



MT 26
International Conference
on Magnet Technology
Vancouver, Canada | 2019

Contribution ID: 753

Type: **Poster Presentation**

Thu-Mo-Po4.03-08 [19]: Feasibility Study of Distributed Optical Fiber Applied in the Temperature Measurement of HTS Cables

Thursday 26 September 2019 08:45 (2 hours)

Abstract: Temperature measurement is very important for the state monitoring and safe operation of High Temperature Superconducting (HTS) cables. Distributed optical fiber can be used to measure the temperature along power cable because of the advantages of anti-electromagnetic interference, high voltage resistance and convenient fixing, etc. In this paper, the feasibility of distributed optical fiber used for temperature measurement of HTS cables was studied. A temperature rise test of liquid nitrogen temperature to room temperature was designed to check the temperature measurement accuracy of the optical fiber. In local thermal disturbance experiment and the critical current experiment, optical fiber was used to measure the dynamic distribution of temperature along a HTS cable. Temperature measurement results of optical fiber installed at different positions in HTS cable are analyzed, and the best installed position was determined by comparing different temperature measurement effects.

Keywords: Distributed optical fiber, temperature measurement, HTS cable, feasibility

Authors: Mr ZHOU, Kao (Huazhong University of Science and Technology); REN, Li (Huazhong University of Science and Technology); SHI, Jing (Huazhong University of Science and Technology); Dr XU, Ying (Huazhong University of Science and Technology); PU, DongSheng (State Key Laboratory of Advanced Electromagnetic Engineering and Technology)

Presenter: Mr ZHOU, Kao (Huazhong University of Science and Technology)

Session Classification: Thu-Mo-Po4.03 - Novel Diagnostics and Other Techniques