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Thu-Mo-Po4.11-11 [84]: Improvement of Current Limiting and Interrupting Operation of Hybrid DC Circuit Breaker using Double Quench

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In this paper, DC current limiting and interrupting operation of DC circuit breaker using double quench, which consists of DC circuit breaker (DCCB), series resonance circuit, surge arrester and superconducting elements (SCEs), were analyzed. The suggested DC circuit breaker using double quench of SCEs can perform twice DC fault current limiting operation in case of larger DC fault current before DC circuit breaker is open. To verify the effective operation of the suggested DC circuit breaker using double quench of SCEs, the modeling for the components of DC circuit breaker, varistor and SCE was carried out and its operational characteristics were compared with the case without the SCEs. Through the analysis on the modeling results for the suggested DC circuit breaker, the advantages of DC circuit breaker using double quench of SCEs were described.

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