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Short-time fabrication and trapped field distributions of large REBCO melt-textured bulks made by Single-Direction Melt Growth method

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REBCO melt-textured bulks are expected for strong magnet applications utilizing their high field trapping properties. Typical REBCO melt-textured bulks consist of *a*-growth and *c*-growth regions depending on the growth directions from the seed crystal placed on top of the pellets. We have developed a new method, Single-Direction Melt Growth (SDMG) method, for fabricating REBCO bulks wholly consisting of *c*-growth regions by using a large textured seed plate placed beneath the pellets ^[1]. Since the crystal growth proceeds only in the vertical direction, this method enables short-time growth of the large bulks regardless of the diameter of the bulks. In this presentation, we will report an attempt to fabricate large REBCO (RE = Y, Dy) melt-textured bulks with the size up to ~ 30 mm ϕ by SDMG method using single or multiple sintered pellets. It should be noted that superconducting joints among adjacent pellets are easily and reproducibly achieved applying the SDMG method. We will discuss the prospects for SDMG bulks based on their trapped field characteristics and microstructures.

[1] T. Motoki *et al.*, *Appl. Phys. Express* **13** (2020) 093002.

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