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Laser-driven Ion Acceleration and Societal Applications at the Extreme Light Infrastructure (ELI)

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The ELIMAIA (ELI Multidisciplinary Applications of laser-Ion Acceleration) beamline has been recently installed at ELI-Beamlines in the Czech Republic. The main goal of ELIMAIA is to offer short ion bunches accelerated by lasers with high repetition rate to users from different fields (physics, biology, material science, medicine, chemistry, archaeology) and, at the same time, to demonstrate that this source can be delivered through innovative and compact approaches. In fact, ELIMAIA will provide stable, fully characterized and tunable particle beams accelerated by PW-class lasers and will offer them to a broad community of users for multidisciplinary applied research, as well as fundamental science investigations.

An international scientific network, called ELIMED (ELI MEDical applications), particularly interested in future applications of laser-driven ions for hadrontherapy, has already been established. In such a perspective ELIMAIA will enable to use laser-driven proton/ion beams for medical research thanks to the reliability and accuracy of its particle beam transport and dose monitoring devices.

An overview of the ELI-Beamlines international facility in the Czech Republic, along with the ELIMAIA user beamline and ELIMED objectives will be given.

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