

# SmBa<sub>2</sub>Cu<sub>3</sub>O<sub>7- $\delta$</sub> Thin Films Deposited on SrTiO<sub>3</sub> (100) Substrates by Pulsed Electron Beam and Pulsed Laser Depositions

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We report a successful fabrication of high- $J_C$  SmBa<sub>2</sub>Cu<sub>3</sub>O<sub>7- $\delta$</sub> (SmBCO) thin films on SrTiO<sub>3</sub> (100) substrate by the pulsed electron beam deposition (PED) and Nd-YAG pulsed laser deposition (PLD) processes. Using the improved PED and Nd-YAG laser equipments, we have optimized the processing conditions by controlling the key parameters, including substrate temperature( $T_s$ ), ambient oxygen atmosphere( $PO_2$ ), accelerating voltage and repetition rate of electron beam, and the distance between target and substrate. Up to date, we have obtained high- $J_C$  of over 1 MA/cm<sup>2</sup> from the SmBCO film by PED although PED has narrower processing window than those of PLD. In this presentation, we will report the processing-superconducting property relationship in these processes for a comparison.

## *Acknowledgement*

This work was supported by a grant from the Center for Applied Superconductivity Technology of the 21st Century Frontier R&D Program funded by the Ministry of Science and Technology, Republic of Korea.