



TECHNOLOGY

Method for Accelerating Nuclear Magnetic Resonance (NMR) Spectroscopy

OVERVIEW

Background

Nuclear Magnetic Resonance (NMR) is used as the basis for NMR spectroscopy and Magnetic Resonance Imaging (MRI), which have applications in fields ranging from medical imaging to oil field exploration. To produce a useable spectra or image, a number of measurements must be taken over a period of time. In some fields, particularly in medical applications where patients are measured, it is desirable to reduce the amount of time needed to produce an accurate reading.

Innovative Technology

Researchers at the University of Maryland's Department of Mathematics and the National Institutes of Health's National Institute of Child Health and Human Development (NICHD) have developed a compressive sensing method to reduce the number of measurements needed to accurately reconstruct results for 2D NMR spectroscopy. By reducing the number of measurements needed to reconstruct an image, the total time needed to scan a subject is reduced as well. The reduced time needed to complete an NMR spectroscopy has several implications, including making in vivo NMR spectroscopy more viable for clinical and research applications. The method involves using a matrix completion algorithm to reduce the amount of data needed to reconstruct an accurate spectra.

APPLICATIONS

- NMR spectroscopy
- MRI
- Oil field exploration

ADVANTAGES

- Able to reproduce measurements accurately with about 20% of data
- Reduction in amount of time needed to achieve an equivalent measurement
- Can be implemented with existing hardware

CONTACT INFO

UM Ventures
0134 Lee Building
7809 Regents Drive
College Park, MD 20742
Email: umdtechtransfer@umd.edu
Phone: (301) 405-3947 | Fax: (301) 314-9502

Additional Information

INSTITUTION

University of Maryland, College Park

PATENT STATUS

Pending

LICENSE STATUS

Available for exclusive or non-exclusive license

CATEGORIES

- Healthcare
- Imaging devices

EXTERNAL RESOURCES

- [Office of Technology Commercialization](#)

IS-2014-069