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Thu-Mo-Po4.05-02 [32]: Structure material performance evaluation for Bi2212 CICC conductor

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At present, Ag- sheathed Bi2212 is considered as the most suitable superconducting material to alternate the Nb-based material for the CICC conductor operation with the magnetic field higher than 20T. However, the Bi2212 round wire application technology development encountered difficulties, due to the complicated Bi2212 CICC manufacturing processes, the low mechanical performance as well as the stress and strain sensitivity of the Bi2212 wire. Therefore, structure material for Bi2212 CICC, such as cable strengthening material, cable wrapping material, Jacket and so on, are critical for keeping its stability performance. This paper reports the investigation results of three candidate structure materials, the high Mn steel and Ni80Cr. Especially, the effects on the microstructure and performance of these three materials during the Bi2212 phase forming heat treatment.

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