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Challenges for the EM-Separator and its alternatives

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The use of a common RF section in the Higgs and ttbar modes of the FCC-ee collider requires the separation of the beam outgoing from RF at point H. An electromagnetic separator (EMS) taking advantage of a combination of DC electric and magnetic fields has been first considered. The main challenges such has minimising the impact on the incident beam, high-voltage breakdown and device topology are currently being addressed, while certain aspects such as beam impedance preservation have still to be studied.

Recently, an alternative solution based on kickers has been proposed and the main requirements and feasibility are being assessed in parallel of the EMS project.

This presentation will give an overview of the current concepts and challenges regarding beam separation for the two alternatives using EMS or kickers.

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