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Development of a muon beamline at the ELI Beamlines laser facility

Tuesday 3 June 2025 16:00 (2 hours)

The ELI Beamlines (ELI-BL) facility is the Czech Republic based pillar of ELI ERIC. It is a new-generation high-power high-brilliance laser facility that offers its lasers to users worldwide. Among others, ELI-BL has a 1 PW (L3) and a 10 PW (L4) class lasers that can be used for laser wakefield electron acceleration.
It has been already demostrate that 1 PW lasers are able to accelerate electrons up to ˜10 GeV. 10 PW lasers will be able to achieve up to 100 GeV electrons. When interacting with matter, such high energy electrons generate muons either via the decay of photoproduced pions or via pair production.
ELI-BL plans to build a dedicated beamline for laser-driven muon production, thus adding to the very limited group of facilities able to offer a muon beam to users.
This contribution will present the ELI-BL muon project, its scientific goals, timeline, technical features, challenges and how these will be addressed.

Footnotes

Paper preparation format

LaTeX

Region represented

Europe

Funding Agency

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