

Date: 21.05.2019

Laser plasma electron accelerators for medical applications

Bachelor or Master Thesis

Abstract

Laser-plasma accelerators are the new frontier for compact particle accelerators. By using ultrashort high-power lasers it is possible to accelerate electrons up to GeV energies in few cm distances. This revolutionary technology has the potential to be used for different medical applications. In particular, the use of this technology to treat cancer and to produce medical radioisotopes is being investigated in these years.

The candidate work will be done in the Electron Acceleration Group at ELI-Beamlines and will consist in the understanding of the physics underlying the interaction of the electron beams with the matter, and in the study of the advantages of this new technique over the existing solutions.

The specific Thesis goal will be chosen according to the candidate's interest. The work could be either focused on simulations, experiments, or a combination of both. The candidate will be trained on the software and hardware required to accomplish the Thesis goals.

Supervisor

Gabriele M. Grittani

GabrieleMaria.Grittani@eli-beams.eu