

Wakefield impact studies and issues in Future Linear Colliders: ATF2 and ILC case

Research Project / Research Group Description:

The research field of the group is: Accelerator Physics, focused on optics design, beam dynamics studies and design, development and construction of beam instrumentation techniques and devices.

Job position description:

With the successful running of the LHC, the high energy particle physics and accelerators community agreed that there is a strong scientific case for an electron-positron collider, complementary to the LHC, that can study the properties of the Higgs boson and other particles with unprecedented precision and whose energy can be upgraded. Two possible Future Linear Colliders electron-positron are being evaluated: the International Linear Collider (ILC) at 1 TeV and the Compact Linear Collider (CLIC) in the multi TeV range. Although the CLIC technology is acquiring a huge degree of maturity, the ILC technology is a mature working technology solution for an energy range of up to 1TeV.

In order to assess these two technologies test facilities: the Accelerator Test Facility (ATF2) and the Compact Test Facility (CTF3), are running with an important R&D programme focused on the issues of the FLCs as the study of nanobeam technologies and its stabilisation, the impact of wakefields...

The main objective of this job will be the study from the point of view of the wakefield impact of the different components of the accelerator mainly the collimation system in the performances of the FLCs. The work will have an analytical and numerical study part as well as the development of an experimental program in ATF2, continuing the first promising results obtained in the last measurement campaign in 2016. The experimental results in ATF2 will be crucial for having a better understanding and estimation of the wakefield impact in ILC and CLIC.

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Research project/Research Group website

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 713673.