

IBAD-MgO기판을 이용한 GdBCO 초전도 박막선재의 제조

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Fabrication of GdBCO Coated conductor using IBAD-MgO substrate

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Abstract : GdBCO coated conductor have been fabricated using reactive co-evaporation. The batch type co-deposition system was specially designed and was named EDDC (evaporation using drum in dual chamber) that is possible to deposit superconducting layer with optimum composition ratio of materials at temperature over 700°C and several mTorr of oxygen. The IBAD-MgO substrate with the architecture of LaMnO₃(LMO)/IBAD-MgO/Hastelloy was used for coated conductor. In this study, GdBCO superconducting layer was deposited on IBAD-MgO substrate at optimal oxygen partial pressure (pO₂) and deposition temperature. After fabrication of GdBCO coated conductor, critical current density was measured by 4-probe method. Surface morphology and texture of GdBCO coated conductors were analyzed by the SEM and XRD, respectively.

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