

Séminaire LAL

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Mardi 16 avril 2019 à 11h00

Electron Acceleration in a Proton Driven Plasma Wave

Recent Results from the Advanced Wakefield Experiment (AWAKE) at CERN

Plasma wakefield acceleration offers the possibility to accelerate charged particles with GV/m gradients. In the first Run of the Advanced Wakefield Experiment (AWAKE) we used 400 GeV/c proton bunches from the CERN Super Proton Synchrotron (SPS) to excite wakefields over 10m of plasma. Since the SPS proton bunches are much longer than the plasma electron wavelength, they were seeded to self-modulate. After the self-modulation process saturated, a train of micro-bunches resonantly excited a high amplitude wakefield.

In this seminar I will discuss the ideas, challenges and realization of the AWAKE experiment and I will show the latest experimental results : the observation of radial proton bunch self-modulation and the demonstration that proton driven wakefields can be used to accelerate electrons. Further I will present the future of AWAKE as well as ideas for first high-energy physics applications.

Salle 101 - Bât. 200, Orsay

Organisation :

Joao Coelho - Thibaud Louis - Aurélien Martens - Dimitris Varouchas (LAL) - seminaires@lal.in2p3.fr

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