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Wed-Mo-Po3.11-07 [93]: Analysis of the influence of hot spots on the design of DC resistive SFCLs

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When High-temperature Superconducting Coated Conductors (HTS-CCs) are subject to a transport current of the order of the critical current, their low thermal diffusivity and nonuniform critical current density can easily lead to the appearance of destructive hot spots. The transition to the normal state probably causes the degradation of superconducting properties in HTS-CCs. In recent years, several valid methods to detect and protect against hot spots have been proposed, but their impact on the design of HTS-CCs based DC resistive Superconducting Fault Current Limiters (SFCLs) is not yet fully understood. In this manuscript, we will present numerical models that enable the simulation of hot spots on HTS-CCs and the prediction of their influence on the performance of DC SFCLs.

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