

SEMINARS

SEMINAIRES

MONDAY 21 NOVEMBER

CERN NUCLEAR PHYSICS SEMINAR

at 16.00 hrs - Theory Conference Room

"Are (p, π^+) reactions sensitive to short-range nuclear structure?"

by H.J. Weber / Université de Lyon and University of Virginia

Abstract : Recent (p, π^+) data are presented and interpreted in terms of two-nucleon (TNM) and single-nucleon (ONM) transfer reaction mechanisms. For closed-shell target nuclei near threshold a relativistic ONM model is discussed and compared with recent data for the ground-state transition $^{40}\text{Ca}(p, \pi^+)^{41}\text{Ca}(7/2)$.

WEDNESDAY 23 NOVEMBER

THEORETICAL SEMINAR

at 14.00 hrs - Theory Conference Room

"Fermions and bosons interacting with arbitrarily strong (external) fields"

by J. Rafelski / CERN-TH

Abstract : The question : 'What happens to the electron orbitals as the charge of the nucleus is increased without bounds?' has inspired much of the interest in the description of strongly bound particles. Work on this problem and on the related Klein paradox extends back nearly to the beginnings of relativistic quantum mechanics. The understanding of the spectrum of the Dirac and Klein-Gordon equations with arbitrarily strong potentials is essential in order to obtain an appropriate physical description. The strong binding by more than twice the rest mass of the particles in overcritical potentials, leads to spontaneous decay of the neutral ground-state accompanied by particle emission in the case of fermions. The resulting new vacuum is charged. For bosons depending on the character of the external potential, either neutral or charged Bose condensates develop.

SPECIAL DD SEMINAR

at 16.00 hrs - DD Conference Room
(Bldg.31 - 3rd floor)

"Nuclear scattering radiography enhanced through use of a microprogrammed mini-computer"

by Y. Perrin / CERN-DD

Abstract : Nuclear scattering radiography uses the same kind of detectors and data acquisition equipment as high energy physics experiments. NSR provides a 3-dimensional radiography and also reveals some information about the chemical composition of the tissues.

Pictures of good resolution are reconstructed from more than 100 interactions per mm^2 , so very high data acquisition rates are required to keep the exposure time short.

High data rates and full event reconstruction have been attained with conventional equipment using the dynamic memory mapping and the microprogramming possibilities of the mini-computer.

The experiment will be described with emphasis on the use of the microprogramming technique.

THURSDAY 24 NOVEMBER

BEBC-EMI SEMINAR

EF Conference Room

(Bldg.13 - 2nd floor - Room No 2-005)

The talks are given as an introduction for the BEBC Users within a ten day EMI (External Muon Identifier) teach-in. As they are of general interest, everybody is welcome.

At 09.00 hrs :

- External muon identifiers for bubble chambers (A. Grant).
- The EMI multiwire proportional chambers (R.A. Brown).
- The EMI read-out system (E. Chesi).

At 14.00 hrs :

- The EMI on-line software (D. Jacobs).
- The EMI off-line software (L. Pape).
- How to operate the BEBC-EMI? (H. Foeth).

CERN COMPUTER SEMINAR

at 14.00 hrs - Council Chamber

"The fast Fourier transform and some of its applications"

by Prof. P. Henrici / ETH, Zürich

Abstract : The seminar will cover the following topics : the space of n-periodic sequences. The discrete Fourier transform. The existence of a fast Fourier transform algorithm, and its implementation. Applications to harmonic analysis, to fast numerical conformal mapping, and to the solution of Poisson's equation. Convolution, and its implementation by FFT. Applications to time series analysis, to computations with formal power series, and to the fast evaluation of polynomials.

ESO ASTROPHYSICS SEMINAR

at 11.30 hrs - Theory Conference Room

"Infrared emission of dense molecular clouds"

by Pierre Léna / Observatoire de Meudon

Abstract : The thermal balance of molecular clouds is controlled by the interstellar radiation field by the internal source (stellar and protostellar) and by the dust properties. The discussion will include observational aspects from ground aircraft and balloon platforms.

CERN COLLOQUIUM

at 16.30 hrs - Auditorium

"Un nouveau développement pour le magnétisme nucléaire : le diagnostic médical in situ" (*)

by G.J. Béné / Université de Genève

(*) This Colloquium will be given in French.

Abstract : Depuis quelques années, l'emploi du magnétisme nucléaire et particulièrement de la résonance magnétique nucléaire en vue du diagnostic médical a fait l'objet de travaux importants. Ces travaux ont été développés dans deux directions : 1/ étude de la relaxation nucléaire de tissus biologiques; 2/ développement d'une technique d'observation d'un tissu donné dans un système biologique complexe (Spin mapping).

MONDAY 28 NOVEMBER

EP SEMINAR

at 11.00 hrs - EF Conference Room
(Lab.13 - 2nd floor - Office No 005)

"Experiments on e^+e^- colliding beams
at Novosibirsk"

by A. Chilingarov / Novosibirsk Institute
of Nuclear Physics, USSR

CERN NUCLEAR PHYSICS SEMINAR

at 16.00 hrs - Theory Conference Room

"Positron creation and inner shell ionization
in collisions of very heavy ions"

by G. Soff / University of Frankfurt

TUESDAY 29 NOVEMBER

CERN COLLOQUIUM

at 16.30 hrs - Auditorium

"Towards the absolute zero"

by O.V. Lounasmaa / Helsinki University
of Technology; currently on leave of
absence at CEN-Saclay

WEDNESDAY 30 NOVEMBER

CERN ENERGY SEMINAR (TECHNICAL LEVEL)

at 16.30 hrs - Council Chamber (*)
(* Please note that this Seminar will be
held exceptionally in the Council Chamber.)

"Efficient energy use and well-being :
the Swedish example"

by L. Schipper / Royal Academy of Sciences,
Stockholm, and Energy and Environment
Division, Lawrence Berkeley Laboratory

THURSDAY 1 DECEMBER

CERN ENERGY SEMINAR (GENERAL LEVEL)

at 16.30 hrs - Auditorium

"What is energy conservation?"

by L. Schipper / Royal Academy of Sciences,
Stockholm, and Energy and Environment
Division, Lawrence Berkeley Laboratory

TRAINING AND EDUCATION ENSEIGNEMENT

JEUDI 24 NOVEMBRE

ENSEIGNEMENT GENERAL

de 13h00 à 13h30 - Amphithéâtre

"Science pour Tous", par R. Carreras

*Thème principal : "Le bénéfice des changeurs
automatiques de monnaie et la détection des
Trous Noirs"*

MONDAY 21, TUESDAY 22 AND WEDNESDAY 23 NOVEMBER

ACADEMIC TRAINING

at 11.00 hrs - Auditorium

"Neutron physics : from artificial radio-
activity to fission"

by E. Amaldi / University of Rome

Abstract :

1. Discovery by the Joliot-Curie's of artificial radioactivity by alpha particles. Discovery by Fermi of radioactivity induced by neutrons. The puzzle of neutron reactions without change of Z.
2. Discovery of the slowing-down of neutrons. Capture and scattering of slow neutrons. Neutron resonances. Bohr model and Breit-Wigner formula.
3. Radioactivity produced in uranium and thorium by slow neutrons. Interpretation in terms of transuranic elements. The work of O. Hahn and L. Meitner and families of isomers. The discovery of fission.

WEDNESDAY 23 NOVEMBER

ACADEMIC TRAINING

at 16.30 hrs - Auditorium

"General science monthly cross-section"

by R. Carreras