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## Study of quench behaviors of REBCO impregnated pancake coil with 75-um-thick copper stabilizer under conduction-cooled condition

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Recently, high performance REBa<sub>2</sub>Cu<sub>3</sub>O<sub>x</sub> (REBCO) coated conductors such as over 250 A per 5 mm in width at 77 K have become in commercial. The REBCO coated conductors are expected to show high performance for the superconducting applications because of their high current density and high mechanical strength. The quench behaviors, particularly the normal-zone propagation and increase in hot-spot temperature, of REBCO pancake coils are important issues for safe operation in the superconducting applications. Although the experimental data on the quench characteristics of REBCO coated conductors have been reported, there is insufficient data of REBCO impregnated pancake coils.

In this work, a REBCO impregnated pancake coil was fabricated using REBCO coated conductors laminated with 75 um-thick copper stabilizer. The inner diameter of the REBCO coil was 50 mm and outer diameter was approximately 73 mm.

The measured longitudinal normal-zone propagation velocities (NZPV) in the REBCO coil were 3-8 mm/s at 50, 40 and 30 K. We also confirmed that the REBCO coil was shut down from 240 A at 40 K without degradation after the detected normal transition.

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