Contribution ID: **313** Type: **Poster Presentation (120m)**

# Thermal conductivity of REBCO tapes with different stabilizers at 4.2 –200 K

*Thursday 25 July 2024 14:00 (2 hours)*

REBCO coated conductor is a HTS material that is promising for a wide range of applications. One of them is the application for current leads of magnet systems. In the design of current leads, it is important to minimize its thermal conduction while maintain the superior electrical conduction of the superconductors.
In this study, we fabricated 4 mm wide REBCO tapes stabilized with different materials of different thicknesses. Then we measured the effective thermal conductivity of these tapes between 4.2 K and 200 K using the thermal transport option of a physical property measurement system (PPMS). The electrical conductivity of these stabilizers was also characterized by residual-resistance-ratio (RRR) measurements and correlated with the thermal conductivity. Our results confirm that the thermal conductance of these samples is dominated by that of the stabilizer layer. Our data showed that the sample with Ag-Au alloy as the stabilizer has significantly lower thermal conductivity than that with a copper stabilizer. The effect of the stabilizer thickness on electrical stability and thermal performance will also be discussed.

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**Session Classification:** Thu-Po-3.6

**Track Classification:** Tracks ICMC Geneva 2024: ICMC 02: Re BCO/BSCCO/IBS materials and wires processing and properties