

Multiphysics Modeling of Superconducting Canted-Cosine-Theta Dipoles

Wednesday, 13 April 2016 17:30 (2 hours)

The Superconducting Magnet Group at Lawrence Berkeley National Laboratory is building a series of Canted-Cosine-Theta (CCT) dipoles to test the performance of the CCT design at high field. The modeling techniques which have been developed for the design and analysis of these magnets will be presented. An integrated approach using ANSYS software will be shown which allows for magnetic, electric, mechanical, and thermal modeling using a single finite element mesh. The results of this modeling will be compared to strain gauge and electric measurements taken during recent tests of both NbTi and Nb₃Sn CCT dipole magnets.

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