



SEMINARS SEMINAIRES

Vendredi 29 janvier

PRESENTATION

à 16.00 h – bâtiment 61, Salle B

Donation Silicon Graphics

La Société Silicon Graphics fera don au CERN de la 10'000^e station de travail sortie de son usine de Neuchâtel. A l'issue de la remise au CERN de cette station Indigo R4000, certains travaux déjà réalisés sur ce type de station seront présentés.

Des renseignements complémentaires peuvent être obtenus auprès de la Société SGI tél. (021) 25 94 12.

Monday 1 February

PPE SEMINAR

at 16.30 hrs – Auditorium

Recent advances in Detector development*

by F. BONAUDI / CERN

Important programmes of research and development in particle detectors are under way. The main European efforts in this field are centred around the Detector R & D Committee (DRDC) of CERN, which was set up in 1990. More than 40 proposals have been received, and about 30 of these form part of the approved programme. The principal lines of development will be illustrated, under the broad headings of tracking, calorimetry, particle identification and data acquisition.

*Previously given as an AC Seminar in November

Tuesday 2 February

DETECTOR R&D COMMITTEE

Open session

at 09.00 hrs – Auditorium

1. RD-3 Status Report: Further R&D for EM and hadronic calorimetry (Alberta-Alma Ata-Annecy LAPP-Barcelona-BNL-CERN-Grenoble ISN-Madrid-Marseille-Milano-Montréal-Orsay LAL-Saclay-Stockholm-Victoria; DRDC 93-4; D. Fournier).
2. RD-19 Status Report: Development of hybrid and monolithic silicon micropattern detectors (CERN-Collège

de France-CPPM Marseille-EPF Lausanne-ETH Zurich-IMEC Leuven-Bari-Bologna-Genova-Milano-Modena-Padova-Pisa-Roma-GHS Wuppertal-Tech. Univ. Athens-Ljubljana-Prague-Canberra Semiconductor NV-GEC Marconi-Smart Silicon Systems SA; DRDC 93-6; E.H.M. Heijne).

3. Proposal: Study of a novel concept for a Liquid Argon Calorimeter - The "Thin Gap Turbine" [TGT] (RWTH Aachen-CERN-JINR Dubna-Heidelberg- IEP, Slovak Academy of Sciences Kosice-MPI München-IHEP Protvino; DRDC 93-2/P45; H. Oberlack).
4. Proposal: Developments for a scintillator tile sampling hadron calorimeter with "longitudinal" tile configuration (IFAE Barcelona-IAP Bucharest-LPC Clermont Ferrand-CERN-LIP Lisbon-Prague-IHEP Protvino-Yerevan Armenia; DRDC 93-3/P46; O. Gildemeister).
5. Proposal: Fast EM calorimeter with excellent photon angular resolution and energy resolution using scintillating noble liquids (MIT Cambridge-ITEP Moscow-IHEP Serpukhov-INR Moscow-Johns Hopkins Univ. Baltimore; DRDC 93-9/P47; M. Chen).
6. Proposal: PS beam tests of a fast RICH detector (Collège de France-CERN-CRN Strasbourg-PSI Villigen-RAL-Karlsruhe-KEK Tsukuba; DRDC 93-5/P48; T. Ypsilantis).
7. Proposal: The ongoing investigation of high performance parallel computing in HEP (DRDC/93-10/P49; L. Robertson).
8. Status Report on CERN's participation in the GPMIMD ESPRIT project (CERN-Geneva-USTC Hefei, China-Liverpool; DRDC 93-7; R.W. Dobinson).

Closed session

Tuesday 2 February following the Open Session continuing on

Wednesday 3 February

at 09.00 hrs – 6th floor Conference Room

Tuesday 2 February

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium*

Strange quark matter in Physics and Astrophysics

by Jes MADSEN / Aarhus University, Denmark

For a surprisingly large range of parameters, quark matter composed of up, down, and strange quarks in roughly equal numbers is absolutely stable, i.e. more strongly bound than iron nuclei. For even larger ranges it can be metastable. The talk will review the physical properties of (meta)stable quark matter/quark nuggets. Laboratory searches are briefly discussed, but the main emphasis will be on the astrophysical

consequences of quark matter. One issue is the possible formation and survival of quark nuggets in the cosmological quark-hadron phase transition. Also discussed are the prospects for observational distinction between neutron stars and quark stars, and the rather stringent astrophysical limits, that can be derived on the galactic flux of quark nuggets.

* Tea and coffee will be served at 16.30 hrs.

Wednesday 3 February

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

Motion and stability of interfaces in electroweak and QCD matter

by K. KAJANTIE / CERN

It is quite possible that both hot electroweak and hot QCD matters have a first-order phase transition between a high temperature (symmetric, colour deconfining) and a low temperature (symmetry breaking, colour confining) phases. Assuming that this is the case, the talk first discusses the determination of the relevant equilibrium quantities : the transition temperature, the metastability ranges, the latent heat, the correlation lengths in the two phases and the interface tension (free energy) of an interface between the two phases. This sets the stage for attempting to answer two non-equilibrium questions : assume we have supercooled in the high temperature phase to some T below the transition temperature. A bubble of the stable low T phase is nucleated: how fast does it grow? (An expression for the velocity will be given.) Is the growth stable? (Landau in 1944 showed that the motion of a planar deflagration front is unstable at all scales; here several stabilising factors are discussed.) Applying the results to cosmological phase transitions, one finds that electroweak fronts are likely to be stable, while QCD fronts seem to be a marginal case of the stability analysis.

Thursday 4 February*

COMPUTING SEMINAR

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

The Concurrent Supercomputing Consortium and experience at Caltech

by Paul MESSINA / Caltech

The Concurrent Supercomputing Consortium includes US universities, national laboratories and industrial partners who are investigating the use of high performance parallel computing systems. The talk will describe the consortium and discuss experience with the Intel Touchstone Delta System. The speaker will describe the Delta hardware and software, and talk about a number of scientific applications which have been implemented on it. He will cover some of the lessons learned, both good and bad, and finally indicate the future directions of the Consortium.

* Please note unusual day & time

Friday 5 February

MEETING ON PARTICLE PHYSICS PHENOMENOLOGY

at 14.00 hrs – TH Conference Room

Scale dependence of nuclear gluon structure

by Kari J. ESKOLA / LBL, Berkeley

QCD-evolution of the parton distributions in nuclei is studied by using distributions at an initial scale $Q = 2$ GeV which conserve baryon charge and momentum. Two different ansätze for shadowing of gluons are considered. The main conclusion in both cases is that shadowing of gluons vanishes much more rapidly with increasing scales Q than shadowing of quarks and antiquarks. Consequences for the mini-jet cross-sections are considered.

Monday 8 February

PPE SEMINAR

at 16.30 hrs – Auditorium

Measurement of the tau lepton lifetime with the OPAL detector

by Paul WEBER / Carleton University

The lifetime of the tau lepton gives an important check of lepton universality. We present a measurement from the combined 1990 and 1991 data samples of the OPAL detector, which is extracted through classical measurement techniques. The result is one of the most precise determinations of the lifetime.

Wednesday 10 February*

PS SEMINAR

at 11.00 hrs – PS Auditorium

Theoretical and experimental ion trapping studies in EPA

by P. TAVARES / CERN-PS

* Please note change of date!

Wednesday 10 February

COMPUTING SEMINAR

at 16.00 hrs – CN Auditorium
bldg 31/3-005

PAW++ : a new version of the Physics Analysis Workstation system

by René BRUN / CERN-CN