Variations of Initial Fault Current Limiting Instant in Flux-lock Type SFCL

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In this paper, we investigated variations of initial fault current limiting instant in the flux-lock type high-Tc superconducting fault current limiter (SFCL). The flux-lock type SFCL consist of the primary and the secondary copper coils that are wound in parallel each other through the iron core.

The variations of initial fault current limiting instant in a flux-lock type SFCL were dependent on directions of winding by coil 1 and coil 2, inductances of the coil 1 and coil 2, fault angles. In these cases, directions of winding by coil 1 and coil 2 divided into two operations, subtractive and additive polarity winding operations. The Subtractive polarity winding operation can be analyzed into three modes. The Additive polarity winding operation can be analyzed into five modes. In the two operations, we experimented on variations of initial fault current limiting instant according to inductances of coil 1 and coil 2. As a result, the initial fault current limiting instant was adjusted according to inductance of coils.

keywords : Flux-lock type SFCL, subtractive, additive, inductance, limiting point