Sample Project: Ultra-light High-Field Superconducting Solenoids for particle detectors.

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Responsible	44604 - Dr. Herman Ten Kate
Created by	44604 - Dr. Herman Ten Kate
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Title

Ultra-light High-Field Superconducting Solenoids for particle detectors.

Description

New detector magnets for physics experiments are required. One option is to make these magnets as light as possible allowing their installation immediately surrounding the inner detectors.

Ultra-light, high- strength designs of 4 T class solenoids are a true challenge. Based on the experience of the 2T ATLAS central solenoid we are now aimingfor a 4tesla designwith a free bore of about 4 meter. A complete new technology for the superconductor is required to make this possible.

The project concerns the design and test of suchnewsuperconductors and coil structures.

Skills

Applied Physics: Analysis and simulation for particle detectors, Cryogenics . Mechanical Engineering: Computer integrated/aided design, Heat Transfer, Structural mechanics and machine development. Theory of Electrical Engineering: Application of numerical codes for design, Modeling and simulation, Numerical methods, FEM, BEM, Theory of electromagnetic fields

Disciplines

Applied Physics, General Engineering, Mechanical Engineering