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【383】 ReBCO High-Temperature Superconductors for Application in High Field Accelerator Magnets.

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High-temperature superconductors (HTS) promise a significant increase in performance of accelerator magnets. This presentation examines challenges related to today's ReBCO tape conductor and lays out an R&D roadmap towards a consistent magnet technology for the FCC-hh's main dipole system in terms of cable- and coil configurations, cryogenic, mechanical, and protection concepts. Numerical modeling is accompanied by sample testing and the construction of sub-scale demonstrator coils and magnets. A first program goal is the identification of ramp-losses and adequate cooling concepts for a magnet based on optimized ReBCO-based cable.

Theoretical Work

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