PULSED FREE INDUCTION DECAY NONLINEAR MAGNETO-OPTICAL ROTATION APPARATUS

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ABSTRACT

Sensitive magnetometers are important in a variety of fields, including defense applications such as submarine detection and mineral exploration. Atomic magnetometers feature high sensitivity to the magnitude of the total magnetic field, making them easier to deploy because the signal is almost independent of the orientation of the sensor with respect to the field. However, a separate modulator is needed for each measurement point, which can add significant cost and complexity to the system. Radiofrequency (RF) fields are also required. More recently, all-optical magnetometers have been introduced. These technologies often require high sample temperature to achieve a high density of atoms, and need a stable operating magnetic field below fields typical of Earth's surface. To address these issues, researchers at UC Berkeley have developed optical magnetometer device and concomitant magnetometry method which does not require RF fields, does not require reducing the magnetic field below the value typical of Earth's surface, and supports the measurement of magnetic fields at a number of points using single modulation means.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,421,455	03/27/2013	2008-058

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