



Contribution ID: 200 Contribution code: TUE-PO1-606-05

Type: Poster

Development and preliminary test of Aluminum stabilized Stack ReBCO Tape Cable

Tuesday 16 November 2021 13:15 (20 minutes)

In order to meet the requirements of the large HTS solenoid detector magnet for Circular Electron Positron Collider (CEPC), a new high temperature superconducting cable, Aluminum stabilized Stack ReBCO Tape Cable (ASTC) has been proposed and developed. The HTS conductor is one of the promising options for the large solenoid applications. In this study, a 20 layers ASTC sample has been fabricated and tested in liquid nitrogen. To verify the self-field effect of the sample, a numerical analysis was performed by considering the current and magnetic field distribution using self-consistently model. In addition ASTC could be used as basic units to fabricate more complicated cable modulus, such as CICC and Rutherford cables. The main parameters, analysis and test results of the ASTC sample will be presented.

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Session Classification: TUE-PO1-606 High Tc Wires and Cables III