MT25 Conference 2017 - Timetable, Abstracts, Orals and Posters



Contribution ID: 141

Type: Invited 30 minutes Oral Presentation

[Invited] High Field Twin-aperture Dipole Magnet R&D for SPPC Pre-study

Monday 28 August 2017 15:00 (30 minutes)

A high field twin-aperture dipole magnet is under development as the key technologies R&D for high energy circular colliders like SPPC. The magnet is designed with combined Common-coil and block-type configurations. The main field is 12 T with 20% operating margin at 4.2 K. The aperture diameter is 30 mm. The fabrication and experimental test is divided into 3 steps: 1) 4 flat racetrack NbTi coils and 2 flat racetrack Nb3Sn coils are firstly fabricated and tested, to evaluate the fabrication process and stress management of Nb3Sn coils. 2) 2 more Nb3Sn coils are fabricated and tested together with the 1st 2 Nb3Sn coils, to provide 12 T main field in the top and bottom apertures with the diameter of 20 mm. 3) 2 racetrack ReBCO coils with flared ends are fabricated and inserted into the 4 Nb3Sn coils, to provide 12 T main field in the top and bottom apertures with the disign parameters, structure, fabrication process and preliminary test results of the magnet will be presented.

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Session Classification: Mon-Af-Or6

Track Classification: A1 - Superconducting Accelerator Magnets