# Dual frequency RF coil for magnetic resonance imaging

A novel RF resonant coil that can operate at both X-nuclear and proton frequencies.

IP Status: US Patent Issued; Patent #: 11,883,148

## **Applications**

• High performance X-nuclear MRS imaging

## **Technology Overview**

X-nuclear magnetic resonance spectroscopy (MRS) and imaging (MRSI) play critical roles in studying a variety of health conditions and diseases. However, clinical adoption is currently hindered by expensive, complex combination coils being able to operate at both proton and X-nuclear frequencies. Sometimes patients are even physically moved in and out of the machine to switch between coils. Researchers at the University of Minnesota have developed a novel RF resonant coil that can operate at both X-nuclear and proton frequencies. This novel coil architecture allows for simplified coil design, manufacture, and imaging operation with the patient to remain in the MRI machine.

# **Phase of Development**

## TRL: 4-5

Prototype coils have been demonstrated at 16.4T (animal) and 7T (human; 8-channel deuterium-proton dual-tuned human head array coil).

# **Desired Partnerships**

This technology is now available for:

- License
- · Sponsored research
- Co-development

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#### Researchers

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## References

## **Technology ID**

2021-070

# Category

Engineering & Physical
Sciences/MRI & Spectroscopy
Life Sciences/Diagnostics &
Imaging
Life Sciences/MRI &
Spectroscopy
Life Sciences/Research Tools

## View online



- Guangle Zhang, Wei Zhu, Xin Li, Xiao-Hong Zhu, Wei Chen(March 20 2023), https://analyticalsciencejournals.onlinelibrary.wiley.com/doi/10.1002/nbm.4930, https://doi.org/10.1002/nbm.4930
- 2. Soo Han Soon, Matt Waks, Hannes M. Wiesner, Xin Li, Xiao-Hong Zhu, Wei Chen(2022), https://archive.ismrm.org/2022/1542.html
- 3. Xin Li, Xiao-Hong Zhu, Xiao-Liang Zhang, Matt Waks, Wei Chen(2025), https://onlinelibrary.wiley.com/doi/full/10.1002/mrm.30449, Magnetic Resonance in Medicine, 93, 2640-2654