

The R&D Roadmap towards ERL-based particle physics colliders

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With concerted R&D efforts under way, the Energy Recovery Linac (ERL) technique is an outstanding novel means to considerably improve the performance of particle physics colliders, providing excellent physics opportunities with significantly reduced power as is required for a next generation of sustainable machines. The European R&D Roadmap for ERL, endorsed by CERN Council, identifies the most crucial and impactful R&D actions to build confidence in the technical feasibility of high-power ERL accelerating systems. The presentation will provide an overview on the implementation status of this roadmap and evaluate the feasibility and potential performance of a portfolio of electron beam based future ERL accelerators under study, especially high-luminosity electron-proton and electron-positron colliders, which at high and at maximum considered beam energy will be suitable to thoroughly investigate the Higgs mechanism in single but as well double-Higgs boson production, resp.

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