

SEMINARS SEMINAIRES

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<http://wwwas.cern.ch/Bulletin/Seminars/current.html>

Monday 8 to Friday 12 December

3rd WORKSHOP ON RECENT DEVELOPMENTS IN THEORETICAL PHYSICS

"Non-perturbative Aspects of Strings, Branes and Fields"

This is the third workshop organized by the CERN Theory Division with the aim to understand non-perturbative phenomena in field theories, string theories and theories of extended objects. This topic has been the focus of intense research recently, and many new developments hint towards a consistent and unified quantum theory of gravity and the other known gauge interactions. This workshop will bring together over 200 theoretical physicists from different countries to review the situation of the subject and exchange knowledge and ideas.

Lectures by:

Katrin & Melanie Becker
Michael Duff
Michael Green
Jeffrey Harvey
Renata Kallosh
Hiroshi Ooguri
Juan Maldacena
Leonard Susskind
Paul Townsend

Seminars by:

Constantin Bachas
Itzhak Bars
Michael Douglas
Amihay Hanany
Mans Henningson
Christopher Hull
Shamit Kachru
Dieter Lüst
Gregory Moore
Yaron Oz
Jan Plefka
Massimo Porrati
Jorge Russo
Savdeep Sethi
Herman Verlinde
Shimon Yankielowicz

Organized by Luis Alvarez-Gaumé, Costas Kounnas and Boris Pioline

Secretaries: S. Vascotto (72817) and J. Rostant (72233)
E-mail: workshop@nxth04.cern.ch

A detailed programme is available from the WWW page:
<http://www.th.cern.ch/workshop97/>

Monday 8 December

ISOLDE EXPERIMENTS COMMITTEE

Open session

at 14.00 hrs – Council Chamber, bld. 503

1. Introductory remarks by the Chairman.
2. Progress report by the ISOLDE Technical Group Leader.
3. ISOLDE Coordinator's report.
4. Beta-decay study of $n\omega$ excitations in neutron-rich (fp) nuclei: Test of the empirical nuclear interaction; CERN/ISC 97-23/P92; G. Walter.
5. Structure features of ${}^6\text{He}$ from direct reactions on light target nuclei; CERN/ISC 97-25/P93; A.N. Ostrowski.
6. Beta-decay of ${}^{47}\text{Mn}$; extension of systematics of $M_T = 3/2$, odd-Z nuclei to fp-shell; CERN/ISC 97-26/P94; A. Jokinen.
7. Study of the ${}^{163}\text{Ho}$ -decay for a neutrino mass experiment; CERN/ISC 97-28/P95; M. Altmann.
8. Nuclear spectroscopy with copper isotopes of extreme N/Z ratios; CERN/ISC 96-31/ISC/P96; D. Habs.
8. Status report and proposal for continuation (IS304): Measurement of nuclear moments and radii by collinear fast-beam laser spectroscopy; CERN/ISC 97-29/P9 Add.2; R. Neugart.
9. IS302: High-accuracy mass determination of unstable nuclei with a Penning trap mass spectrometer; CERN/ISC 97-30/P6 Add.2; G. Bollen.

Closed session

after the Open Session, 6th Floor Conference Room,
Main Building.

Monday 8 December

PPE SEMINAR

at 16.30 hrs – Auditorium*, bld. 500

Heavy Flavour Physics at SLD

by David JACKSON / Rutherford Appleton Laboratory

Analysis of the 1993-96 data sample of 200 000 Z events will be presented. The highly polarized SLD electron beam and the excellent 3D resolution of the SLD pixel vertex detector, upgraded before the 1996 run, are fully exploited to yield heavy flavour physics results competitive with LEP experiments. Topological vertex reconstruction will be discussed along with measurements of R_b , R_c , A_b , A_c , B lifetimes and B^0 mixing. With the aim of collecting a further 500 000 Z events, the current run status will be reviewed.

*Tea & coffee will be served at 16.00 hrs.

Tuesday 9 December

ISOLDE -30 SYMPOSIUM

at 09.00 hrs – Council Chamber, bld. 503

- 09.00 Welcome by the chairman of the ISOLDE Collaboration (G. Huber)
- 09.15 The Role of ISOLDE at CERN (K. Hübner)

- 09.30 ISOL Beams and Nuclear Structure (B. Jonson)
- 10.05 Nuclear Ground State Properties from Atomic Physics (E. Otten)
- 11.10 Nuclear Solid State Physics and Life Science (M. Deicher)
- 11.45 Conclusion and Perspectives (A. Richter)
- 12.20 Conclusion and Perspectives (A. Richter)

Wednesday 10 December

PS SEMINAR

at 11.00 hrs – PS Auditorium, bld. 6/2-024

Towards a 5 TeV e^+e^- linear collider

by J.P. DELAHAYE / CERN-PS

The CLIC scheme has been deeply revised to address the very high energies (1 to 5 TeV) and luminosities (10^{34} to $10^{35} \text{ cm}^{-2} \text{ sec}^{-1}$). Room temperature 30 GHz cavities producing high accelerating fields (100 to 200 MV/m) are still chosen to reduce the length and cost of the machine but new parameters have been adopted and it is shown that beam stability can be as good as for lower frequency designs in spite of the strong wakefield-frequency dependency. The crucial problem of the RF power is now tackled with a novel and efficient Two Beam Acceleration (TBA) method. The feasibility of the scheme is assessed by recent tests of RF structures in the CLIC Test Facility.

Organiser: Bruno Autin

Wednesday 10 December

COMPUTING SEMINAR

at 16.00 hrs – IT Auditorium, bld. 31/3-005

Internet Infrastructures and the ICFA Networking Task Force

by David WILLIAMS / CERN-IT

The International Committee for Future Accelerators (ICFA) has set up a Networking Task Force. This has been asked to look at the status of networking used by the whole ICFA community, and to analyse the likely evolution over the next decade, and to make recommendations to improve the overall situation.

The talk will start by providing some background information on submarine cables, which are key components of the present international Internet infrastructure. A short section will follow, looking at the overall economics of Internet infrastructure, both terrestrial and oceanic.

Finally the objectives of the ICFA Networking Task Force are discussed, the present status of the working group efforts is reviewed, and the timetable and plans for producing the Task Force report are outlined.

Organiser: G.Folger / IT

Thursday 11 December

SL SEMINAR

at 16.00 hrs – SL Auditorium, Prévessin, bld. 864

Highlights of the 8th Superconducting RF Workshop

by Giorgio CAVALLARI / CERN

The 8th Superconducting RF Workshop was held in Abano Terme from 6 to 19 October 1997. It covered low-beta, high beta accelerators and non-accelerator applications. The performance of the operating accelerators based on SC RF tech-

niques was reviewed. This amounts to several millions of operational cavity hours worldwide. Enhanced material quality controls are being developed in order to increase reliably the accelerating fields beyond the present ones. New fabrication techniques suitable for mass production were presented. Progress in thin film sputtering techniques was reviewed. New challenging projects were presented: namely high current proton linacs and high energy lepton linacs.

** Coffee and tea will be served at 15:30 in front of the auditorium*

Friday 12 December

CAREER SEMINAR

at 11.00 hrs – Auditorium, bld. 500

From Particle Tracking to Positron Tomography

by D.W.TOWNSEND / University of Pittsburgh Medical Center

The transfer of technology from basic research fields such as Particle Physics to more applied areas such as medical imaging, although often promising, is not always as straightforward as it may at first appear.

The constraints imposed by the specific application in one field may complicate or even invalidate an approach that appears promising from the perspective of the other field. Careful attention must be paid to specific details. This talk will discuss examples of particle physics techniques that have had an impact on medical imaging, and critically examine the procedure by which the transfer of such technology is accomplished between the two fields.

Monday 15 December

DETECTOR SEMINAR

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

The development of silicon pixel detectors for high energy physics experiments at LBNL

by Franz PENGGE / Lawrence Berkeley National Laboratory

The development of silicon pixel detectors for applications in high energy physics experiments with high event rates and large track multiplicity comes to an ever increasing maturity. Data recently taken in experimental environments prove the feasibility of such detector systems. There remains, however, a certain gap between the requirements imposed by the operating conditions in a future hadron collider and the performance of presently operational pixel detector systems. Rather aggressive specifications as low power consumption, small time-walk, immunity against inter-pixel cross-coupling - to name only some of them - are a big challenge for the design of the analog frontend.

The subsequent digital data processing has to deal with several thousand hits per bunch crossing in a system with 150mio channels. Efficient zero suppression, proper time-stamping and data sparcification after the first level trigger are critical issues in the design of the readout logic.

After a general overview over existing pixel detector systems and the various strategies followed to meet the requirements for operation in an LHC experiment, the design of a 160 by 18 pixel demonstrator chip at LBL will be discussed in more detail.

Monday 15 December

CERN HEAVY ION FORUM

at 14.30 hrs – ECP Conference Room, bld. 13/2-005

Nuclear effects in Parton Distribution Functions

by Carlos SALGADO / Santiago de Compostela

It is well known that the parton distribution functions of the nucleons inside nuclei are modified relative to those of free nucleons. These modifications must be taken into account in any calculation of hard processes in nucleus-nucleus collisions.

A description of the nuclear effects in terms of corrections to the individual (free nucleon) parton distribution functions will be given and a parametrization of these corrections will be presented. The importance of the shadowing corrections will be illustrated with some hard processes at SPS and LHC energies.

Tuesday 16 December

IT TRAINING TUTORIAL

14.00-16.00 hrs – IT Auditorium, bld. 31/3-004

Introduction to JavaScript

by Rui Paulo DA SILVA LEITE / CERN-IT

Tuesday 16 december

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium*, bld. 500

Collision and collusion in physics.

by Gordon FRASER / CERN-AS

This 'end-of-term' seminar looks at science behind the scenes. While physicists study the forces at work in Nature, physical force - the exercise of power - drives history. As well as diligent investigation, the focus and progress of science are also strongly influenced by contemporary issues. The search for new applications, the availability of new technology, the cult of personality, political upheaval and war, large-scale investment, and communications barriers have all played major roles.

**Tea & coffee will be served at 16.00 hrs.*

POUR INFORMATION / FOR INFORMATION

THE FALL'97 IT TRAINING PROGRAMME

Please check the Bulletin every week for detailed information about the programme of tutorials scheduled for the coming weeks. Also, you can always access our WWW page for up to date information:

<http://wwwinfo.cern.ch/support/training>

Miguel Marquina and Raul Ramos / IT User Support

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Wednesday 10 December

SEMINAR ON PARTICLE PHYSICS

at 17.00 hrs – Stückelberg Auditorium

The Super-Kamiokande Experiment

by Kai MARTENS / Institute for Cosmic Ray Research, University of Tokyo

Super-Kamiokande is a 50 kton water Cherenkov detector built 1000 m underground in Japan. It is taking data since April 1st 1996. Proton lifetime and solar and atmospheric neutrino measurements are on the physics agenda of this experiment. Collaborators come from Japan and the US. Detection principle, calibration procedures and latest results shall be discussed.

LAPP - Laboratoire d'Annecy de physique des Particules

F74941 – Annecy-le-Vieux

Informations : Pascal Perrodo, tél. 04 50 09 16 00

Vendredi 12 décembre

SEMINAIRE SUR LA PHYSIQUE DES PARTICULES

à 14.00 h – Amphithéâtre LAPP

A-t-on vu le plasma de quarks et de gluons au CERN ?

par Jean-Yves OLLITRAULT / Labo : Service de Physique Théorique, CEA-Saclay/CNRS

Le but des collisions d'ions lourds ultrarelativistes réalisées au SPS du CERN et à l'AGS de Brookhaven est de produire et d'étudier le plasma de quarks et de gluons.

Je tenterai de passer en revue les diverses signatures du plasma proposées par les théoriciens, et de les confronter avec les résultats expérimentaux présentés à la conférence Quark Matter, début décembre 97.

Je commenterai plus particulièrement les résultats obtenus par la collaboration NA50, qui a observé en 1996 une diminution spectaculaire du nombre de J/psi produits dans les collisions Pb-Pb à 160 GeV par nucléon, un effet proposé dix ans plus tôt comme signature du plasma.