

The application of plasma lenses with laser accelerated ion beams

Wednesday, 7 September 2016 18:20 (20 minutes)

The first plasma (Gabor) lens prototype operating at high electron density was built by the Imperial College London in 2015. The lens was tested initially with a “conventional” 1 MeV proton beam at the Ion Beam Centre of the University of Surrey and will be tested next at the IC Cerberus laser facility.

In this article we are going to explain in detail how a plasma (Gabor) lens works, what its performances are and which applications are possible in the context of ion laser-plasma acceleration. In particular, with three of such lenses it is possible to set-up an inline passive energy selection system and, with additional RF cavities, a beam line able to reduce the beam energy spread to below the 1% level without any additional losses.

Primary author: Dr POSOCCO, Piero Antonio (Imperial College London)

Presenter: Dr POSOCCO, Piero Antonio (Imperial College London)

Session Classification: New generation Ion Acceleration Beamlines