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Trapped Field Properties of Pulsed Field Magnetization of MgB₂ Bulk with Ti-doped

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Until now, some research institutes have magnetized MgB₂ by Field Cooled Magnetization (FCM) which is said to be the most efficient, but FCM requires a large device and power consumption is large and the time required for magnetization is long. Therefore, this time we used Pulsed Field Magnetization (PFM) to experiment that can magnetize in a short time and compact. In this research, trapped field characteristics were evaluated by pulse magnetization of MgB₂ prepared by HP method.

Samples used for PFM are shown in Table.1. The sample of this time was prepared by the HP method by changing Ti content. The sample was set on the cold stage and a hall sensor was attached to the surface center of the sample. After that, the inside of the chamber was evacuated and the sample was cooled by setting the freezer to 14K. The pulsed magnetic field was obtained by discharging a pulse current from a capacitor charged in a conductor coil cooled to 77 K with liquid nitrogen.

Fig. 1 shows trapped fields of each bulk. In this experiment, the highest trapped field was BT = 0.73 T of MH104b. Increasing the Ti content did not improve the captured magnetic field.

Table.1 Spec of Bulk

Sample Name	Diameter[mm]	Height[mm]	Mg : B : Ti
MH90-2,3,7	20	3.58	1 : 2 : 0
MH104b	20	3.67	0.975 : 2 : 0.025
MH113a	20	3.5	0.975 : 2 : 0.05
MH117	20	2.7	0.975 : 2 : 0.10

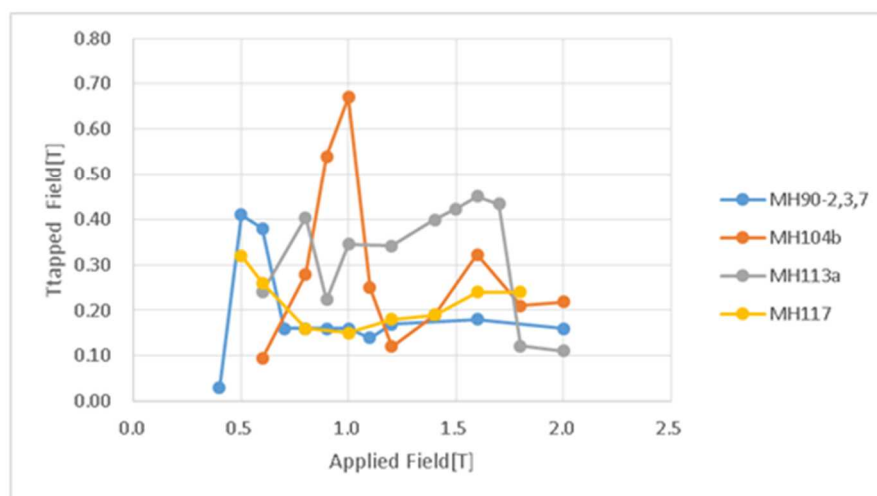


Figure.1 Trapped Field

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