



AVVISO DI SEMINARIO

Il giorno venerdì 28 aprile 2017 alle ore 11:00
presso l'Area della Ricerca CNR di Pisa, Aula 33, piano Terra, Edificio "A"

la Dr. Kate LANCASTER

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terrà un seminario sul tema:

Guiding laser-produced fast electrons using large magnetic fields

Abstract:

Currently we are able produce with laser plasma interactions some of the most extreme conditions on earth. When ultra-intense lasers are focused on to solid material, the fields associated with the laser are so strong that electrons can easily escape the atoms in the material.

Absorption of the laser pulse results in the generation of a population of relativistic electrons, with currents on the order of Mega Amps. The physics associated with how the electrons are produced and subsequently transported in plasma is complex and proves challenging to diagnose and study. Importantly, these fast electrons are the driver for much of the subsequent physics during these interactions including generation of energetic particles/ photon sources, unique atomic physics states such as hollow atoms, hydrodynamic phenomena, production of warm / hot dense matter relevant to stellar interiors, heating of matter relevant to alternative laser driven fusion schemes such as fast ignition, and conditions relevant for understanding of nuclear astrophysics in the most extreme objects in our universe. This talk will illustrate some of the experiments happening on petawatt-class lasers about how to control important fast electron beam parameters (such as divergence) using novel structured targets.