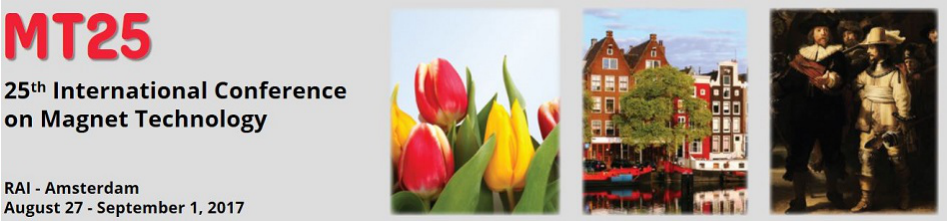

Contribution ID: **815** Type: **Regular 15 minutes Oral Presentation**

A REBCO Persistent-Current Switch, Immersed in Solid Nitrogen, Operating In the Temperature Range 10-30 K

Thursday, 31 August 2017 08:45 (15 minutes)

We present design and test results for a thermally-activated persistent-current switch (PCS) applied to a double pancake wound (DP) coil (151-mm ID, 172-mm OD), wound, using the no-insulation (NI) technique with a 120-m long, 76 micron thick, 6-mm wide REBCO tape. For the experiments reported in this paper, the NI DP assembly was immersed in a volume of solid nitrogen (SN2), cooled to temperatures in the range from 10 K to 30 K by conduction to a two-stage coldhead, and energized at up to 600 A. The DP assembly operated in quasi-persistent mode, with the conductor tails soldered together to form a close-out joint with resistance below 15 nOhm. The measurements confirm PCS activation at heating powers below our ˜1 W design value, and a field decay time constant in excess of 300 h, limited by the finite resistance of our DP close-out joint.
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