Improved Multi-Band Magnetic Resonance Imaging (MRI) (20140303, Dr. Kamil Ugurbil)

Technology No. 20140303

IP Status: Issued US Patent; **Application #:** 14/696,783

Optimizes and improves MB imaging for quantitative imaging

Three new multi-band (MB) imaging methods for MRI adaptively optimize and improve MB imaging performance and quality and increase its flexibility. These approaches can be widely applied to any MB imaging based method.

- **Adaptive MB Imaging (AMI)**. Adaptively applied RF (radio frequency) pulses, imaging acquisition and reconstruction configurations to optimal performance for a given acquisition.
- **Total Leakage Factor (TLF)**. To better assess leakage contamination, TLF is a novel acquisition specific metric.
- **Leakage Evaluation via Acquired Dummy Slices (LEADS)**. A novel acquisition strategy for measuring TLF.

Applies multiple imaging acquisition and reconstruction parameters

Traditional MB imaging uses only one set of fixed parameters for both imaging acquisition and reconstruction, a practice that limits the performance and flexibility of MB imaging. This new adaptive MB imaging (AMI) technology overcomes such limitations. This approach applies multiple imaging acquisition and reconstruction controlling factors (based on different targeted organs) and improves existing MB imaging by offering more flexibility, optimal performance and improved imaging quality.

Phase of Development

- Pilot scale demonstration.

Benefits

- Adaptively optimizes and improves MB imaging performance and quality
- Increases MB imaging flexibility

Features

- Three novel MB imaging approaches
- Adaptively applies RF pulses, imaging acquisition and reconstruction configurations
- Evaluates leakage contamination

Applications

- Magnetic Resonance Imaging (MRI)
- MRI scanners
- Multi-band (MB) imaging

Researchers

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Publications

[NoneTheoretical and experimental evaluation of multi-band EPI for high-resolution whole brain pCASL Imaging](#)

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