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Specifications for a new electron cooler of the antiproton decelerator at CERN

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After more than 40 years of operation in different machines, the Antiproton Decelerator (AD) electron cooler (e-cooler) is expected to be replaced by a new one designed at CERN. This new design is primarily driven by the necessity to ensure the reliable operation of the CERN antimatter facility for the next decade and beyond. This will also be the occasion to overcome the known limitations of the present e-cooler, as well as to integrate the most promising recent technologies. In this paper, we review the present AD e-cooling performance and discuss the main effects that have an impact on that performance. We then outline the chosen parameters and the design choices based on studies and experience. Finally, a preliminary analysis of the expected performance of AD with the new e-cooler is presented.

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Footnotes

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Yes

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