

Critical Current Degradation Characteristics by Temperature Difference of LN₂-Normal in Bending Strain of High Temperature Superconducting Tapes

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Critical current(I_c) degradation of HTS tapes after bending is one of the hottest issues in HTS development and application studies. Many people are measuring I_c degradations for effect of bending radius. However even if the bending radius is larger than the breaking radius a HTS tapes can be damaged by repetitive bending, which is unavoidable in the winding processes. Therefore, We studied the I_c degradation after repetitive bending, at 77K with self-field, of Bi-2223 tapes processed by "Powder-in-Tube" technique, which was made by America Superconductor Corporation(AMSC) and superconducting tapes that strain is imposed measured critical current by temperature difference of LN₂ and normal temperature. Like this, critical current could measure that degradation about 2 ~ 4% by temperature difference. These results will amount the most important basis data in power electric machine of superconductivity cable, magnet, etc that winding work is required.