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Electromagnetic Design of HTS insert for NMR Magnet in Consideration of Screening Currents

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A 25 Tesla superconducting magnet for NMR will be fabricated in the Institute of Electrical Engineering, Chinese Academy of Sciences. The magnet consists of HTS insert and LTS outsert with the central field contribution of 10 T and 15 T, respectively. Based on the features of HTS insert with respect to winding geometry and screening current, an electromagnetic design method is proposed. High homogeneous central field can be obtained after the lock of the screening current distribution in the HTS tape. It makes the shimming work afterwards much easier with no attempt of elimination of the screening current.

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