MT29 Abstracts and Technical Program



Contribution ID: 224

Type: Poster

Sat-Mo-Po.06-04: Magnetic field measurements of superconducting magnets in the BEPCII upgrade project

Saturday 5 July 2025 09:30 (1h 45m)

The upgrade project for the Beijing Electron-Positron Collider (BEPCII) aims to enhance the colliding beam energy from 1.89 GeV to 2.35 GeV, increasing the peak colliding beam energy to 2.8 GeV. In order to meet the requirement for higher luminosity at higher energy, newly designed superconducting magnets have been developed for the interaction region. These superconducting magnets consist of three anti-solenoids and one vertically focusing quadrupole magnet, symmetrically installed on either side of the interaction point. During the winding process of the anti-solenoid coils and quadrupole coils, low-temperature magnetic field measurements were carried out in a vertical Dewar to ensure that performance meets design specifications. Following the integration of the superconducting coils into a horizontal cryostat, horizontal magnetic field measurements of the superconducting magnet were conducted. This paper presents both the vertical and horizontal measurement systems, along with the associated measurement results.

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Session Classification: Sat-Mo-Po.06 - Mechanical and Magnetic Measurements