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Wed-Af-Po3.24-06 [100]: Design and Test a ReBCO Conduction-Cooled Solenoid Magnet without Insulation

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Abstract: A laboratory solenoid magnet was designed and tested in this paper to explore the feasibility of ReBCO tapes applied to detector magnet technology. The magnet consists of several double pancake coils, which adopted to No-insulation winding method. The outer and inner radius were 240 mm and 150 mm, respectively. We conducted a series of experiments on the prototype to investigate the properties of the magnet at 20 K. The magnet adopted a conduction-cooled method by a GM cryocooler. The critical current and the central operating magnetic field were measured in this test.

Key words: solenoid magnet, ReBCO, conduction-cooled, no-insulation

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