



# MRI and Spectroscopy Multi-part Body Coil

**IP Status:** Issued US Patent; **Application #:** 16/422,355

## MRI Coil Transmits and Receives RF Signals

A multi-part body coil apparatus can transmit (Tx) and/or receive (Rx) radiofrequency (RF) signals suitable for magnetic resonance imaging (MRI) and/or magnetic-resonance spectroscopy (MRS). The coil is configured as either a circularly polarized transverse-electric-magnetic (TEM) coil or a birdcage coil, and is easily assembled, disassembled (e.g., for easier maintenance, testing, tuning and/or shipping) and reassembled. The apparatus consists of one or more body-coil portions, each having a frame with a concave inner face and a convex outer face, at least one RF coil element mounted to the frame, a tune-and-match circuit operatively coupled to the RF coil element, a shield with partially overlapped, staggered conductors on opposite faces of a dielectric substrate (wherein the shield is coupled to the convex outer face of the frame), a mechanism to align each body-coil portion to neighboring portions, and an interconnection circuit configured to transmit to and/or receive from the RF coil elements. Preamplifiers, Tx-Rx switches and power amplifiers may be built into each of the body-coil portions.

### BENEFITS AND FEATURES:

- Multi-part body coil
- Transmits and/or receives RF signals
- Easily assembled, disassembled and reassembled for easier maintenance, testing, tuning and/or shipping
- Configured as a circularly polarized TEM coil or a birdcage coil

### APPLICATIONS:

- MRI
- Magnetic resonance spectroscopy
- Transmitting and/or receiving RF signals

**Phase of Development** - Prototype development

### Researchers

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## Technology ID

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## Category

Engineering & Physical  
Sciences/Instrumentation,  
Sensors & Controls  
Engineering & Physical  
Sciences/MRI & Spectroscopy  
Life Sciences/Diagnostics &  
Imaging  
Life Sciences/Human Health  
Life Sciences/Medical Devices  
Life Sciences/MRI &  
Spectroscopy  
Agriculture &  
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