Thèse SPAM

Benoit MAHIEU

Groupe SLIC

Lundi 17 Juin 2013, 10h00

CEA Saclay - Amphi Claude Bloch bât 774 – Orme des Merisiers 91191 Gif-sur-Yvette

«Coherence, tunability, spectral and spatial properties of femtosecond extreme-ultraviolet light sources»

Single-pass free-electron lasers (FELs) are currently the most promising facilities for providing light pulses with high energies (μJ to mJ) at femtosecond time scales (1fs=10^{-15}s) and with ultrashort wavelengths (nanometer resolution i.e., down to extreme-ultraviolet and X-ray spectral regions). Extreme-ultraviolet FELs are still quite young so that many questions remain open. Those that will be addressed within my defence concern the so-called seeded configuration, where an external coherent source (the "seed") initiates the process. In particular, we will focus on the transverse and longitudinal characteristics of the light, its coherence, the properties of the temporal phase and the direct correlations between the seed and the FEL emission, through the studies carried out at the FERMI@Elettra facility of Trieste (Italy). We will also draw parallels between FELs and high-order harmonic generation (HHG), whose properties exhibit both competitive and complementary features.

Vous êtes tous cordialement conviés au pot qui suivra