

SEMINARS SEMINAIRES

Lundi 2 avril

SEMINAIRE AT

à 11.00 h – Amphithéâtre, bâtiment principal

Le petit monde de la cryogénie

par un groupe de cryogénistes

La cryogénie pure n'existe pas – en tout cas pas au CERN : il n'y a que la cryogénie appliquée. Tout en étant cryogéniste, on est d'abord collaborateur d'une expérience ou d'un accélérateur avec composantes cryogéniques de toute sorte, allant des chambres à bulles jusqu'aux cavités supra d'accélération. La création d'un groupe unique de cryogénie pour tout le CERN n'entend pas mettre fin à cette individualisation, mais faciliter la communication et l'entraide entre les différentes espèces de cryogénistes.

Ce séminaire traitera de la cryogénie associée aux collisionneurs du CERN :

- opération des installations cryogéniques du LEP et du SPS, tenant compte des problèmes liés à leur prolifération épidémique ainsi qu'à leurs grandes distances (J.-P. Dauvergne)
- cavités accélératrices supra dans le SPS fonctionnant comme injecteur du LEP (G. Passardi)
- aspects cryogéniques du projet LEP-200 (D. Güsewell)
- aspects cryogéniques du projet LHC (Ph. Lebrun).

Monday 2 April

EF SEMINAR

at 11.00 hrs – EF Conference Room

bldg 13, 2-005

DELPHI gas technology

by Robin BROWN / CERN

DELPHI adopted a modular design for its 12 different gas mixture supplies. The mixers employ mass flow controllers, giving a mixture stability of about $\pm 0.1\%$ with programmed feedback. Multi-channel distribution systems monitor chamber gas losses. Two recirculating systems purify chamber gas to 1 ppm O₂, with automatic regeneration of purifier columns. Each module is controlled by an autonomous G64 microprocessor. The distributed control system is connected via Ethernet to G64 graphics stations and the VAX world using CATS calls and STRINGLISH, a plain text control protocol.

Monday 2 April

PROTON SYNCHROTRON AND SYNCHRO-CYCLOTRON COMMITTEE

at 14.00 hrs – Council Chamber

Open session

1. Progress Report on Expt. PS 189 - High precision mass measurements with a radiofrequency mass

spectrometer - Application to the measurement of the $p\bar{p}$ mass difference (CERN - Orsay CSNSM; C. Thibault).

2. Progress Report on Expt. PS 172 - Spin effects in $p\bar{p} \rightarrow K^+K^-, \pi^+\pi^-, p\bar{p}$ above 200 MeV/c (Amsterdam NIKHEF - Geneva - London Queen Mary College - Surrey - Trieste Univ./INFN; D. Bugg).
3. Status Report on ISOLDE move (D. Simon).
4. ISOLDE proposals :
 - COMPLIS : Collinear Spectroscopy Measurements using a Pulsed Laser Ion Source (Orsay - Mainz - Montréal - Paris - Lyon - GSI; PSCC/90-1/P121; 90-2/S121; G. Huber).
 - Microscopical studies of structural and electronic properties of semiconductors (Konstanz - Erlangen; PSCC/90-3/P122; 90-4/S122; D. Forkel).
 - A search for axions by nuclear resonance scattering (CERN-Aarhus; PSCC/90-5/P123; 90-6/S123; G. Weyer).

Closed session

Tuesday 3 April

at 09.00 h – 6th floor Conference Room

Tuesday 3 April

TECHNICAL PRESENTATION

09.00 to 12.00 hrs & 13.30 to 16.00 hrs
bldg 17, 1-007

Vector Network Analyser Seminar

by Gottfried LANG / Wiltron GmbH (D, UK, USA) & Thomas Hartmann / Tactron Electronic, EESOF (D, USA)

Measurement techniques, time-distant and frequency-domain, pulse profile, software packages.

09.00-09.15 WILTRON-information
09.15-10.00 VNA 360, S-parameter test-sets
10.00-10.15 Coffee break
10.15-11.00 Time domain, pulsed VNA
11.00-12.00 Introduction from EESOF
12.00-13.30 Lunch break
13.10-16.00 Workshop of customers devices
(Please bring your own components to the workshops)

Organizer : Amotec Electronics AG (CH), tel. 01/391.59.01

Languages : English + French & German
when necessary

Information : M. Diraison / FI / 4585

Tuesday 3 April

PRESENTATION

10.00 to 12.00 hrs & 14.00 to 16.00 hrs
CN Auditorium, bldg 31, 3-005

DAZIX analog CAE/CAD products

A general presentation of DAZIX's Analog CAE/CAD tools, including a comparison of the new APEX analog simulator with SPICE-based simulators, will be followed by a demonstration of:

- *schematic entry and compilation for analog simulation*
- *the user interface VLAB*
- *simulation with DSpice*
- *simulation with APEX*

After the presentation, the speakers will be available for informal discussion.

CN Organizer : R. Zurbuchen / 2389 /

zrudj@cernvm

Language : English

Wednesday 4 April

TECHNICAL PRESENTATION

10.00 to 12.00 hrs & 14.00 to 15.30 hrs

LEP Auditorium, bldg 30, 7th floor

Devlonics N.V. (B), a European electronic engineering company, which combines engineering and project management, has system integration expertise based on five specific technologies : industrial image processing, data communication, machine control, interactive terminals, CD-technology (CD-ROM-, CD-I- and CD-XA-applications)

10.00-10.30 Corporate presentation

10.30-10.50 ADIDS (Advanced Data and Image Distr. System)

11.00-11.20 Energy/telemonitoring

11.20-11.40 Datacommunication (X.25, ISDN, etc.)

11.40-12.00 Conclusions

14.00-15.30 Project opportunities

Languages : English and French

Information : M. Diraison / FI / 4585

Wednesday 4 April

PRIAM PRESENTATION

at 10.30 hrs – CN Auditorium

bldg 31, 3-005

VMEbus I/O modules

from Janz Computer AG

Janz Computer AG specializes in the design and construction of VMEbus input/output modules. Their product range will be presented, including :

- *Parallel input/output*
- *A/D and D/A converters*
- *A modular I/O concept for the PC-AT bus as well as the VMEbus*

Language : English

Organizer : C. Parkman / 3963 /

Email : pmn@cernvm

Wednesday 4 April

THEORETICAL SEMINAR

at 14.00 hrs – TH Conference Room

Spin and statistics of anyons in topologically massive 2 + 1 dimensional canonical quantum field theory

by P. SODANO / Dipartimento di Fisica,
Università di Perugia, Italy

After discussing the generation of a Chern-Simons term in the effective action for gauge fields in 2 + 1 dimensions, I use canonical quantization to examine the relationship between this term and exotic spin and statistics of elementary quanta (anyons). I argue that topologically massive QED is solved in the long wavelength limit by multivalued fields with anomalous spin which create quantum states with exotic exchange statistics. The quantum states with N particles represent the braid group B(N). I analyse the implications of this result for a 0(3) non-linear sigma model in which the 'charge carriers' are topological solitons. I briefly discuss radiative corrections to the statistical parameter of the anyons.

Wednesday 4 April

CN SEMINAR

Part 1 : 14.30 - 15.30 presentation &
demonstration (overview)

15.30 - 16.00 question & answer session

Part 2 : 16.15 - individual demonstrations &
discussions

DD Auditorium, bldg 31/3-005

**NEXPERT Object, expert system technology
for integrated solutions**

by Jean-Marie CHAUVET / Co-Founder and
VP of NEURON Data, Paris Office & Arthur
MUEHLEMANN / VP Koller + Partner AG,
Baeretswil (CH)

The NEXPERT Object expert system technology brings the full power of rules and objects to applications across all domains and opens exciting new ways for advanced computer application development. Rules express the knowledge involved in the reasoning process and the control of information flow. Objects represent the state of the world upon which the reasoning is performed. The AI-Library in 'C' allows the knowledge system to be embedded in any commercial or industrial environment. This allows the separation of the knowledge from the control structure of a program, resulting in a higher flexibility, a shorter development cycle and a better maintainability of an application. NEXPERT Object runs on many different platforms ranging from PCs, MACs, UNIX and VMS systems up to IBM mainframes, supporting also client-server architecture. The presentation will include a demonstration of the NEXPERT Object development system as well as demonstrations of the various tools and capabilities in the runtime environment.

Thursday 5 April

TIS SEMINAR

at 14.00 hrs – Council Chamber

The Swedish Final Repository (SFR) for radioactive waste

by Gunnar SCHÜTZ / Visitor Centre,
Information Officer, Vattenfall, Östhammar,
Sweden

The SFR repository for low and intermediate level radioactive waste has a storage volume of 60 000 m³, located about 60 metres below sea level. It has both rock caverns and silos, blasted out of the solid rock. The waste consists of used filters, ion exchange compounds, scrapped reactor components, as well as radioactive materials from industrial and medical applications. During the seminar, a short video (13 min.) will be shown.

Thursday 5 April

ISOLDE SEMINAR

at 16.00 hrs – TH Conference Room

Investigation of nucleon distributions in nuclei far from stability

by G.D. ALKHAZOV / Leningrad Nucl. Phy. Inst.

Thursday 5 April

CERN COLLOQUIUM

at 16.30 hrs – Auditorium*

Probing the Big Bang with LEP

by D.N. SCHRAMM / University of Chicago

LEP is experimentally testing the Big Bang cosmological model at an earlier epoch and to a greater precision than any previous technique. In particular the measurement of the number of neutrino types confirms the prediction made using Big Bang nucleosynthesis arguments. This may be the first time that a laboratory high energy experiment has directly verified a cosmological prediction; and it thereby 'consumates the marriage' of particle physics and cosmology. This talk will review the cosmological argument on the number of neutrinos and the interrelationship of that argument with the Big Bang nucleosynthesis arguments on the baryon density of the universe. LEP's confirmation adds further support to the argument that baryons only make up about 10% of the critical density. The robustness of this conclusion will be discussed in the light of possible variations, including assumptions about the quark-hadron transition. The nucleosynthesis arguments coupled with the inflation paradigm are the prime argument for non-baryonic dark matter. The candidates for this non-baryonic dark matter are also severely constrained by LEP.

* Tea & coffee will be served at 16.00 hrs.

Friday 6 April

SL SEMINAR

at 11.00 hrs – SL Auditorium
bldg 864

A Hamiltonian-free description of complex periodic systems

by Etienne FOREST / LBL

In accelerator physics, single particle dynamics is controlled by a very complex Hamiltonian involving very large numbers of parameters. In this talk, it will be shown that an appropriate theoretical approach involve Maps rather than Hamiltonians and how to replace Hamiltonians by a collection of maps, which can be calculated to an arbitrary order using the differential algebra techniques of M. Berz. In this context the concept of a Floquet 'Ring' will be introduced. Assumptions on the physics will dictate how the maps are approximated (i.e. Taylor series or fitted modes a la Warnock). For these Taylor series maps, the use of the Differential Algebra and the Lie Transform theory allows for the computation of the usual quantities of perturbation theory, including single resonances. Finally, it will be shown how the perturbative theory on the Taylor series map and the nonperturbative techniques of R. Warnock can be merged into one single unit using the Lie factorization of J. Irwin.

Monday 9 April

EF SEMINAR

at 11.00 hrs – EF Conference Room
bldg 13, 2-005

Methods and tools for the design of electronic systems in the LHC era

by Mike LETHEREN / CERN

Advanced CAE tools and methods together with semi-custom ASIC technologies promise to be important in the development of electronic systems for the next generation of physics experiments. Hardware description languages can be used to formally specify and document system requirements, to explore and verify different design solutions, and to estimate system performance at each stage in a 'top-down' design method. Logic synthesis and silicon compilation boost designer productivity and at the same time improve the reliability and portability of the design. Recent CAE standards and 'frameworks' will ease the problem of porting design data between different tools. CAE and CASE methods will combine in new tools providing support for integrated design of hardware and software components of systems.

Mardi 10 et mercredi 11 avril

PRESENTATION TECHNIQUE

de 10 à 16.00 h – bât. 73, salle 2-027

Mesure électronique et capteurs

par SYMECORA

**MESURE ÉLECTRONIQUE
ET CAPTEURS**

CERN - Bâtiment 73 - Salle 2-027

LE MARDI 10 AVRIL 1990
de 10 h 00 à 16 h 00

Pour vous permettre de mieux connaître leurs matériels, les constructeurs français adhérents du SYMECORA (SYndicat de la MESure, du CONtrôle et de la Régulation Automatique) vous invitent à visiter l'exposition organisée à cet effet.

CONTRÔLE-RÉGULATION

CERN - Bâtiment 73 - Salle 2-027

LE MERCREDI 11 AVRIL 1990
de 10 h 00 à 16 h 00

ENTREPRISES	PRODUITS
METRIX	Multimètres analogiques et numériques, oscilloscopes
MULTISOURCES ÉLECTRONIQUE	Charges électroniques, alimentations programmables IEEE, source alternative, interface de programmation IEEE, alimentation de laboratoire de puissance, alimentations d'équipements, alimentations ininterrompibles.
S.A.A.S. ÉLECTRONIQUE	Convertisseurs et alimentations pour applications en nucléaire, militaire, spatial.
SCHLUMBERGER Div. CAPTEURS	Capteurs de pression, électronique associée, conditionneurs. Capteurs de déplacement, capteurs de force.
SEDEME	Capteurs/transmetteurs de pression, de force et d'accélération. Electroniques associées.
SEFELEC	Diélectrimètres, mégohmmètres, milliohm-mètres, ohmmètres, ponts de mesure, gigaohmmètres, testeurs, alimentations basse tension et haute tension.
THERMOCOAX	Thermocouples. Capteurs capacitifs pour microdéplacements.
THERMO-EST	Capteurs et transmetteurs de température.

ENTREPRISES	PRODUITS
ADAREG	Vannes de régulation cryogéniques. Clapets électromagnétiques. Vannes pour micro-débites.
BOURDON	Capteurs de pression et température. Manomètres métalliques, manomètres portatifs électroniques, manostats, pressostats. Balances d'étalonnage.
CORECI	Ensemble de la gamme indicateurs-régulateurs-programmateurs, ensemble de la gamme humidité, produits de surveillance, gradateurs de puissance.
DIGIMETRIE	Mesures assistées par ordinateur.
KROHNE	Débitmètres, mesures de niveaux, densimètres.
M.C.C.	Régulateurs numériques universels. Enregistreurs potentiométriques à tracé continu. Calculateur totalisateur de débit.
SART	Débitmètres électromagnétiques et massiques. Indicateurs et contrôleurs de niveaux. Vannes de régulation.
SFERE	Convertisseurs/transmetteurs de mesure analogique, convertisseurs/transmetteurs de mesure numérique universels entièrement programmables

Langues : anglais, français

Renseignements : M. Diraison / FI / 4585

Tuesday 10 April

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium

Recent results from L3

by S.C.C. TING / CERN & MIT

The L3 detector is designed to measure photons, electrons and muons precisely. So far, 20000 events have been analysed. The subject of the talk includes decay of Z^0 to hadrons, to muons, electrons and photons.

Thursday 19 April

CERN PARTICLE PHYSICS SEMINAR

at 16.30 hrs – Auditorium

Heavy flavour physics and QCD in the infinite-mass limit

J. BJORKEN / SLAC & Pisa

Isgur and Wise (Wisgur) have recently found that the formal limit $M_B, M_D \rightarrow \infty$ leads to powerful restrictions on the matrix elements of weak currents between B, B^ and D, D^* . This should help to systematize B and D decay phenomenology in a relatively model-independent way. The results of Wisgur will be reviewed and extended.*