic and parallel arithmetic processing. In 1945 he developed an algorithmic programming language, Plankalkuel. In 1949, he founded the computing firm ZUSE KG, which grew to employ one thousand persons before being bought by Siemens in 1966. He is the author of several books, including 'Rechnender Raum' (The Computing Universe).

* Coffee and tea will be served at 16.00 hrs

Thursday 18 June

DETECTOR SEMINAR

at 11.00 hrs – TH Conference Room

The SDC muon system

by Henry LUBATTI / SSCL

The SDC muon system has three distinct functions:

1. To trigger the detector on a muon above a threshold p_t
2. To identify a charged track as a muon, and
3. To provide a muon momentum measurement in conjunction with the inner tracker.

The muon detector is divided into a central region which includes the barrel and intermediate systems and a forward system. The muon system has three main components: magnetized iron toroids, wire chambers, and trigger counters. The wire chambers in the central region are 93.6 mm outer diameter Al tubes epoxy bonded together on thin Al plates to form a rigid structure. The ends of the anode wires are precisely positioned by a CNC-milled plate. Each tube contains a pair of electrodes to shape the electric field so that the electrons drift in a nearly uniform field. The maximum drift distance is 45 mm. Each tube is rotated so that the field lines are perpendicular to the trajectory of an infinite momentum particle originating at the interaction point. The chambers in the central region are of a similar design. Each component of the muon system will be described.

Thursday 18 June

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium*

First results of the GALLEX solar neutrino experiment

by Michel SPIRO / SACLAY

The first results of the GALLEX solar neutrino experiment obtained from May 91 to May 92, will be presented. Their implications in terms of solar models and/or neutrino physics will be discussed.

* Tea & coffee will be served at 16.00 hrs

Friday 19 June

OPEN INFORMATION MEETING ON MASSIVE PARALLEL PROCESSING IN HEP

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

The meeting starts at 10.00 hrs to allow interested people to attend the Fortran 90 course by M. Metcalf.

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| 10.00-10.30 | Welcome and introduction of LHC computing issues, PG. Innocenti. |
| 10.30-11.00 | Computer farming vs MPP (from CORE to the Teraflop), Les Robertson. |
| 11.00-11.30 | ESPRIT and MPP, CERN experience so far, Bob Dobinson. |
| 11.30-12.00 | Review of MPP technology and market offering, F. Gagliardi. |

- 12.00–12.30 MPP programming techniques and paradigms, I. Willers.
 12.30–14.00 Lunch break.
 14.00–14.30 Applications of MPP in Theoretical Physics, U. Wolff.
 14.30–15.00 Possible applications of MPP to simulation and data analysis, F. Carminati.
 15.00–15.30 MPP at LHC, S. Cittolin.
 15.30–16.00 Coffee break.
 16.00–16.30 Accelerator design and control applications, G. Shering.
 16.30–17.30 Panel discussion chaired by David Williams, panel members : R. Bock, F. Carminati, B. Dobinson, M. Metcalf, R. Mount, A. Norton, L. Robertson.

Wrap-up by D.O. Williams.

Information :

Fabrizio Gagliardi / CN / Fab@vxcern.cern.ch

Friday 19 June

DETECTOR SEMINAR

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

Properties of CsI and CsI-TMAE Photocathode

by David ANDERSON / FermiLab

The techniques and requirements for the preparation of CsI and CsI-TMAE photocathodes will be discussed. Much attention will be paid to the complicated phenomenon of ageing, which depends on temperature as well as gas pressure and composition. High gain for single photoelectrons and the applications of RICH and time-of-flight will also be addressed.

Friday 19 June

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room

Bounding effective gauge boson interactions using loops

by Cliff BURGESS / McGill University, Montreal

Low-energy effective Lagrangians provide an efficient way to parametrize the effects of unknown new physics at presently unreachable higher scales. Effective WWZ and WW photon interactions are particularly interesting interactions of this type since they are more weakly constrained than are fermion-gauge boson couplings. In this talk, two properties of this Lagrangian are argued for. First, the formulations in which $SU_2 \times U_1$ gauge invariance is ignored are argued to be equivalent to those in which this symmetry is non-linearly realized. Secondly, it is argued that many of the existing low-energy bounds on these interactions – such as those following from the rho parameter – have been overestimated by several orders of magnitude.

Tuesday 23 June

PRESENTATION

10.00–12.00 hrs – CN Auditorium
 bldg 31/3-005

VME, Fieldbus and related products

by INCAA Computers, Apeldoorn, Holland

Information :

L. Pregering / CN / 2666 / lfp@cernvm.cern.ch

Tuesday 23 June

CERN COLLOQUIUM

at 16.30 hrs – Auditorium

Structure in the differential microwave radiometer data of the cosmic background explorer satellite (COBE).

by George SMOOTH / Lawrence Berkeley
 Laboratory, University of California, Berkeley

Wednesday 24 June

COMPUTING SEMINAR

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

Benchmarking of parallel and pipelined signal processing architectures for second-level trigger algorithms

by W. KRISCHER / CERN-ECP

POUR / FOR INFORMATION

LAPP

Laboratoire d'Annecy de Physique des Particules

Chemin de Bellevue
BP 110
F - 74941 Annecy-le-Vieux
Tél. 50 23 32 45

Friday 19 June

at 10.45 hrs - LAPP Auditorium
Status of the DO experiment
The GEM experiment proposal at SSC
by Tom FERBEL / FERMILAB

Friday 26 June

at 10.45 hrs - LAPP Auditorium
CP violation with Beautiful Baryons
by Isard DUNIETZ / CERN

Université de Genève

Département de Physique Nucléaire et
Corpusculaire
Ecole de Physique
24, quai Ernest-Ansermet
1211 Genève 4
Tél. 7026273 ou 7026369

Monday 22 June

PARTICLE PHYSICS SEMINAR

at 16.15 hrs - Stueckelberg Auditorium
Detector 'KEDR' tagging system for two-photon physics
by A. CHILINGAROV / Institut de Physique
Nucléaire, Novosibirsk

A tagging system for the study of two-photon physics will be described. It is a part of the multi-purpose detector KEDR and the e^+e^- collider VEPP-4M at the Budker Institute of Nuclear Physics (Novosibirsk). The use of some accelerator magnetic structure elements allows to reach high double tag efficiency and excellent resolution in the reconstructed invariant mass of the produced $\gamma\gamma$ system. The double tag method which allows the measurement of the two-photon mass without its reconstruction via the decay products in the central detector is expected to be especially effective for the measurements of the two-photon width of the resonances as well as for the study of the total cross section of two- γ annihilation into hadrons.

EDUCATION SERVICES EDUCATIFS

ENSEIGNEMENT GENERAL

Tél. 5811

Jeudi 18 juin

à 13.00 h - Amphithéâtre
Science pour tous
par Rafel CARRERAS

*La dernière séance aura lieu le 25 juin.
Reprise en automne.*

INFORMATIONS GENERALES GENERAL INFORMATION

PART TIME TEACHER OF HISTORY REQUIRED AT THE INTERNATIONAL LYCÉE IN FERNEY-VOLTAIRE

A teacher of history is required for September 1992 to teach option groups within the English National Programme at the Lycée International, Ferney-Voltaire, France.

Approximately four hours' teaching per week is available, involving pupils in 4ème and 3ème (13-15 year olds) who have chosen to take British and American history as an option.

Candidates should have an honours degree in history, a teaching qualification and/or secondary teaching experience in an English speaking context. They should speak English as their mother tongue. Knowledge of French and humanities or geography teaching experience would be advantageous.

For further details contact the address below.

Please send a letter of application together with a CV and the names of 2 referees to:

P.J. Woodburn
Head of English National Programme
Lycée International
01210 Ferney-Voltaire, France
Telephone (023) 50 40 82 66 (24 hr. answering service)

Applications should be submitted by 20 June 1992.