



UNIVERSITÀ DEGLI STUDI DI PERUGIA
DIPARTIMENTO DI
FISICA E GEOLOGIA

Perugia, 7 Marzo 2014

Il Direttore

AVVISO DI SEMINARIO GENERALE

Il giorno **20 Marzo** 2014 alle ore **16.00** presso l'aula **A** del Dipartimento di Fisica, il Dr. **Marco Zangrando** dell'Istituto Officina dei Materiali del CNR (IOM-CNR) di Trieste, terrà il seminario dal titolo:

FERMI@Elettra, the Italian seeded Free Electron Laser user facility in Trieste: basic principles, status, and first results

Abstract:

The FERMI@Elettra Free Electron Laser (FEL) in Trieste is the first seeded EUV-SXR FEL user facility in the world. After the first photon emission in December 2010, and the following commissioning, it became operative and open to external users in December 2012. It delivers ultrashort, highly intense and coherent photon pulses in the 100 - 4 nm range, with full control of the polarization. Two separate high gain harmonic generation FEL lines covers the emission range: the single stage cascaded FEL-1 emitting in the 100-20nm range and the double stage cascaded FEL-2, where the additional stage extends the spectral range to 20-4nm. The properties of intensity, spectral purity, coherence, and stability intrinsic to a seeded FEL are characterized by a diagnostic section (PADReS) that also serves as a manipulation and transport system to the (now) three operative end stations. Several novel experiments have been already carried out exploiting the unique performance of the machine, and others are already planned. The basic FEL principles together with the FERMI seeded FEL peculiarities will be presented, and compared to those of a third generation synchrotron radiation (SR) source. Moreover, some examples of typical FEL-based experiments will be described, so to give a glimpse about similarities and differences with respect to some of the SR-based ones.

Prof. Caterina Petrillo

Direttore del Dipartimento di Fisica e Geologia