MT25 Conference 2017 - Timetable, Abstracts, Orals and Posters



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Development and test of REBCO canted cosθ dipole coils with CORC® wires

Monday 28 August 2017 16:15 (15 minutes)

The US HEP Magnet Development Program is developing accelerator insert coils based on REBCO coated conductors. These insert coils will operate in high dipole or quadrupole background fields and enhance the field generated by the outsert coils made of Nb₃Sn or NbTi conductors. The inserts are of canted $\cos \theta$ (CCT) design configuration, which effectively intercepts the accumulation of azimuthal stress that can potentially damage the conductors. Through the collaboration with Advanced Conductor Technologies, we use the CORC® round wire due to its potential to offer high engineering current density in a mechanically and magnetically isotropic conductor form. The design and fabrication of the CORC® CCT dipole insert coils is presented. These coils were also tested at 77 K and 4.2 K in self-field, and we report on the coil performance including quench current and magnetic field measurements in the coil aperture.

Submitters Country

U.S.A.

Authors: LIN, Andy (Lawrence Berkeley National Laboratory); DIETDERICH, Daniel (Lawrence Berkeley National Laboratory); VAN DER LAAN, Danko (Advanced Conductor Technologies); Dr ARBELAEZ, Diego (LBNL); SABBI, GianLuca (LBNL); VELEV, Gueorgui (FNAL); HIGLEY, Hugh (Lawrence Berkeley National Laboratory); WEISS, Jeremy (Advanced Conductor Technologies); Dr DIMARCO, Joseph (Fermi National Accelerator Laboratory); Dr BROUWER, Lucas (Lawrence Berkeley National Laboratory); TURQUETI, Marcos (Lawrence Berkeley National Laboratory); MARCHEVSKY, Maxim (LBNL); CASPI, Shlomo (Lawrence Berkeley national laboratory USA); PRESTEMON, Soren (LBNL); GOURLAY, Stephen (LBNL); SHEN, Tengming (LBNL); LIPTON, Thomas (Lawrence Berkeley National Laboratory); WANG, Xiaorong (Lawrence Berkeley National Laboratory)

Presenter: WANG, Xiaorong (Lawrence Berkeley National Laboratory)

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