

Fundamental Study of MgB₂ Superconducting Coil for Storage

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We carried out a basic study on the power storage coil using MgB₂ superconducting wire by which we can expect to lower cooling cost and manufacturing cost. First, for manufacturing the storage coil, the basic characteristics of the MgB₂ superconducting wire were evaluated. The characteristics at 20 K 1.5 T have been found out to be such that the critical currents are 200 A for the heat treated MgB₂ wire and 170 A for the untreated MgB₂ wire. Based on the results, prototype storage coils were fabricated, performance evaluation was carried out, and the energization of the operation current of 600 A was confirmed at 1.5 T necessary for several 10 kJ class coils.