UNIVERSITÀ DEGLI STUDI DI PALERMO
DEIM - DIPARTIMENTO DI **E**NERGIA, INGEGNERIA DELL'**I**NFORMAZIONE E MODELLI **M**ATEMATICI

AVVISO DI SEMINARIO

Giovedì 23 marzo 2017, alle ore 16, nell'Aula Savagnone del DEIM (Ed. 9)
il Prof. Dimitris Charalambidis terrà il seguente seminario:

Advanced laser driven radiation and particle sources: from atto-science to hadron therapy

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The lecture gives an overview of the operation principles and parameters of advanced laser driven secondary sources and selected applications of them. High intensity, short pulse laser-matter interactions lead to the generation of radiation and particle pulses, the use of which challenges dynamics in the attosecond time regime and structures in the sub-nm spatial regime in all states of matter. Generation processes contain high order harmonic generation (HOHG), laser weak field emission/acceleration (LWFA) and Target Normal Sheath Ion Acceleration (TNSA). Applications of such sources include the study of i) ultrafast dynamics in atoms and molecules, from electron and reaction dynamics in small systems to charge migration in biological molecules; ii) magnon, electron-electron scattering and plasmon dynamics in surface and condensed matter; iii) Biomedical applications, such as radiobiology and biological imaging; iv) material science. Currently Europe is implementing the Extreme Light Infrastructure (ELI), the largest laser user research infrastructure (RI) distributed in the Czech Republic, Hungary and Romania. ELI will provide to users access to unique lasers, laser driven sources and workstations, offering unprecedented research opportunities in the above mentioned areas. Main features of the RI will be highlighted.