

SEMINARS SEMINAIRES

Monday 18 January

AC SEMINAR

at 14.00 hrs – Auditorium*

Nuclear waste transmutation and the possible role of accelerators

by P.-W. PHILIPPEN / Inst. for Safety Research and Reactor Technology, KFA–Research Centre of Jülich

Nowadays, the final disposal of long-lived radioactive products is often seen as an unsolved problem for the utilization of nuclear energy. This report gives an overview about the formation and the amounts of radioactive elements in the nuclear reactor as well as their treatment. Final disposal as it is provided today, will be shown in principle, problems will be pointed out and activities in several countries will be evaluated critically. A significant reduction of the necessary time for final disposal may be achieved by separating the long-lived radioactive elements from the main waste stream during the reprocessing of the burnt nuclear fuel and their transmutation to short-lived radioactive or stable elements. In this talk the physical principles of accelerator-induced transmutation will be illustrated and existing technical proposals presented. This will imply a discussion of their specific advantages and disadvantages as well as the remaining unsolved problems.

* Note unusual time and place!

Tuesday 19 January

SPS & LEAR EXPERIMENTS COMMITTEE

Open session

at 09.00 hrs – Council Chamber*

1. Status report on UA6 experiment : L. Camilleri.
2. Status report on WA92 experiment BEATRICE: L. Rossi.
3. Status report on PS203: T. von Egidy.

Closed session

Tuesday 19 January at 14.00 hrs, to be continued on Wednesday 20 January at 09.00 hrs – 6th floor Conference Room.

* Please note change of place

Tuesday 19 January

CERN COLLOQUIUM

at 16.30 hrs – Auditorium*

Quasi-spherical graphitic onions : a new fullerene related structure

by Daniel UGARTE / EPFL, Lausanne

Fullerenes, nanotubes or graphitic onions, are usually produced in arc-discharge experiments, where these particles grow

by accretion from carbon vapor. Nevertheless, the formation of curved and closed graphitic sheets can also be induced, in the condensed phase, by strong bombardment of carbonaceous soot with high energy electrons. This method produces shelled graphitic particles with a remarkable spherical shape. Here, we present a high resolution electron microscopy study of fullerene related structures. In particular, we examine the formation of quasi-spherical onion-like particles by electron irradiation in situ. This fact allows us to follow the formation process with atomic resolution. The relation between irradiation induced graphitization and fullerene growth is discussed.

* Tea and coffee will be served at 16.00 hrs

Wednesday 20 January

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

Large-N limit and gauge-fixing in SU(N) gauge theories

by Marco BOCHICCHIO / CERN

A pure SU(N) gauge theory in $d = 4$, in the gauge $F_{01}^{ch} = 0$, possesses two kinds of excitations in addition to the charged gluons and the $U(1)^{N-1}$ photons: Abelian monopole currents, associated to the divergence of the dual of the neutral part of F_{01} , and gauge vortices, associated to points where some eigenvalues of F_{01} coincide and the gauge-fixing condition becomes degenerate, leaving a non-trivial isotropy subgroup. After integrating out all the other fields, the effective action for F_{01} has a form that is suitable for computing the large-N limit. It is argued that the gauge vortices condense at weak coupling, allowing us to extract the volume of the isotropy subgroup. In $d = 2$ this procedure leads to an exact result for the expectation value of a Wilson loop at weak coupling, and the neutral part of the field F_{01} turns out to be a random field. In $d = 3, 4$, the one-loop effective action for F_{01} must be evaluated.

Wednesday 20 January

COMPUTING COLLOQUIUM

at 16.00 hrs – Auditorium

Network computing and superserver technology

by Carlton AMDAHL / NetFRAME Systems Inc.

With the success of the PC as a personal productivity tool, Network Computing has not only become the preferred platform for office automation, but is also rapidly becoming an alternative to mainframes and minicomputers for mission critical applications and advanced scientific computing. Mr Amdahl will discuss the technical merits of superserver technology as an ideal platform to provide the reliability, high throughput and balanced processing required by these applications. He will discuss the new microprocessor technology (Risc, Pentium, etc.), operating system evolution (Netware 4.0, UnixWare, MS-NT) and multiprocessing architectures (e.g., asymmetric) that form the basis of superserver technology.

Organizer: F. James/CN

* Tea & coffee will be served at 15.30 hrs

Thursday 21 January

PRESENTATION

at 10.30 hrs – CN Auditorium
bldg 31/3-005

VMEbus Products from Radstone Technology

by Colin DAVIES

Radstone Technology will present their VMEbus products with emphasis on the MC68040 and R3000-based CPU modules, FDDI interface and techniques permitting "hot-swap" in VMEbus. In addition, they will present their plans for future products. Radstone Technology, who are one of the leading European manufacturers of VMEbus equipment, have recently joined the list of VMEbus manufacturers under contract to CERN.

Thursday 21 January

CERN COLLOQUIUM

at 16.30 hrs – Auditorium*

Detecting particles : a pleasant game in physics

by Georges CHARPAK / Nobel Laureate
in Physics 1992, CERN

* Refreshments will be served in the Salle des Pas
Perdus from 17.30 to 18.30 hrs.

Friday 22 January

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room

Heavy meson decay constants from QCD sum rules and potential models

by Reinhold RUECKL / Univ. Munich & CERN

The calculation of weak matrix elements in QCD is a theoretical challenge and a phenomenological necessity. I discuss the derivation of decay constants from QCD sum rules for mesons consisting of two heavy quarks with masses $m_1, m_2 \gg \Lambda_{QCD}$. The method is first tested and improved by applying it to the known charmonium and bottomonium systems. It is then used for a detailed investigation of the mass dependence of decay constants for $[q_1 \bar{q}_2]$ bound states. The results are compared with potential model predictions, and confronted with corresponding lattice results. The study also sheds some light on the surprisingly large values of the decay constants for D and B mesons found recently in different approaches.

Monday 25 January

DETECTOR SEMINAR

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

Testing ADCs at sample rates from 10 to 120 mega-samples per second

by W. T. MEYER / Ames Laboratory, Iowa State
University

Results will be presented from an on-going program to test the performance of high speed analog-to-digital converters suitable

for use at the LHC and SSC. For each device we have measured such parameters as effective number of bits, noise level, aperture jitter, nonlinearity, analog bandwidth, and total harmonic distortion. Results from a variety of eight- and ten-bit devices will be presented and plans for future work will be discussed.

Tuesday 26 January

TECHNICAL PRESENTATION

at 09.00 to 16.30 hrs – bldg 73/2027

High technology tools for electronic assembly line (D, F, I, CH, USA)

Renseignements : M. Diraison / FI-A / 4585

Tuesday 26 January

PRESENTATION

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

Hypertext tool for requirements engineering

by Hermann KAINDL / Siemens AG Austria

Mercredi 27 janvier

PRESENTATION TECHNIQUE

de 10.00 à 12.00 h – Salle du Conseil
bât. 503, 1^{er} étage

Services en hautes technologies pour la construction et la maintenance complexe

par Comex Nucléaire S.A. (F)

Langues : français, anglais à disposition

Informations : M. Diraison / FI-A / 4585

FOR/POUR INFORMATION

Université de Genève

Département de Physique Nucléaire et Corpusculaire

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

Monday 18 January

PARTICLE PHYSICS SEMINAR

at 16.15 hrs – Room 418, 2nd floor
Nucleon structure functions and spin physics
by J. SOFFER / Université de Marseille Luminy

We will give a review of our present knowledge of the nucleon structure functions which can be obtained from deep inelastic scattering and from Drell-Yan processes. We will emphasize the importance of the low-x region and the crucial role of longitudinally and transversely polarized beams for a complete understanding of the nucleon spin problem and more generally of the nucleon structure. Several sum rules involving these structure functions will be discussed.