

Development of 2 MVA Class Superconducting Fault Current Limiting Transformer (SFCLT) with YBCO Coated Conductors

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Abstract - We have been developing Superconducting Fault Current Limiting Transformer (SFCLT) with the functions of both superconducting transformer in normal operating condition and superconducting fault current limiter in fault condition. As the Step-5 of SFCLT project, in this paper, we designed and fabricated 2 MVA class HTS-SFCLT using YBCO coated conductors with the ratings of 3-phase and 22 kV/6.6 kV. The developed HTS-SFCLT is characterized by a hybrid structure of HTS coils using YBCO, YBCO/Cu and Bi2223 tapes for the design flexibility as both of the superconducting transformer and the superconducting fault current limiter. Fundamental tests of the HTS-SFCLT were carried out, and the design parameters as a superconducting transformer were verified.

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