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## **M2Or2E-04: [Invited] Property Variations in Modern REBCO Coated Conductors from Multiple Manufacturers**

*Tuesday 11 July 2023 12:00 (20 minutes)*

The heterogeneous nature of REBCO Coated Conductor (CC) properties poses significant challenges in the fabrication of high magnetic field devices. Our goal is to peer below the cartoon representations of CC so that, amongst other things, we might better understand whether a CC from one manufacturer is interchangeable with that from another. This involves knowledge of a broad range of electromagnetic, geometric, microstructural, and  $J_c(\theta, B, T)$  properties, and their variations that collectively pose challenges for the fault tolerance of REBCO CC devices. Accordingly, comparative measurements of critical current, critical temperature, flux penetration, tape geometry, and extensive microscopy were performed on recently purchased samples from multiple manufacturers. Our analyses reveal many deviations or absences from manufacturers' specifications, while a comparison of mechanically and laser slit tape shows a diverse array of slitting characteristics amongst the manufacturers and variation in properties along the length of a single tape and between those made to the same specification. Overall, the aim of this study is to flesh out appropriate ways to understand the real conductor below the manufacturers' cartoons so as to avoid surprises in our REBCO CC coil development program.

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