

Laser Induced Light Ion Acceleration at LNF

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Laser-matter interaction at relativistic intensities open up new research fields in the particle acceleration and related secondary sources, with immediate applications in medical diagnostics, biophysics, material science, inertial confinement fusion, up to laboratory astrophysics. In particular laser-driven ion acceleration is very promising for hadron therapy once the ion energy will attain a few hundred MeV. The results of a “Start to End” simulation for a hybrid scheme are presented in another contribution in this conference.

As a matter of fact the limited value of the energy up to now obtained for the accelerated ions is the drawback of such innovative technique to the real applications. For this reason at LNF experiments are in progress, in the frame of the INFN-LILIA project, aimed to increase the energy of the ions in ultrahigh intensity regime ($I > 10^{19} \text{ W/cm}^2$) and at the same time to develop a post-acceleration of the ions suitably injected into a high field LINAC. The status of the experimental activity and first results will be presented.

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