

# OPTICAL ATOMIC MAGNETOMETER METHOD AND APPARATUS

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## ABSTRACT

Several applications require the detection of magnetic field strength. Examples of such applications include both pure science endeavors as well as practical applications. Pure science investigations that require the use of sensitive magnetometers include the detection of planetary and solar magnetic fields and the detection of an electric dipole moment in elementary particles. Practical applications of magnetometers include the detection of unexploded ordnance, location of buried objects at land or sea (e.g., treasure), mining surveys, detection of submarines or mines, detection of vehicles, detection of signals from the brain (magnetoencephalography) or heart (magnetocardiography), and magnetic-resonance imaging. Although several commercial magnetometers exist, they suffer from low sensitivity, lack of compactness, and/or high energy demands. To address these challenges, researchers at UC Berkeley have developed optical atomic magnetometers which operate on the principles of nonlinear magneto-optical rotation.

## SUGGESTED USES

- » Detection of objects (e.g. vehicles, submarines, mines, unexploded ordnance)
- » Detection of signals from the brain (magnetoencephalography)
- » Detection of signals heart (magnetocardiography)
- » Magnetic resonance imaging (MRI)

## PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,587,304	11/19/2013	2008-097

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## OTHER INFORMATION

### CATEGORIZED AS

- » **Sensors & Instrumentation**
- » Other
- » Physical Measurement
- » Scientific/Research

### RELATED CASES

2008-097-0