Contribution ID: **335** Type: **Poster**

C1Po2D-05: Cryogenic and safety design of the future High Field Cable Test Facility at Fermilab

Monday 10 July 2023 14:00 (2 hours)

The HFVMTF (High Field Vertical Magnet Test Facility) is a new experimental facility under development at Fermi National Accelerator Laboratory (FNAL) to test large superconducting magnets (up to 20 tons weight and 1.3 m diameter) in a double bath superfluid helium cryostat (1.9 K and 1.2 bar). Coupled with a superconducting dipole magnet fabricated by Lawrence Berkeley National Laboratory (LBNL), this facility will be able to test future high-temperature superconductor (HTS) cables under a background magnetic field of 15 T for fusion magnets. This paper describes the design of the cryostat and its 1.4-meter diameter lambda plate, as well as the different components for a safe operation of the facility, even during critical events such a magnet quench or a vacuum breaking situation. The project is funded by US DOE Offices of Science, High Energy Physics (HEP), and Fusion Energy Sciences (FES).

Author: BRUCE, Romain (Fermilab)

Co-authors: VELEV, Gueorgui; THEILACKER, Jay (Fermilab); KOSHELEV, Sergey (Fermi National Accelerator Laboratory); TOPE, Terry (Fermilab); Mr NIKOLIC, Vlad (Fermilab)

Presenter: BRUCE, Romain (Fermilab)

Session Classification: C1Po2D: Large Scale IV: Cryogenic Test Facility Design