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The in-field J_c in RTR-PLD $EuBa_2Cu_3O_y$+$BaHfO_3$ coated conductors

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$REBa_2Cu_3O_y$(RE=Rare Earth: REBCO) coated conductors (CCs) derived from Reel-to-Reel Pulsed Laser Deposition (RTR-PLD) are promising to be valuable for magnet applications because of the high superconducting performance and reproducibility [1]. For practical applications, enhancement of the in-field J_c for RTR-PLD $EuBa_2Cu_3O_y$(EuBCO) CCs has been reported by the introduction of $BaHfO_3$ nanorods (BHO NRs) as flux pinning centers [2,3]. For further enhancement of the in-field J_c, understanding the effect of size, density, distribution and shape of the BHO NRs is very important.
In this work, in order to investigate the effect of BHO NRs on the in-field J_c, we prepared RTR-PLD $EuBa_2Cu_3O_y$(EuBCO) CC with various vol.% of BHO NR-doped EuBCO (EuBCO+BHO) CCs. Up to 3 vol.%, no degradation of T_c and self-field J_c are observed. The EuBCO+3 vol.%BHO CCs shows the highest in-field J_c and nearly isotropic angular dependence of J_c in this work. The mechanism of improvement of the in-field J_c by the addition of BHO NRs will be discussed based on crystallinity, transport properties and microstructure.

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