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Fabrication and Characteristics of HTS Racetrack Pancake Coils after Impregnation Process Using Various Materials

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Abstract: The YBCO racetrack pancake coils were wound by dry wing followed by impregnation. Various materials such as epoxy resin, paraffin, grease and so on with and without fillers were measured to impregnate coils. The superconducting characteristics of the coils after above different materials of impregnation were tested. Due to the anisotropic of the racetrack shaped coils, the impregnation material need to improve the stiffness of the coil. Among the materials, paraffin-impregnated coil exhibited the stiffness to some extent, strong operability and repeatability but had the disadvantage of poor heat resistance.

Keywords : YBCO; Racetrack Pancake Coils; Vacuum Impregnation; Superconducting Characteristics

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