UNIVERSITY OF MINNESOTA
Driven to Discover℠

Magnetization Transfer Using Inversion Recovery (20100117)

IP Status: Issued US Patent; **Application #:** 13/641,440

Magnetization Transfer Imaging Can Lower Specific Absorption Rate

An improved MRI pulse sequence and post processing technique have been developed that dramatically improve MT imaging while improving safety by reducing specific absorption rate (SAR), which is a measure of tissue heating. Clinical usage of magnetization transfer (MT) imaging with MRI scanners has been limited due to radio frequency (RF) heating of the subject, which ultimately limits the sensitivity and specificity of the technique for diagnosis.

MN-IP Try and Buy

Try

- 18 months non-exclusive software license
- $15,000 Trial Fee waived for MN companies
- Patent expenses deferred during trial

Buy

- $5000 Conversion Payment (includes all patent expenses)
- Royalty: $1500/unit for new MRI installation; $1000/unit for MRI system upgrade
- Royalty discount for MN companies
- Royalty holiday on 1st $1M in sales

Inversion Recovery Implemented with Software

Inversion recovery combines a conventional pulse with an inversion pulse, which flips the orientation of the magnetization by 180 degrees. By including the “negative data”, a larger dynamic range is available to accurately calculate the magnetization transfer exchange rate constant with reduced deposition of RF energy in the subject. The MT imaging MRI pulse sequence and post processing is implemented in software on an MRI scanner.

Improves Diagnosis of Multiple Sclerosis

In particular, this technology greatly enhances the ability to identify myelin in the diagnosis and monitoring of disease progression/treatment in demyelinating neuropathies, such as multiple sclerosis (MS). It is expected that this will enable MT imaging MRI scans to become common clinical practice.

FEATURES AND BENEFITS OF MAGNETIZATION TRANSFER WITH INVERSION RECOVERY:

Technology ID
20100117

Category
Engineering & Physical Sciences/MRI & Spectroscopy
Life Sciences/Diagnostics & Imaging
Life Sciences/MRI & Spectroscopy
Software & IT/Algorithms
Software & IT/Image & Signal Processing

Learn more

- Enhanced ability to image demyelination in the brain for diagnosis of certain neuropathies such as multiple sclerosis
- Improved imaging of other white matter, such as cartilage
- Larger dynamic range for greater sensitivity and specificity of MT imaging
- Better resolution and image quality compared to conventional MT imaging MRI
- Reduced RF power deposition for improved SAR
- Applicable to all clinical MRI scanners, e.g. 3T, 1.5T, and open-bore low-field scanners

Researchers

Michael Garwood, PhD

Professor, Department of Radiology, Center for Magnetic Research

External Link (www.med.umn.edu)