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## A 3-16 GeV electron beam facility at CERN for particle physics experiments and accelerator studies

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A primary electron beam facility is proposed at CERN with main motivations; (i) dark sector experiments, and (ii), enabling a suite of development projects in accelerator technology.

The facility consists of a 3.5 GeV X-band linac injecting electrons into the SPS where the electron beam can be accelerated to around 16 GeV. This presentation will cover the design studies for the 3.5 GeV linac and the re-introduction of an electron beam in the SPS.

The potential of such beams for particle physics studies (e.g. Light Dark Matter Searches) and accelerator R&D will also be reviewed, with emphasis on the latter. The accelerator R&D possibilities cover linear collider studies, studies with relevance for circular electron-positron accelerators, plasma acceleration studied and general accelerator R&D (impedance studies, instrumentation, electron guns, positron production, irradiation studies, and more).

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