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Wed-Af-Po3.15-05 [9]: Excitation and Magnetic Field Performances of a Prototype REBCO Sextupole Magnet at 4.2 K

Wednesday, 25 September 2019 14:00 (2 hours)

A prototype REBa₂Cu₃O_y (REBCO) sextupole magnet was designed and fabricated for the chromaticity correction of an asymmetric-energy collider, named SuperKEKB. The REBCO sextupole magnet consists of six two-layer-rectangular coils, which are wound with a 4-mm-wide coated conductor and impregnated with epoxy resin. The inner bore radius and magnet length are 75 mm and 200 mm, respectively. The designed magnetic field strength is 200 T/m² at a nominal current of 250 A and an operation temperature of 30 K. We conducted a series of experiments on the REBCO sextupole magnet after the fabrication. In this paper, we present the excitation and magnetic field results at 4.2 K.

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