

Design studies for a fast ramped high field superconducting septa

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The conceptual design for the SIS300 extraction septum magnet of the FAIR project was used as start point to further the development to significant higher fields. The curved, truncated cos theta septa uses an iron yoke mirror and induces 3.65 T over the effective length of 4 m. This design can be adapted up to 10 T using conventional low temperature superconductors. We present feasibility studies for a 5 T septum magnet with a single layer coil as well as for a 9.5 T double layer coil version based on the results of 2D magnetic field optimisations for both septa.

Primary author: Dr FISCHER, Egbert (GSI Darmstadt)

Co-authors: Dr SUGITA, Kei (GSI Darmstadt); Dr SCHNIZER, Pierre (GSI Darmstadt)

Presenter: Dr FISCHER, Egbert (GSI Darmstadt)

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