

Design of Coated Conductor and Fabrication of Permanent Mode Magnets

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Coated conductors suitable for the fabrication of permanent mode high T_c magnets are suggested and the fabrication method of permanent mode magnets using coated conductor are demonstrated. Permanent current was observed in a small piece of coated conductor. Closed loop of coated conductor with a diameter of around 1 cm was successfully prepared and was cooled with a magnetic field of about 500 Gauss in order to induce supercurrent. Coated conductor with a I_c of 100 A/cm-width was used for the preparation of closed loop of coated conductor. Permanent current was confirmed by measuring the magnetic field generated from closed loop of coated conductor by using Gauss meter. Magnetic field of 4.4 Gauss was detected from the supercurrent of closed loop of coated conductor. It shows that superconducting joint of coated conductor is not a prerequisite for the construction of permanent mode magnets. It is thought that this work opens the possibility to use coated conductor for the construction of permanent mode high T_c magnets for MRI, NMR and magnetic separation applications.

keywords : permanent magnet, coated conductor, superconducting joint, double pancake coil

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