

Development of a thin, internal superconducting polarisation magnet for the Polarised Target

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In order to improve the figure of merit of double-polarisation experiments at CB-ELSA in Bonn, the Polarised Target is working on a new dilution refrigerator.

For maximum polarisation of nucleons low temperatures and a high homogeneous magnetic field within the target area is needed.

A thin, superconducting magnet is in development, which will create a continuous longitudinal magnetic field of 2.5 T and which will be used within the new refrigerator. The solenoidal geometry of this magnet uses two additional correction coils, placed at a well defined calculated position, for reaching the homogeneity criteria of 10^{-4} needed for the dynamic nuclear process. Practically, the superconducting wires as well as the correction coils have to be placed with maximum precision: Small fluctuations of the distance between the current loops can diminish the requested homogeneity.

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