

SEMINARS SEMINAIRES

Pour de plus amples informations, prière de consulter
For full information on these seminars, please see
<http://wwwas.cern.ch/Bulletin/Seminars/current.html>

Friday 6 & Saturday 7 June

ISOLDE WORKSHOP

Friday 6 June

at 14.00 hrs - IT Auditorium, bid. 31/3-004

continued Saturday 7 June 1997

at 09.15 hrs - Theory Conference Room

Preliminary Agenda

Friday **Afternoon Session** - IT Auditorium, bid. 31/3-004

14.00 Panel discussion:

Present status and perspectives of ISOLDE operation and its impact on the ISOLDE experiments

16.00 Proposal for a New ISOLDE Data Acquisition System (report of the corresponding working group)

16.15 The 2 GeV Proton Linac Project at CERN - New Possibilities for ISOLDE (Roland Garoby, PS/CERN)

16.45 Dipole Polarizability in the Scattering of Halo Nuclei (J. Gomez-Camacho, Univ. Sevilla)

17.20 Status of Research on High Temperature Superconductors (Hermann Adrian, Univ. Mainz)

Saturday Morning Session - Theory Conference Room

9.15 Particle and Nuclear Astrophysics (F.K. Thielemann)

9.50 Si Epitaxy by Low-Energy DC Plasma Enhanced Chemical Vapour Deposition (Hans von Kanel, ETH Zurich)

10.45 What can we learn about nuclei, investigating the $N=Z$ line? (Christian Miehé, IN2P3 Strasbourg)

11.20 Nuclear Probes in Life Sciences (Wolfgang Tröger, Univ. Leipzig)

There will be opportunities for discussion and questions after each contribution.

Monday 9 & Tuesday 10 June

LHC++ WORKSHOP

IT Auditorium, bid. 31/3-004-5

Monday 9 June

10.00 Status of LHC++¹

11.00 Status of CLHEP²

12.00 Lunch

13.00 Histogram classes

14.00 Status of HepInventor

15.00 Status of HepExplorer³

16.00 Java Numerical Library

17.00 Java/C++ (Twin Peaks etc.)

Tuesday 10 June

09.00 ATLAS/CMS/OPAL presentations⁴

10.00 Diffpack presentation

11.00 Diffpack Q&A

12.00 Lunch

13.00 GEANT-4/LUND++ update

14.00 Mathlib requirements

15.00 STABLE update

16.00 Minuit++kickoff

17.00 Workshop summary

1) NAG/TGS review boards, GNATS, distribution, licenses, NT, LCB etc.

2) installation on Unix & NT, feedback from VI.0 release, new classes, documentation etc.

3) including feedback from NAG on CERN's requirements/wishlist

4) plans /results from using (parts of) LHC++

Information http://wwwinfo.cern.ch/asd/lhc++/workshops/jnne97_workshop.txt

Tuesday 10 June

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs - Auditorium*

Neutrino Oscillations; Summary of the Fermilab Fixed-Targed Workshop, May 1997

by Juan Jose GOMEZ CADENAS / CERN-PPE

A number of recent experimental results can be interpreted in terms of neutrino oscillations, including the solar and atmospheric neutrino deficit and a positive result from the LSND experiment. On-going experiments (Super-Kamiokande, KARMEN, CHORUS and NOMAD) as well as others soon to be commissioned (CHOOZ, PALO VERDE) are expected to shed more light on this issue. Meanwhile, a new generation of long and short base line neutrino oscillation experiments is being discussed both at CERN and at Fermilab.

In the recent FNAL workshop on the physics prospects with the forthcoming Main Injector (May 1-4 1997), the status of the field of neutrino oscillations was reviewed, with updated results from various current experiments, including CHORUS, NOMAD, LSND and Super-Kamiokande. The various proposals for next-generation short and long base line experiments both at CERN and at FNAL were extensively discussed.

In this talk, a view of the state of the art of the field and the future prospects is presented.

*Tea & coffee will be served at 16.00 hrs.

Wednesday 11 June

THEORETICAL SEMINAR

at 14.00 hrs - TH Conference Room

A natural explanation for why the cosmological constant is small and why inflation lasted for a long time

by Richard WOODWARD / University of Florida, Gainesville

I will give a very pedagogical talk which assumes no prior understanding of either inflation or quantum gravity. The talk deals with the quantum gravitational mechanism

proposed by Nick Tsamis (Univ. of Crete) and myself to explain why the observed cosmological constant is so small. Our proposal is that the bare cosmological constant isn't unnaturally small: we assume it is positive and somewhere between the GUT and electroweak scales. The reason it seems to be so small is that the observed quantity is the space-time expansion rate and this is screened by an infrared mechanism in quantum gravity. The mechanism is the generation of negative gravitational interaction energy by virtual gravitons which get pulled apart by inflation. The effect is weak but cumulative, so inflation lasts a very long time. I will first discuss the effect in qualitative terms, explaining why it obeys the equation of state for negative vacuum energy, why it is unique to gravitons and why one can study it using quantum general relativity, without regard to structure at the Planck scale. I will then present results from an explicit perturbative calculation of the effect, and I will close by discussing a strategy for making quantitative and testable predictions.

Wednesday 11 June

COMPUTING SEMINAR

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

The Linux System and its Community

by Jes SORENSEN / CERN-IT/PDP

Linux is a free UNIX clone originally developed by the Finnish student Linus Torvalds for the x86. It is estimated that there are now 4-5 million active Linux users and the number is still growing. This talk will give an introduction to Linux and the Linux community. It will focus on the available features, how to communicate with and participate in the Linux community and how to get support, including that for special needs.

Linux now runs on multiple platforms (x86, Alpha, Sparc, m68k and more) and includes a wide range of features. It has high performance TCP/IP networking plus support for protocols such as IPX, Appletalk, AX.25 and NetROM. Supported network interfaces include 10/100 Ethernet, FDDI, SLIP and PPP. Linux supports NFS and Samba and can access MSDOS and VFAT (Win95) filesystems as well as CDROMs.

Information and support is available from many different sources: news groups, projects like the Linux Documentation Project (LDP) and commercial offerings. A wide range of tools is available for developing software under Linux, including all the GNU tools (such as C, C++ and Fortran compilers); a port of Sun's Java exists as well. The source code of the kernel is freely available, under the GNU public license.

The kernel internals are fairly well documented in the Kernel Hackers Guide. This, combined with the large amount of drivers, makes it easy to add support for new or exotic devices.

Organizer: G.Folger / IT

Wednesday 11 June

CERN HEAVY ION COLLOQUIUM

at 16.30 hrs - Council Chamber

Hadrons in Dense Matter and the Low Mass Dilepton Enhancement

by Jochen WAMBACH / Darmstadt

Recent progress in the understanding of vector mesons in dense matter will be reviewed. Based on realistic

descriptions of the rho-Meson in free space, modifications in a hot hadronic gas are discussed. The resulting in-medium rho-meson spectral function is applied to e^+e^- spectra from the CERES experiment. The model is able to largely explain the observed yields for invariant masses below 1 GeV.

Informa Hon <http://wwwinfo.cern.ch/a/alicedoc/www/chic/>
Organisers: Y. Foka and C. Lourenço

Thursday 12 June

SL SEMINAR

at 15.00 hrs* - SL Auditorium, Prévessin, bld. 864

From analysis to simulation - 30 years of Accelerator Physics

by Bruno ZOTTER / CERN-SL

When I came to CERN nearly 30 years ago I was given the task of calculating coherent beam stability in the world's first proton storage ring, the ISR. My previous experience with microwave tubes turned out to be quite applicable. The next years led to many new insights which helped to continuously improve the performance of the ISR, and were incorporated in the design of new machines.

Progressing from coasting proton beams in the ISR to bunched electrons in LEP, and also in CLIC, the work on instabilities - and some beam optics - continued. The dominant role of TMCI for LEP was predicted already in its design phase, and thus the limitations could be shifted to higher currents.

With more and more powerful computers available, the purely analytical work is now often supplemented by simulation. Machine experiments remain the final verification of theoretical results, and the importance of such 'academic MD studies' is now often underrated. The correct understanding of the physical phenomena occurring in the complex environment of a storage ring can often lead to easier operation and better performance.

* Coffee and tea will be served at 14.30 hrs in front of the auditorium
Please not unusual time

Thursday 12 June

CERN COLLOQUIUM

at 16.30 hrs - Auditorium*

What's the use of basic science ?

by CH. LLEWELLYN-SMITH /
Director-General, CERN

With public expenditure under pressure, the criteria for the allocation of funding to scientific research have come under increasing scrutiny. It is sometimes asserted that funds should be focused on applied ("useful") science and technology, rather than pure ("useless") science. I shall argue that this misunderstands the contribution of science to society and the role of public funding. To equate the useful with the applied is to display the same level of understanding as the child who thinks that the hands are the most important part of a watch because they are the ones that tell the time. Governments should support basic science because it is economically useful, as well as being part of our culture. This leads to the much more difficult questions of the level at which Government should fund basic science, and criteria for the allocation of funding between different fields.

*Tea & coffee will be served at 16.00 hrs.

Monday 16 June

PPE SEMINAR

at 16.30 hrs - Auditorium*

The Palo Verde neutrino oscillation experiment

by Giorgio GRATTA / Stanford University

We are building a long baseline neutrino oscillation experiment utilizing ν_e from the large Palo Verde Nuclear Generating Station near Phoenix, Arizona. Once completed this experiment should reach sensitivities of $\Delta m^2 = 1.0 \times 10^{-3} \text{ eV}^2$ and $\sin 2\theta = 0.1$ exploring masses about one order of magnitude smaller than the current limits. Our range of sensitivity will allow us to conclusively ascertain whether the atmospheric neutrino anomaly is caused by ν_e - ν_μ oscillations. We report on the status of the construction describing the main experimental challenges of the project.

* Tea & coffee will be served at 16.00 hrs.

Tuesday 17 June

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs - Auditorium*

Alpha Magnetic Spectrometer (AMS) for extraterrestrial study of antimatter, matter and missing matter on the international space station Alpha

by Samuel C.C.TING / CERN and MIT

There have been many discoveries measuring cosmic photons (microwaves, X rays and gamma rays). The AMS experiment is the first magnetic spectrometer designed to study cosmic charged particles, measuring $e^\pm$, $\pi^\pm$, $\text{Be}^\pm$, Be^{10} , anti-He, anti-C, etc. This will enable us to search for dark matter, antimatter and the origin of cosmic rays.

AMS is scheduled to have a ten-day calibration run on the space shuttle Discovery, starting May 29, 1998, followed by a three to five year experiment beginning in 2001 on the space station.

AMS is being constructed in Finland, France, Germany, Italy, the United States, Switzerland, China and Taiwan. A progress report on the construction of AMS will be presented.

*Tea & coffee will be served at 16.00 hrs.

Wednesday 18 June

SEMINAR FOR CERN GUIDES

at 16.00 hrs - Auditorium

Astrophysics and Neutrinos

by Gert G. HARIGEL / CERN-PPE (retired)

This seminar is primarily intended for CERN guides. The formation of sun-like stars, their life cycle, and their final destiny will be explained in simple terms, appropriate for the majority of our visitors. An overview of the nuclear reaction chains in our sun will be presented (Standard Solar

Model), with special emphasis on the production of neutrinos and their measurement in underground detectors. These detectors are also able to record high-energy cosmic neutrinos. Since many properties of neutrinos are still unknown, a brief description of table-top and nuclear reactor experiments is included, as well as those using beams from particle accelerators. Measurements with a variety of space telescopes complement the knowledge of our universe previously limited to the visible range of the electromagnetic spectrum.

Thursday 19 June

LHC TECHNICAL SEMINAR

at 16.00 hrs - SL Auditorium, Prévessin bld. 864*

The LHC optics version 5

by Jean-Pierre KOUTCHOUK / CERN-SL

With the better knowledge of the dipole field quality, long-range beam-beam effect,..., the requirements on the LHC optics become more accurate and more demanding. The motivation for the new version of the LHC optics is to satisfy them by increasing its robustness and flexibility. Analysis of the former versions shows the critical optical sections and the reasons for introducing new quadrupoles and going away from a strict antisymmetry. The increased complexity is balanced by a saving on the number of quadrupole units. Version 5.0 is now released. We will eventually discuss its evolution in the near future.

* Please note the unusual place.

Friday 20 June

CERN HEAVY ION COLLOQUIUM

at 14.30 hrs - Auditorium

Topics of heavy ion physics

by Edward SHURYAK / Stony Brook/MIT

The talk briefly reviews several on-going works.

- (i) Starting with data on radial flow effects observed in AGS/SPS experiments, we describe recent attempts to explain them in hydro framework, with conclusions for EOS. Important issues here are the detailed study of the freeze-out conditions, the separation of chemical and thermal freeze-out, the issue of pion chemical potential, etc.
- (ii) Event-per-event fluctuations of certain observables can be related by standard thermodynamical theory of fluctuations to interesting quantities, potentially providing new information about the freeze-out.
- (iii) Dileptons: new attractive interaction at $T \sim T_c$, looking at chiral partner of ρ , a_1 ; charm background at RHIC.
- (iv) Discussion of why the v_2 ratio is no longer decreasing with centrality, in Pb-Pb collisions.

Information <http://wwwinfo.cern.ch/a/glicedoc/www/chic/>

Organisers: Y. Foka and C. Lourenço

FOR INFORMATION / POUR INFORMATION

Friday 6 June

SIXTY-FIRST PLENARY ECFA MEETING
(Ecfa European Committee For Future) Accelerators
at 09.00 hrs - **DESY Laboratory**

Draft Agenda

- 09.00 1. Adoption of the Draft Agenda
2. Approval of the Draft Minutes of the
Sixtieth Plenary ECFA Meeting
09.15 3. Chairman's Report
10.00 4. LHC Project Status
(CH. Llewellyn Smith)
10.30 *Coffee*
11.00 5. Update of ECFA Terms of Reference;
Next ECFA Chairman
11.30 6. DESY: Present and Future
(B.H. Wiik)
12.30 *Lunch*
14.00 7. DESY: LC Project (Accelerator)
14.45 8. DESY: LC Project (Physics and Detectors)
15.30 *Coffee*
16.00 9. HERA Physics
17.00 10. Any Other Business.
- 17.15 End of meeting.

EDUCATION SERVICES EDUCATIFS



Information sur les cours, dates et places disponibles sur WWW:
Information about the courses, dates and places available on WWW :
<http://www.cern.ch/Training/>

ENSEIGNEMENT GENERAL GENERAL EDUCATION

Rafel Carreras © 75811

SCIENCE POUR TOUS par Rafel Carreras

Jeudi 19 juin
de 13h.00 à 13h.30 - Amphithéâtre

Version condensée de la soirée
"Les Sciences aujourd'hui"
du mardi 3 juin

ENSEIGNEMENT TECHNIQUE TECHNICAL TRAINING

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PLACES DISPONIBLES

Plusieurs cours prévus peuvent encore accueillir quelques participants. Vous les trouverez dans la liste ci-dessous. Les descriptions complètes de ces cours sont accessibles par le WWW (voir indication ci-dessus) ou disponibles dans la brochure des Services Educatifs distribuée à tout le personnel en septembre 1996.

UNIX pour programmeurs
Nouveautés de FileMaker Pro 3 *
Introduction à la radioprotection
MS-Project 1er niveau sur Macintosh
LabView Advanced features
Lab View cours de base
C++ for Particle Physicists

* description dans le Web

Si vous désirez participer à l'un de ces cours, remplissez **le plus rapidement possible**, une "demande de formation" disponible auprès du Secrétariat de votre Division ou de votre DTO (Délégué divisionnaire à la formation). Les places seront attribuées dans l'ordre de réception des inscriptions.

Veuillez noter qu'il n'y aura pas de permanence bureautique en juin. Nous étudions une nouvelle formule d'assistance bureautique qui sera publiée dans la brochure 1997-1998 des Services Educatifs et dans le Web.

PLACES AVAILABLE

Some places are still available in forthcoming courses. These courses are indicated underneath. The complete descriptions of those courses are available on WWW (see above) and in the Education Services brochure distributed in September 1996.

9-13 juin (5 jours)
17-19 juin (3 demi-journées)
23-27 juin (5 demi-journées)
24-27 juin (4 demi-journées)
June 26 & 27 (2 days)
9 au 11 juillet
July 14 -18 (6 lectures over 5 days)

If you wish to participate to one of those courses, please fill in, **as soon as possible**, an "application for training" form available from your Divisional Secretariat or from your DTO (Divisional Training Officer). Applications will be accepted in the order of their receipt.

Please note that there will be no "permanence bureautique" in June. We are studying a new way of offering assistance in office automation and information will be published in the 1997-1998 brochure of the Education Services and on the Web.