



Contribution ID: 137

Type: **Poster Presentation of 1h45m**

## Transport properties of commercially available REBCO conductors at 4.2 K

*Thursday, 31 August 2017 13:45 (1h 45m)*

There is a strong demand for higher field magnets in the various field of science. The development of solenoids capable of generating high magnetic fields of 20–30 T has been ongoing in major high-field laboratories in the worldwide. In the field of high energy accelerator, a 20 T dipole magnet is listed as a candidate for the bending magnet of the Future Circular Collider and the proposed muon collider requires solenoids of 30–50 T. Such field strength exceeds the levels achievable by using low-temperature superconductors. Currently, only high-temperature superconductors have the potential to achieve such field levels. However, there have been limited data on the electrical transport properties of REBCO conductors in high field and at low-temperature. Therefore, as a first step to study the possibility of REBCO-based high-field magnets, we have started the critical current measurements of commercial REBCO conductors in perpendicular fields of up to 18 T at 4.2 K. To perform the measurements of full width conductors (4-mm-wide), we have developed U-shaped sample holders. In these holders, the rather long voltage taps distance of ~30 mm can be taken, and the current transfer length and heating at the current lead joints need not be considered. In this presentation, we will report the transport properties at 4.2 K for conductors from seven different manufacturers (AMSC Co., Fujikura Ltd., SuNAM Co., Ltd., SuperOx Japan LLC, SuperPower Inc., and SWCC Showa Cable Systems Co., Ltd.)

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**Session Classification:** Thu-Af-Po4.08

**Track Classification:** F4 - ReBCO Wires and Cables