



Contribution ID: 964

Type: **Poster Presentation**

C3Po1B-09 [09]: Various Quench Protection Methods for HTS Magnets

Wednesday, July 24, 2019 9:00 AM (2 hours)

Quench protection is a major issue for HTS magnets that operate at high current densities with high stored magnetic energy. Quenches do not propagate rapidly in HTS coils and these coils heat up quickly because there isn't enough copper in the conductor. In addition, the conductor critical current and the engineering critical temperature will vary depending on the field orientation within the conductor. This paper points out the difference between current re-distribution within a magnet to keep a magnet from quenching and true quench protection where a portion of a coil has turned normal and the magnet stored energy is being deposited into the growing coil normal region. This paper discusses a number of magnet quench protection methods for both LTS and HTS magnets that have been described in the literature. A number of quench methods that work very well for LTS magnets may not work at all for an HTS magnet. The anisotropy of HTS conductors can be a limiting factor on whether a quench protection method works.

Author: GREEN, Michael (Lawrence Berkeley Laboratory)

Presenter: GREEN, Michael (Lawrence Berkeley Laboratory)

Session Classification: C3Po1B - Superconducting Magnet Systems II