Pengembangan impulse magnetizer untuk pembuatan magnet permanen = The development of impulse magnetizer for making permanent magnet

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Abstrak

[ABSTRAK
Pada laporan akhir tesis ini telah dikembangkan suatu sistem untuk magnetisasi bahan magnet menjadi magnet permanen dan demagnetisasi dengan mengurangi kuat medan magnet suatu magnet permanen. Sistem ini digunakan untuk magnetisasi bahan magnet seperti Ferit, PrFeB, NdFeB dan jenis bahan magnet yang lain. Bahan magnet dapat dimagnetisasi menjadi magnet permanen dengan menerapkan medan magnet sampai diatas titik saturasi magnet dari bahan magnet pada waktu singkat atau dikenal dengan impulse magnetizer. Penerapan medan magnet menghasilkan momen magnetik dan memaksa domain-domain magnetik secara bertahap mengikuti arah medan magnet yang diterapkan. Jika medan magnet eksternal lebih kuat dari medan magnet saturasi magnetik dari bahan magnet maka domain-domain magnetik akan diorientasikan dengan arah yang baru. Sistem ini menggunakan kapasitor untuk menyimpan muatan listrik dan kemudian diterapkan pada lilitan kawat berbentuk solenoid multi lapis. Pada tesis ini telah berhasil melakukan magnetisasi dan demagnetisasi bahan magnet Ferit, PrFeB dan NdFeB dengan ukuran bahan maksimal 26mm.
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ABSTRACT
On this nal thesis report has been developed a system for the magnetization of the magnetic material become permanent magnets and demagnetization by reducing the magnetic eld strength of a permanent magnet. This system is used for magnetize the magnetic material such as Ferrite, PrFeB, NdFeB magnets and other types of magnetic materials. Magnetic material can be magnetized into a permanent magnet by applying a magnetic eld above the saturation point of the magnetic material in a short time, known as impulse magnetizer. Application of a magnetic eld generates a magnetic moment and domain-domain magnetic force gradually follow the direction of the applied magnetic eld. If the external magnetic eld is stronger than the magnetic eld of a magnetic saturation of the magnetic material, the magnetic domains will be oriented to the new direction. This system uses a capacitor to store electrical charge and then applied to the multi-layer solenoid or coil by discharging process. On this thesis has been successfully doing magnetization and demagnetization magnetic materials such as Ferrite, NdFeB, PrFeB with

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