



ΓΕΝΙΚΟ ΣΕΜΙΝΑΡΙΟ ΤΜΗΜΑΤΟΣ ΦΥΣΙΚΗΣ

PHYSICS COLLOQUIUM

Thursday, 2 December 2010
17:00-18:00

3rd Floor Seminar Room

**"THE X-RAY LASER HAS ARRIVED: NOW
WHAT?"**

P. Lambropoulos
UOC Physics Department and IESL-FORTH

ABSTRACT

The first accelerator based (FEL) Free Electron X-ray laser (LCLS), with photon energies up to 7 KeV, began its operation at SLAC in Stanford in the Spring of 2010. This comes 8 years after the first operation of a more modest facility (FLASH) at DESY-Hamburg, which had reached soft X-ray photon energies (up to 100 eV), to be followed in 2014 by a much more ambitious machine in Hamburg, with photon energies up to 10 KeV and photon flux higher than that of LCLS; not to mention a number of other powerful FEL facilities under construction elsewhere.

After a brief introduction to the nature, properties and parameters of such sources, I review selected data from FLASH, as well as the first data from LCLS. I discuss the problems of interpretation they pose and the realm of possibilities opened by these facilities.