



Contribution ID: 719 Contribution code: TUE-PO1-513-01

Type: Poster

AC Loss Measurement of Double Pancakes Wound with MgB₂ Rutherford Type Superconductor

Tuesday, 16 November 2021 13:15 (20 minutes)

Double pancake (DP) coils for a SMES coil have been developed using MgB₂ Rutherford type superconductor. The DP coils are indirectly cooled in liquid hydrogen in order that the current carrying region such as conductors and leads cannot contact directly with the liquid hydrogen. However the cooling efficiency of the indirect cooling system is less than that of the direct immersed cooling system. It is important for cooling system design to estimate AC loss of the SMES. The DP coils with 400 mm ID and 600 mm OD are wound with Rutherford type conductor composed of MgB₂ multifilament strands. The coils were electrically connected in series and the resultant storage capacity was about 10 kJ. Various triangular current waveforms up to 600 A were supplied to the coils and the AC losses of the coils were measured by calorimetric method under various conditions. In this paper the measurements of AC losses are described and the results are compared with the theoretical values.

Primary author: KOMAGOME, Toshihiro (MAYEKAWA MFG. Co., Ltd.)

Co-authors: Mr TAKAHASHI, Masafumi (Sophia University); YAGAI, Tsuyoshi (Sophia University); MAKIDA, Yasuhiro (KEK); SHINTOMI, Takakazu (KEK); Prof. HAMAJIMA, Takataro (Tohoku University)

Presenter: KOMAGOME, Toshihiro (MAYEKAWA MFG. Co., Ltd.)

Session Classification: TUE-PO1-513 SMES, Transformers, Wireless Power Transfer