BoDETOX -- Bo Detoxification Software for Magnetic Field Shimming

*Technology #cu17326*

This technology is a comprehensive software package for processing and analyzing Bo shimming in MRI and MRS applications.

**Unmet Need: Standardized processing of Bo magnetic fields in MRI/MRS**

Magnetic resonance imaging (MRI) and spectroscopy (MRS) enable non-invasive, in vivo assessment of anatomy and physiology. However, these techniques are susceptible to imperfections in the Bo magnetic field that can lead to line broadening in MRS and spatial distortions and signal dropout in MRI. Consequently, the experimental homogenization of Bo conditions, a process called Bo shimming, is a necessary component of successful MRI and MRS. While methods for Bo shimming exist, commercially-available MR systems only include basic solutions that must be extended and customized by the end user for specific applications. As such, a streamlined user-friendly Bo shimming software would greatly improve the ease of acquiring MRI and MRS data.

**The Technology: User-friendly software combines processing and analysis solutions for Bo shimming**

This technology combines processing and analysis solutions for experimental Bo shimming in a user-friendly interface. The workflow begins by loading experimentally-acquired Bo field maps for initial data processing. From this map, a region of interest can be accurately selected for further processing. This technology accommodates both spherical harmonic and multi-coil framework Bo shimming methods to help users achieve optimal experimental conditions. Additionally, the software loads all data sets automatically and saves data parameters for future experiments, ensuring consistent processing throughout studies. In sum, this technology provides a user-friendly software package for Bo shimming to improve data collection and quality in MRI and MRS imaging. This software has been developed, tested successfully, and is ready for use.
Applications:

• Non-invasive analysis of living cells and tissues
• Anatomical imaging
• Molecular and cellular imaging
• Drug development

Advantages:

• Simple, comprehensive user interface and workflow
• Facilitates standardized, efficient processing and analysis solutions for Bo magnetic field data
• Can use two approaches for magnetic field modeling: spherical harmonic or multi-coil framework
• Facilitates reconfigurable and storable parameter settings
• Enables experimental analysis with high reproducibility
• Can be automated

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Related Publications:


Tech Ventures Reference:

• IR CU17326
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