

# HTS Technology R&D for Future High Energy Accelerators

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R&D of high field HTS magnet technology is ongoing at IHEP (Beijing, China) for future high energy accelerators. A hybrid twin-aperture dipole magnet is under development for SPPC pre-study. The magnet is designed with Common-coil configuration and will be fabricated with Nb<sub>3</sub>Sn and HTS superconductors. 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 Nb<sub>3</sub>Sn coils are firstly fabricated and tested, to evaluate the fabrication process and stress management of Nb<sub>3</sub>Sn coils. 2) 2 more Nb<sub>3</sub>Sn coils are fabricated and tested together with the 1st 2 Nb<sub>3</sub>Sn coils, to provide 12 T main field in the top and bottom apertures with the diameter of 20 mm. 3) 2 racetrack HTS coils with flared ends are fabricated and inserted into the 4 Nb<sub>3</sub>Sn coils, to provide 12 T main field in the top and bottom apertures with the diameter of 30 mm. The main design parameters, fabrication process and test results of the magnet will be presented. The R&D plan and steps for next years will also be discussed.

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