
ENSEIGNEMENT ACADEMIQUE ACADEMIC TRAINING

Françoise Benz ☎ 3127

Informations détaillées sur le WWW
Information about the lectures on WWW
<http://www.cern.ch/Training/>

LECTURE SERIES

15, 16, 17, 18 & 19 April

11.00 to 12.00 hrs – Auditorium

Medical Imaging

by D. Townsend, Univ. of Pittsburg, USA

Since the introduction of the X-ray scanner into radiology almost 25 years ago, non-invasive imaging has become firmly established as an essential tool in the diagnosis of disease. Fully three-dimensional imaging of internal organs is now possible, both for anatomical investigation and for studies which explore the functional status of the body. Powerful techniques to correlate anatomy and function are available, and scanners which combine anatomical and functional imaging in a single device are under development. Such techniques have been made possible through recent technological and mathematical advances. This series of lectures will review both the physical basis of medical imaging techniques using X-rays, gamma and positron emitting radiotopes, and nuclear magnetic resonance, and the mathematical methods used to reconstruct three-dimensional distributions from projection data. The lectures will trace the development of medical imaging from simple radiographs to the present-day non-invasive measurement of in vivo biochemistry. They will be aimed at non-specialists with a scientific background and all techniques will be extensively illustrated with appropriate examples of medical images.

INFORMATIONS GENERALES GENERAL INFORMATION

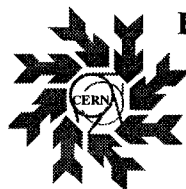
There will be an Open Day on

Saturday 11 May 1996 from 09.00 to 18.00 hrs

when most of CERN's experiments and high technology equipment will be on show. You can go down below ground on a guided tour of the LEP tunnel, see what virtual reality feels like, surf the World-Wide Web, do some experiments yourself at "Physics In The Street".

Further details will be provided in a forthcoming issue of the Weekly Bulletin.

Visits Service / DSU
Open.Day@Macmail.CERN.CH



ENSEIGNEMENT TECHNIQUE TECHNICAL TRAINING

Monique Duval ☎ 44.60
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/>

Technical Seminar

April 25, 1996 at 14.30

Room 13, Building 593

Magnetostrictive Force Actuators for High Precision Positioning

V.I. Rakhovsky (VMP LTD, Moscow, Russia)

Magnetostrictive actuators for positioning with subnanometer resolution (10^{-2} nm) in ranges up to 1 m have been developed and used. These actuators with 10 nm step can also be used as force actuators to deliver efforts up to 10^4 N. Precise displacements are set by active elements made of giant magnetostrictive alloys.

The actuators have been designed for precise manipulators and object tables, nanotechnology devices, adaptive optics, for the manufacturing of VLSI, Fresnel optics, diffraction gratings, etc. Low-power excitation of active elements is performed due to a unique patented method allowing for a drift of less than 10^{-3} nm/s without any temperature stabilization. The actuator consumes energy only during displacements.

It can be either operated manually without any external energy source, or by computer control. With manual control one can achieve steps of 3 nm, and with a reduction gear $15 \cdot 10^{-3}$ nm. Under computer control these values are 10^{-2} nm resp. $4 \cdot 10^{-5}$ nm. The dimensions of these actuators are 50 x 31 x 27 mm and 120 x 190 x 38 mm.

The author will give a demonstration of the micropositioner under various conditions.

This seminar is free of charge and no registration is necessary.

Une journée Portes Ouvertes aura lieu le

samedi 11 mai 1996 de 09.00 hrs à 18.00 hrs

où de nombreux circuits de visite vous permettront de découvrir les expériences du Laboratoire, au travers d'installations de haute technologie telles que le tunnel du LEP. Vous pourrez également assister à des démonstrations de réalité virtuelle, le World-Wide Web vous ouvrira ses portes et la physique sera à votre portée dans la rue.

Les détails du programme vous seront communiqués dans un Bulletin hebdomadaire ultérieur.

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