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The future of the CLEAR facility: consolidation, ongoing upgrades and its evolution towards future e- facilities at CERN

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The CERN Linear Accelerator for Research (CLEAR) is a versatile 200 MeV electron linac followed by an experimental beam-line, operated at CERN as a user facility. Its user community includes research groups working on beam instrumentation R&D, advanced acceleration techniques and irradiation studies, including medical applications. A recent internal review has confirmed the excellence of its scientific output and its strategic interest for the laboratory, extending the facility operation until at least 2030. In this paper we discuss the consolidation actions needed for continued operation together with the ongoing hardware improvements and their impact on the future experimental program. These upgrades include a new front-end for the laser system allowing for a highly flexible time structure, better stability and higher repetition rates, plus the implementation of a second beam line whose optics has been designed to match user requirements and will provide additional testing capability. Finally, we discuss the potential role of CLEAR in the path towards future high-energy electron facilities at CERN.

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