

The Effect of Different Heat Treatment Processes on Electrical and Magnetic Properties of Bi2212/Ag ROSAT Wire

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We have investigated the effect of different heat treatment processes on electrical and magnetic properties of Bi2212/Ag ROSAT wire. The ROSAT wire was fabricated by stacking and arranging 12 filaments Bi2212/Ag tapes in triple rotation symmetry in a Ag tube. ROSAT wires have been prepared using a partial melting method with changing T_{\max} and T_a in oxygen atmosphere. The highest critical current density (J_c) at 65 K under 0 T was 21,158 A/cm² for wire prepared 890 °C (T_{\max}) and 840 °C (T_a), respectively. SEM results indicated that the wire prepared at 890 °C (T_{\max}) and 840 °C (T_a) obtained a little porosity than the other samples. Also the result of magnetic susceptibility measurement indicates that the wire prepared 890 °C (T_{\max}) and 840 °C (T_a) had better superconducting phases than the other samples. It was revealed that heat treatment temperature was important factor for superconducting properties of the ROSAT wire.

keywords : Bi2212, ROSAT, heat treatment condition