

les applications médicales. Le site proposera une introduction signée du Directeur général, le récit de la naissance du Web, ainsi que des informations de dernière minute sur l'activité du Laboratoire. Les plus hardis pourront se laisser tenter par une balade parmi les pages décrivant les expériences de physique. Désormais, l'internaute occasionnel qui s'interroge sur le CERN trouvera facilement les pages publiques où l'attend une présentation colorée, divertissante et informative du plus grand laboratoire mondial de recherche en physique des particules.

duction from the Director General and an account of how the Web was born. Up-to-the-minute news of what's going on at the laboratory is also available, and for the really intrepid, a trip into the working pages of physics experiments beckons. From now on, a casual outside surfer wondering what CERN is all about will easily find the public pages. When they get there, a colourful, entertaining, and informative introduction to the World's leading particle physics research laboratory is waiting for them.

SEMINARS SEMINAIRES

Monday 24 August

SPECIAL SEMINAR

at 14.00 hrs – TH Conference Room, bld. 4

MSSM Higgs production in association with scalar top pairs at LHC

by Jean-Loïc KNEUR / Université de Montpellier

We discuss the production of Higgs particles in association with the supersymmetric scalar partners of the top quark at proton colliders. In the Minimal Supersymmetric extension of the Standard Model (MSSM), the cross section can be relatively large, substantially exceeding the rate for the associated Higgs production with top quarks. If the lightest stop is not much heavier than the top, this process will enhance the potential of the LHC to discover the lightest neutral Higgs boson, and will open a window to the study of the Higgs—stop coupling, the potentially largest electroweak coupling in the supersymmetric theory.

Tuesday 25 August

DUALITY WORKSHOP

at 14.00 hrs – TH Conference Room, bld. 4

SO(32) spinors in type I string theory

by Ashoke SEN / CERN-TH

The duality between SO(32) heterotic and type I string theory requires the existence of stable non-BPS states in type I theory carrying SO(32) spinor quantum numbers. We shall give an explicit construction of these states both from the target space and the world-sheet viewpoint.

Tuesday 25 August

IT TRAINING TUTORIAL

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

New Web Technologies: An Overview

by Jose Carlos FERNANDEZ / CERN-IT

The main current problems of HTML are: content is mixed with presentation and HTML is a fixed set of tags. Some new technologies appear so as to cope with these problems. Style sheets are used to separate the content of a document from its presentation, so the same document can be displayed in many different ways. On the other hand, XML allows the author to write his documents in a much more structured way, using new semantic tags when they are needed.

An overview of a whole set of new web technologies is presented, with some examples of what they are able to do.

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

Organisers: M.Marquina and R.Ramos /IT-User Support

Wednesday 26 August

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room, bld. 4

Brane dynamics and gauge theory

by Amit GIVEON / Hebrew University, Jerusalem

We review some aspects of the interplay between the dynamics of branes in string theory and the classical and quantum physics of gauge theories with different number of supersymmetries in various dimensions.

Vous pouvez aussi consulter

For information on these seminars, please see

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

Wednesday 26 August

IT SEMINAR

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

Micro-Robots: The Artificial Evolution

by D. DIAZ / CERN-IT & University Complutense of Madrid

Micro-robots are an increasingly popular alternative to classical robots. They are fast to design and build, cheap, and can operate in hostile environments. Typical applications are inspection, handling, and maintenance tasks. One can find them inspecting underground areas, cleaning chemical tanks or sky scrapers, etc.. NASA plans to send a colony of micro robots to Mars.

The seminar will at first describe classical robots which are based on artificial intelligence ("hard artificial intelligence"). Yet, if they face an unfamiliar situation, they are unable to deal with it. Solutions to these problems were found only outside the classical approach: with micro robots. Micro robots, "dumber" than their classical counterparts, emulate insect and not human behavior. Next, the seminar will present the micro-robot principle and describe the different ways (emergent behavior, subsumption architecture, and adaptive learning) to meet the objectives. To conclude the seminar, examples and video displays will illustrate the concepts and show the state of the art.

Information : <http://consult.cern.ch/seminars>

Organiser : G.Folger / IT

Thursday 27 August

SL SEMINAR

at 16.00 hrs* – SL Auditorium, bld. 864

LEP towards 100 GeV ?

by Olivier BRUNNER / CERN

The scope of the LEP programme has progressively widened to enable an increase in operational energy. When it first began operation in 1989, LEP had only 128 copper cavities and an operational beam energy of 45 GeV. Today it is mainly equipped with superconducting cavities (272 SC + 48 Cu). The increased accelerating voltage has enabled the machine to reach an energy of 94.5 GeV in 1998. With LEP operation due to end in the year 2000 the possibilities of attaining even higher energies, approaching the mythical energy of 100 GeV, has been examined. To realise these objectives the average operational accelerating gradient of the 288 superconducting cavities, which will be available in 1999, must be increased from 6 MV/m to almost 7 MV/m. Several aspects of the LEP superconducting RF system as well as the expected problems related with this field increase will be discussed.

Information: <http://www.cern.ch/CERN/Divisions/SL/news/news.html>

Organiser: Werner Herr / CERN-SL

* Tea and coffee will be served at 15.30 in front of the Auditorium

Thursday 27 August

CERN COLLOQUIUM

at 16.30 hrs – Auditorium, bldg 500*

Neutrons in a highly diffusive medium: a new propulsion tool for deep space exploration ?

by Carlo RUBBIA / CERN-LHC

The recently completed TARC Experiment at the CERN-PS

has shown how it is possible to confine neutrons by diffusion in a limited volume of a highly transparent medium for very long times (tens of milliseconds), with correspondingly very long diffusive paths (> 60 m neutron path "wound" within a ~ 60 cm effective radius).

Assume an empty cavity is introduced inside the previous volume of diffusing medium. The inner walls of the cavity are covered with a thin layer of highly fissionable material, which acts as a neutron multiplying source. This configuration, called "n-Hohlraum", is reminiscent of a classic black-body radiator, with the exception that now neutrons rather than photons are propagated. The flux can be sufficiently enhanced as to permit to reach criticality with a $\sim 1 \mu\text{m}$ thick Americium deposit, corresponding to a mere 1100 atomic layers. Such a layer is so thin that the Fission Fragments (FF) exit freely into the cavity. The energy carried by FF can be recovered directly, thus making use of the enormous enthalpy of the initial nuclear process.

Such a direct utilisation of the FF energy has interesting applications in space, since for instance it permits to attain very high temperatures of the exhaust propellant gas (up to 0.5 million °K), impossible by chemical fuels. This opens the way to very fast, deep in space, manned, round-trip travel to distant planets and their satellites using low-thrust, continuous propulsion of nuclear origin. The (so far conceptual) engine has potentials of low weight, high specific power, no moving parts and a simple geometrical structure. It overlaps in performance to the expectations of fusion engines, but in a more realistic way since it requires no major fundamental breakthroughs.

If nuclear energy on Earth is competing with many other alternatives and is not without problems, in deep-space travel it offers unique possibilities, since for instance the energy supplied by 1 gram of Americium is about the same as that of 1 ton of the best chemical fuel. For instance a few kilograms of nuclear fuel are sufficient for a manned round-trip (1200 million km) and visit to Mars with an outbound (inbound) payload of 130 (60) tons and a reusable spacecraft of the mass of an ordinary Jumbo jet from a low Earth's parking orbit. Other potential visits are also discussed, like Europa (Jupiter's satellite), Titan (Saturn's satellite) and multiple asteroids. There is no doubt that such a novel propulsion method, if indeed possible, may open the way to a systematic manned exploration of our planetary system.

Organiser : Luigi Di Lella / EP Division

* Tea & coffee will be served at 16.00 hrs.

Friday 28 August

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room, bld. 4

Small-x resummation for unpolarized and polarized deep inelastic scattering structure functions

by Johannes BLÜMLEIN / DESY

A systematic study is presented of the impact of the various small-x resummed contributions to the anomalous dimensions and coefficient functions on the evolution of the polarized and unpolarized non-singlet and singlet parton densities and structure functions in a framework based on the renormalization group equation. The relations of the small-x resummations to fixed order results are established. The general analytic solution of the evolution equations are derived and are compared to different approximate solutions. Potential effects of less singular small-x terms in the anomalous dimensions and coefficient functions are

discussed. Numerical applications are presented for the structure functions of the proton $F_2(x, Q^2)$, $x F_3(x, Q^2)$, $F_L(x, Q^2)$, $g_1(x, Q^2)$, $g_2(x, Q^2)$ and the photon structure function $F_2^\gamma(x, Q^2)$.

Monday 31 August

TECHNICAL PRESENTATION

09.00-12.00 hrs & 14.00-16.00 hrs – bld. 40/R-A10

Specialist for high-end positioning stages, controllers and opto-mechanical systems

by K. KRAFT / PMT SA Representing MICOS GmbH

Close co-operation with research and industry enables MICOS to offer a wide spectrum of linear and rotary positioners for an ever more demanding market. Drives range from manually adjustable DC and stepper to high-end piezo. Customised PC-operated or stand-alone control units can not only be used for MICOS products, but can also be adapted for other motorised positioners. These positioners are user-friendly and constantly updated to the latest technology.

Languages : French, English, German

Information : S.Shearer/SPL/76360

Monday 31 August*

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium, bld. 500**

Recent Discoveries with the Hubble Space Telescope

by John BAHCALL / Institute for Advanced Study, Princeton, New Jersey.

This talk is based upon a series of images of different astronomical systems obtained with the Hubble Space Telescope. It will feature a smorgasborg of recent discoveries, including images of planets in our solar system, regions of star formation, the oldest stars in the Galaxy, massive black holes in the centers of other galaxies, the hosts of gamma ray bursts and the hosts of quasars, and images describing the evolution of galaxies. I will provide non-technical astronomical commentary on the images.

Organiser : Jasper Kirkby / EP Division

* Please note unusual day.

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

Tuesday 1 September

SPS AND PS EXPERIMENTS COMMITTEE

Open Session

at 09.00 hrs – Council Chamber, bld. 503*

1. QED in strong crystalline fields [NA43]: E. Uggerhoj.
2. Proposal to study the use of a crystal as a 'quarter-wave plate' to produce high energy circularly polarized photons (SPSC 98-17 / P308): M. Velasco.
3. A CERN-PS experimental campaign to measure neutron cross-sections from 1 eV to 250 MeV with high resolution (SPSC 98-15 / I220): C. Rubbia.
4. The Advanced Cosmic Composition Experiment at the Space Station [ACCESS]. A request for testbeam

facilities at the CERN SPS (SPSC 98-13 / M608): R. Wigmans.

5. Status report from MICROMEGAS : I. Giomataris.

Closed session

after the Open Session, 6th floor Conference Room.

* Please note unusual place

Tuesday 1 September

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium, bld. 500*

What have we learned about solar neutrinos ?

by John BAHCALL / Institute for Advanced Study, Princeton, New Jersey

Five beautiful experiments (chlorine, Kamiokande, GALLEX, SAGE, and Superkamiokande) have detected solar neutrinos, which have approximately the fluxes and energies predicted by calculations of nuclear fusion rates in standard solar models. These experiments settle empirically the debate initiated in the 19th century on how the sun shines. Quantitative discrepancies between their measurements and the standard model predictions (which assume the accuracy of the standard solar model calculations and that nothing happens to the neutrinos after they are created) provide evidence that physics beyond the standard electroweak model may be manifested in solar neutrino experiments. Recent helioseismological measurements strengthen this inference. I will summarize the current status of solar neutrino research and review the prospects for discovering "smoking-gun" evidence for new physics with the Superkamiokande, SNO, ICARUS, and BOREXINO detectors.

Organiser : Jasper Kirkby / EP Division

* Tea & coffee will be served at 16.00 hrs

Thursday 3 September

LARGE HADRON COLLIDER COMMITTEE

Open Session

at 09.00 hrs – Auditorium, bld. 500

- 09.00-09.15 Status of the LHC project (C. Llewellyn Smith)
- 09.15-10.15 ALICE status report (J. Schukraft)
- 10.15-10.45 Coffee Break
- 10.45-11.45 ALICE HMPID Technical Design Report (G. Paic, F. Piuz)

Thursday 3 September

LHC PROJECT SEMINAR

at 14.15 hrs – LHC Auditorium, bld. 30/7th floor

The LHC dipole magnets

by C. WYSS / CERN-LHC