

# Fabrication of Superconducting Coated Conductors using Replication Method

Sunme Lim, Hosup Kim, Dojun Youm

*Department of Physics, Korea Advanced Institute of Science and Technology, Daejeon, Korea*

A fabrication method of the high  $T_c$  superconducting coated conductors is described. The separating layer(BaO), the buffer layer(STO/CeO<sub>2</sub>), the superconducting layer(SmBCO), and the supporting layer(Ag) are grown epitaxially on a single crystal substrate such as LAO, STO, YSZ, and Ni. A coated conductor is obtained by removing the solvable separating layer to water successively. Since the coated conductor is replicated continuously from the perfectly single crystalline original tape, it is also single crystalline and free of defects. The metallic supporting layer directly contacts to the superconducting layer, it provides the bypass for possible over-currents. The supporting layer can be reduced as much as possible. The material of the supporting layer can be freely chosen so that it may be nonmagnetic and highly strengthen.

keywords : superconductor, BaO, replication, epitaxy, coated conductor