

SEMINARS SEMINAIRES

Tuesday 3 August

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium *

Status report on the CDF top search

by Hans GRASSMANN / SSCL, Dallas

The analysis of the di-lepton channel which resulted in a limit of 108 GeV on $M(\text{top})$ in Spring 1993 is now available for the full statistics of the 1992-1993 run (21 pb^{-1}). Three candidate events are observed. When used to obtain a lower limit on $M(\text{top})$, one reaches $113 \text{ GeV}/c^2$, (95% c.e.). Studies are continuing to assess the background rate to be expected. CDF installed the new silicon vertex detector for the 92/93 run. It performed well. Some tags are observed in the di-lepton candidates. In the study of the single lepton channel, $W+\text{jet(s)}$ events with b -tags are also observed. When compared with expectations from fakes, an excess is observed in the 3 and 4 jets sample. Studies are continuing, in particular with an improved tracking algorithm, to make sure that all possible uncertainties are well understood. In addition, studies of the W +central jets sample enable us to exploit the event structure for the top search. With simple cuts imposing the jets to be central one expects from Montecarlo to enrich the $W+\text{jet(s)}$ samples with top events. When this is done a flatter jet E_t distribution is found in the data than expected from Montecarlo for QCD W +jets background. Two out of the three most energetic of these events are b -tagged. Although the observed anomalies are of great interest, no positive statement can be made on top existence – and even less on top mass – until the study of systematics is completed and the information provided by the various analysis chains is properly combined.

* Tea & coffee will be served at 16.00 hrs.

Wednesday 4 August

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

Deconstruction: theoretical physicists and the art of problem solving

by Martina MERZ / CERN

How do theoretical physicists go about solving their (scientific) problems? What strategies do they apply to circumvent difficulties, to decompose the problem into 'manageable' pieces, to deal with 'being stuck'? These questions are posed from a sociologist's perspective and were investigated by using the methods of ethnography and direct observation. The results will be illustrated by showing the different steps and paths a group of collaborating theorists explored in order to do a complex computation.

Wednesday 4 August

ISOLDE SEMINAR

at 16.00 hrs – TH Conference Room

The lattice site of Au in Be after the $^{197\text{m}}\text{Hg}$ 24h isotope implantation & decay

by J.C. SOARES / Lisbon & CERN-PPE

The stopping mechanism of a heavy ion like Hg implanted in a lightweight metallic matrix like beryllium led to some very interesting and unique results. It is shown that, combining e^- -yperturbed angular correlations, internal-channeling and Rutherford backscattering spectrometry/channeling experiments performed on the same samples prepared at ISOLDE, it is possible to identify the lattice site positions of Hg and Au and their surroundings in the Be matrix. The results reported in the literature are discussed and explained using a new approach.

Thursday 5 August

ISOLDE SEMINAR

at 14.00 hrs – Conference Room bldg 304/1-001

Gamow-Teller beta decay strength in nuclei from the sd-shell to ^{100}Sn

by A. BROWN / Michigan State University, East Lansing, USA

A review will be given on what has been learned about the effective $M1$ and GT operators in the $1s0d$ shell nuclear ($A = 16-40$) relative to wave functions which incorporate full configuration mixing within the $0d5/2-0d3/2$ spin-orbit pair. Results of new calculations in the regions where the $0f7/2-0f5/2$ pair (around ^{56}Ni) and the $0g9/2-0g7/2$ pair (around ^{100}Sn) are important will also be presented, with an emphasis on the uniqueness of the ^{100}Sn decay.

Thursday 5 August

CERN COLLOQUIUM

at 16.30 hrs – Auditorium*

Endangered support of basic science

by Victor F. WEISSKOPF / M.I.T.

Physical Science has become an endeavor of many branches. Astronomy, cosmology, particle- and part of nuclear physics deal with phenomena that are far away in time and space from the human environment on earth. They belong to 'cosmic physics'. In contrast, atomic, molecular, condensed matter physics, and part of nuclear physics are studies of the properties of matter here on earth. We call these studies 'terrestrial physics'. There is a division of physics into 'non-applicable' and 'applicable' fields. The 'cosmic sciences' fall into the first category. The 'applicable' branches are those for which applications are obvious or easily predictable, which is the case for most 'terrestrial physics'. Up to about 1970, both branches of physics received ample support, but a change occurred at that time. The reasons are manifold. We are facing a more pragmatic era, concentrating on applied science. Even so, we will always need basic research based on the curiosity for knowing more about Nature and ourselves.

* Tea & coffee will be served at 16.00 hrs.

New time & venue!