

L3IA – A Line for Laser Light Ion Acceleration

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The main goal of L3IA project is to establish an outstanding beam-line operation of a laser-plasma source in Italy taking advantage of the results achieved so far in this field by the collaboration through joint experimental campaigns and numerical modeling.

This laser-plasma source will be ready to operate with the first step at a laser-power level of 100 TW within the end of 2016 and this will allow Italy to immediately keep up with the pace of the European and international groups and laboratories involved in these research and to contribute with an advanced test facility. As a final goal the facility will provide reliable operation of a proton beamline at 14 MeV, implementing post acceleration and manipulation of laser-plasma driven ion acceleration using established acceleration schemes. At the same time, advanced acceleration mechanisms will also be investigated in view of future enhancements of the beamline.

The L3IA project obtained the scientific approval from INFN in Italy in October 2015.

The source will be designed to operate in PISA, at the CNR ILIL laser facility.

In the paper the main features of the project and the major opportunities that such a source may offer are presented and discussed.