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Thu-Mo-Po4.09-04 [66]: Investigations on the synthesis and melt-growth process of low melt temperature REBCO materials

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The low melt temperature REBa₂Cu₃O_{7-δ} (LMT RE123, RE=Yb, Er, etc.), a candidate of the joint materials, is essential to acquire superconducting joint of the 2nd HTS tape, which could be used in extreme high field NMR (≥25T). In this paper, two LMT RE123 materials have been synthesized. The synthesis parameters have been optimized to obtain RE123 materials with high superconducting properties. The effect of the Ag and Pt doping on the melt point of LMT RE123 materials is uncovered. The melt and growth process of the LMT RE123 materials have been systematically delved, in order to explore a feasible heat treatment process of superconducting joint. This work provide an important start point to fabrication superconducting joint of the 2nd HTS tapes, which will highly promote the application process of extreme high field NMR.

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