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Research Article

An SV-GMR Needle Sensor-Based Estimation of Volume Density of Magnetic Fluid inside Human Body

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Abstract

A spin-valve giant magneto-resistive (SV-GMR) sensor of needle-type configuration is reported to estimate the volume density of magnetic fluid inside human body. The magnetic fluid is usually injected into human body to kill cancerous cell using hyperthermia-based treatment. To control the heat treatment, a good knowledge of temperature is very much essential. The SV-GMR-based needle-type sensor is used to measure the magnetic flux density of the magnetic fluid inside the human body from which the temperature is estimated. The needle-type sensor provides a semi-invasive approach of temperature determination.

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