

Wearable & Stretchable Electromagnetically-Coupled Radiofrequency Probes

Track Code: 2019-RISP-68630

Categories:

- Biomedical Engineering
- Materials and Manufacturing

Keywords:

- Biomedical Engineering
- Materials and Manufacturing
- MRI
- Signal-to-noise Ratio

Magnetic resonance imaging (MRI) is inherently a low-sensitivity technique, and there is a desire to boost signal-to-noise ratio (SNR), a leading factor in determining image quality. Current approaches to enhancing SNR include shaping receive coil arrays to encompass a generalized form of the anatomy of interest, but these are often rigid and require the patient be posed in a specific way. A flexible and stretchable coil which could be placed close to the skin on an area or joint regardless of its positioning would be immensely beneficial to both quality of MRI results and patient comfort. Researchers at Purdue University have developed an adaptable, wearable, and stretchable fabric embroidered with conductive threads that provides excellent SNR for enhanced MRI imaging. The fabricated coil presents multi-directional stretchability and flexibility while maintaining conductivity and stitch integrity. Quality factor measurements and SNR calculations show that this technology is comparable to current state of the art in SNR results, however, this technology has the added benefits of adaptability and stretchability.

Advantages:

- Adaptable
- Stretchable
- Enhanced signal reception

Potential Applications:

- MRI

People:

- Rispoli, Joseph Vincent (Project leader)

Intellectual Property:

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