



CONSIGLIO NAZIONALE DELLE RICERCHE
ISTITUTO NAZIONALE DI OTTICA

AVVISO DI SEMINARIO

Il giorno giovedì 18 giugno 2015 alle ore 15,30

presso l'Area della Ricerca di Pisa

Aula 33, Piano terra

Il Dr. *Alessandro FLACCO*

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terrà un seminario sul tema:

Intense magnetic fields and electron dynamics in underdense relativistic laser plasma interaction

Laser interaction with dense micrometric-scale plasmas offers a challenging and relatively unexplored scenario to seek for new ion acceleration mechanisms. At densities of $5\%n_c$ and above, fast electron dynamics and efficient laser energy deposition lead to the abrupt disruption of the laser pulse and to the creation of high temperature electrons and of magnetic fields as strong as several MGauss.

Temperature and density variations in the created plasma cylinder result in the formation and evolution of several electron currents, giving birth to a varied and fast evolving scenario. Thanks to the first high resolution, time resolved reconstruction of the azimuthal magnetic field during the laser propagation, a new mechanism for magnetic field generation is unveiled, which is proves to be relevant for scaled astrophysics experiments. Magnetic fields analysis also appears to be a powerful tool for inferring the properties of the electron currents in the ionized cylinder, helping to follow the laser energy deposition and the subsequent plasma evolution.