

Friday 4 October

TECHNICAL PRESENTATION

at 10.00 hrs - PS Auditorium, bldg 6/2-024
Software Tools for Maths and Data Analysis
Current Products and Future Directions
by Karen WALKER / Mathsoft (Mathcad)

Organiser: C. Eck/CN/74260

Vendredi 4 octobre

PRÉSENTATION TECHNIQUE

13.30 à 16.30 h - Salle de conférence bât. 13/3-003
Vannes et clapets, petit et grand diamètres, pour des applications en nucléaire cryogénie
par S. Brolin / BOUVIER DARLING

Langues : anglais, français

Information : L. Abel / FI-A /79561

**EDUCATION
SERVICES
EDUCATIFS**



Jeudi 3 octobre

ENSEIGNEMENT GENERAL

à 13.00 h - Amphithéâtre
Science pour tous
par Rafel Carreras

Reprise des séances

*Veillez prendre note qu'il n'y aura pas de séance
le jeudi 24 octobre.*

**ENSEIGNEMENT TECHNIQUE
TECHNICAL TRAINING**

Monique Duval 74460
monique_duval@macmail

Information sur les cours, dates et places disponibles sur WWW :
Information about the courses, dates and places available on WWW :
<http://www.cern.ch/Training/>

PERMANENCE BUREAUTIQUE

La première permanence bureautique aura lieu :
lundi 7 octobre 1996, Salle 23 - bar. 572
Dès 09.00 h. : vos questions
Dès 14.00h. : Nouveautés de WORD 6

ACADEMIC

TRAINING

ENSEIGNEMENT ACADEMIC

F. Benz Secretariat 3127

Information about lectures on WWW:
<http://www.cern.ch/Training/>

1996 - 1997 ACADEMIC TRAINING PROGRAMME

Ist Term

30 September - 13 December 1996

LECTURE SERIES FOR POSTGRADUATE STUDENTS

30 September, 1, 2, 3 & 4 October

11.00-12.00 hrs - Auditorium
Beyond the Standard Model
by L. IBANEZ / Univ. Autonoma de Madrid,
Spain

7, 8, 9, 10 & 11 October

11.00-12.00 hrs - Auditorium
Quantum Field Theory
by L. ALVAREZ-GAUMÉ/CERN-TH

11, 12, 13, 14 & 15 November

11.00-12.00 hrs - Auditorium
Quantum Chromodynamics
by M. NEUBERT / CERN-TH

9, 10, 11, 12 & 13 December

11.00-12.00 hrs - Auditorium
Gaseous Detectors
by H.G. FISCHER / CERN-PPE

The lectures are open to all those interested, without application.

The abstract of the lectures, as well as any change to the above information (title, dates, time, place, etc.) will be published in the CERN Bulletin, the WWW, and by Notices before each Term and for each series of lectures.

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Technical seminar

LASER TECHNIQUES DEVELOPMENT AND APPLICATION

8 October at 09.00 hrs - SL Auditorium, bldg 8641-D02

Current Aspects of Laser-Matter Interactions

C. Fotakis and N. Vainos, FO.R.T.H, Institute of Electronic Structure and Laser (I.E.S.L.), Heraklion, Crete, Greece

Laser-matter interaction phenomena which are important in a variety of applications will be overviewed. Access to modern laser technology is a key issue for the realization of these applications. Emphasis will be placed in the following areas:

1. Strong field effects:

non linear processes: from atoms to solid surfaces

2. New spectroscopic applications:

materials development, surface modification, thin film deposition, micro-machining, micro-etching and laser cleaning.

3. Opto-electronics and fiber optic sensors:

selected examples will be presented and existing prospects will be discussed.

Particle acceleration with Lasers

E. Wilson, CERN, LHC Division

Applications of lasers in the accelerator field include beam cooling, production of polarised leptons and the measurement of polarisation in circulating beams. They offer the prospect of an intense source of ions and their short pulses can provide the picosecond long pulses from a photocathode in the electron gun of the CLIC drive beam. Their diffraction fringes can measure the alignment of the final focus to nanometer precision. Harnessing their intense transverse E vector to accelerate longitudinally is a tantalising challenge yet to be realised on a practical scale.

High charge-state heavy ion generation with a C₀ laser

A.J. Tambini, CERN, PS Division

The CERN laser ion source uses a free-running C₀ laser producing 0.3 GW in a 100 ns pulse, focused onto a metal target (spot size 35 mm) to produce high charge-state heavy ions. The study aims at demonstrating that a beam with parameters suitable for LHC injection can be produced..

Picosecond electron bunch generation from laser driven photocathodes

H. Braun, CERN, PS Division

Intense electron pulses of picosecond duration are essential for free electron lasers and for particle physics electron accelerators. Such pulses can be provided by photo-cathodes illuminated by short laser pulses. The electrons are accelerated by applying a pulsed radio-frequency field on the photo-cathode

Laser Spectroscopy of Antiprotonic Helium

J. Eades, CERN, PPE Division

The discovery at KEK, Japan, in 1991 of a metastable form of antiprotonic helium immediately raised the tantalising possibility of applying the full arsenal of modern laser techniques to the study of antiproton containing exotic atoms. This promise was very rapidly fulfilled at LEAR, where each successive year has seen new developments and increasing accuracy in these studies. The Antiproton Decelerator facility, the proposed successor to LEAR, is the ideal machine for continuing this work.

Interferometric Laser Techniques Applied to Measurements of Small Displacements

M.A. Vaz, University of Oporto, Faculty of Engineering, Oporto, Portugal

A brief historical resume of these techniques and a presentation of the most usual set-ups for displacement and deformation measurements will be given. The advantages and disadvantages of the utilisation of these methods when compared with classical ones will be discussed. Some examples of their application to engineering problems will be presented.

Semi-conductor Lasers for Optical Signal Transfer in LHC detectors

F. Vasey, CERN, ECP Division

Optical data transmission from detector front-end to readout electronics is being actively investigated by all LHC experiments. We review technological options and focus on the semiconductor-laser based optical link developed for the CMS tracker detector.

The Use of Laser Techniques in the Alignment of Detector Elements

F. Klumb, CERN, PPE Division

The new generation of particle detectors requires an accurate on-line survey of their components. These measurement systems must permanently provide a three-dimensional picture of the subdetectors' positions. Laser light, sent into the heart of the detector with numerous monomode optical fibres, coupled with CCD cameras, can give the required precision.

Laser for Machining and Welding at CERN

F. Bertinelli, CERN, EST Division

The CERN EST-MF Workshops are equipped since 1995 with a general purpose Nd-YAG laser equipment for machining and welding. The technology is briefly introduced and the possibilities of the equipment described. Examples of applications from the accelerator and research sectors are presented (cutting and drilling of 50 mm holes in ceramics for hybrid circuits, welding of stainless steel for the LHC beam screen, welding of 20 mm nickel for the LHC beam position monitor, etc.).

This seminar is free of charge and no prior enrolment is required.

Additional shuttle buses between the Main Building (bldg. 500 Meyrin) and building 964 (Prevezin) will be provided in the morning from 8.30 on and during lunch time.