

## Analysis on Current Limiting Characteristics of Integrated Three Phase Flux-lock Type SFCLs with Fault Types

H. I. Du <sup>a</sup>, C. R. Park <sup>a</sup>, S. Park <sup>a</sup>, B. S. Han <sup>a</sup>, S. H. Lim <sup>b</sup>, H. S. Choi <sup>c</sup>

<sup>a</sup> *Division of Electronics and Information Engineering, Chonbuk National University, Jeonju, Korea*

<sup>b</sup> *School of Electrical Engineering, Soongsil University, Seoul, Korea*

<sup>c</sup> *Department of Electrical Engineering, Chosun University, Gwangju, Korea*

Fault accidents in electric power system contain line-to-ground and line-to-line faults. Line-to-ground fault is a balance one and accounts for 70-80 % of the faults, whereas line-to-ground is an unbalance fault. If those fault accidents are not restricted in the beginning effectively, it will affect the other facilities in the power grid due to the occurrence of the abnormal voltage in sound phases. In this study, an integrated three phase flux-lock type superconducting fault current limiter (SFCL) was proposed for the protection from the line-to-ground and line-to-line faults. Two types of the integrated three-phase flux-lock type SFCL, made by additive polarity winding and subtractive polarity winding connections, were applied to the simulation. From the analysis, we could find out that the SFCL with additive polarity winding showed better performance than the one with subtractive polarity winding.

Keywords : Additive and subtractive polarity winding, Fault accidents, Flux-lock type SFCL