

Design status for a high field superconducting septum magnet

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“GSI proceeds design studies with respect to future requests of FAIR and further projects. Beyond the 2 T limit of an iron dominated magnet, a superconducting high field septum magnet is one of the key component of new planned circular accelerators. For a higher magnetic field, an 8 T level conceptual 2D design was presented in 2016. Now analytical calculations were made to acquire the design principle of a iron-yoked cosine-theta septum magnet at high fields far beyond 2 T. We present the status of the engineering study for a 4 T level superconducting septum magnet including the mechanical design of the magnet. Suggestions will be given to extend the electromagnetic design for other applications.

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