

## Welcome to MRIware - home of magstripe MRI

This is the homepage of MRIware where information about the Magstripe MRI technique can be found.

Magstripe MRI provides you with an easy way to measure non-MR signals with an MR scanner or spectrometer during operation. Surplus sampling capacity of the scanner is used, for example, to measure EEG simultaneous and in perfect synchrony with functional MRI (fMRI). The method provides an easy way to pass non-MR-signals to a scanner where they can be analyzed, stored or used to update imaging parameters real-time (e.g. for MR-guided intervention).

The non-MR signals are modulated to frequencies detectable by the scanner, and are emitted as radio waves inside the RF cabin during imaging. Hence the signals could be expected to give artifacts in the images, but with a proper choice of carrier frequencies, the images are completely unaffected. Like motion picture soundtracks, the non-MR signals are encoded just outside the visible region (movie makers call this magstripe encoding).

Advantages are simplicity, cost and avoidance of gradient artifacts for demanding applications such as EEG-fMRI. Furthermore the signals end up where you want them: In the scanner together with the imaging data, which facilitates storage and analysis immensely and provides you with a simple way to feed control signals into the MR acquisition system.

The best thing is that it works very nicely as you will see in this electrophysiology recording made by echo planar imaging (EPI) at full speed on a 3 tesla system. 

Take-home message: Your scanner is a very capable piece of equipment and it can be used to measure a lot more than MR images, even while you image. These pages provide additional information about this technique that we believe could be of benefit to many. The FAQ is recommended. We make modulators available for collaborators, so let us know if you need one for a good project.