NEW TECH 2000 3T MRI RESEARCH FACILITY

UIC 3T MR Research Program

Center for MR Research

IN THIS ISSUE

New 3T MRI Research Facilities

The 3T Magnetic Resonance (MR) Research Program of Center for MR Research (CMRR) would like to welcome the UIC research community to our first quarterly newsletter. We feel that this will be a convenient forum to keep everyone informed of current events, news and progress, and help build a better sense of community. Please feel free to email me at mpflanne@uic.edu with any suggestions for topics that you would like to showcase to the rest of the UIC MR Research community.

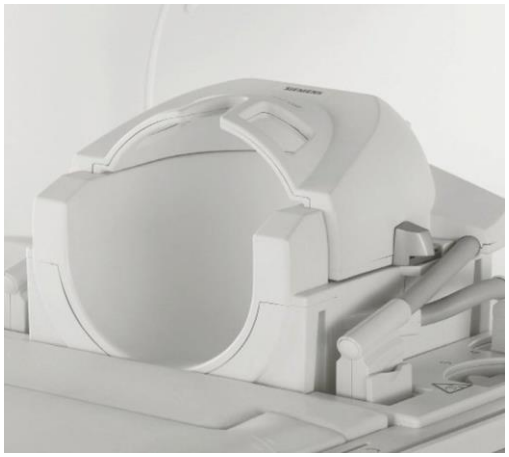
New MR Facility Overview

The new 3T MR Research Center is located at 2242 W. Harrison Street, Suite 103. We currently offer cutting edge MR imaging and spectroscopy technologies utilizing the state-of-the-art GE Discovery MR750 3T system. The MR750 features a short and larger bore, both of which enhance patient comfort. We also have a dedicated room at the Harrison site for pre/post neuropsychiatric testing and general consultations for the research subjects. In addition to the brand new scanner at Harrison Street, the 3T MR Research Program also has access to a second GE MR750 3T scanner located at the Outpatient Care Center (OCC; 1801 W Taylor Suite 1A) to support research projects involving in-patients, non-human primates, and animals. The hours of operation at the Harrison MR facility are M-F 8AM-5PM and OCC M-F 7AM-10AM. We also offer hours from 8AM-5PM on two Saturdays per month at the Harrison MR facility.

GE Discovery MR750 3T

The Discovery MR750 3.0T's stunning technology innovations take 3.0T imaging to the next level. The system has been designed to break through the traditional barriers that slow down MR exams, providing the speed and comfort you need to help you perform routine exams quickly and make advanced exams routine.

Nova Medical 32ch Head coil



The 3T MR Research Program provides a wide range of imaging capabilities that include fMRI, DTI, Diffusion, ASL perfusion, MRS, cardiac, vascular, and body imaging. We are fully equipped with a battery of advanced radiofrequency (RF) coils, including two 8 channel and two 32 channel head coils, one 29 channel head-neck-spine coil, a 32 channel torso array, a 32 channel cardiac array, and other coils for the rest of the anatomic regions. The newly purchased NOVA Medical 32ch head coil represents the state-of-the-art for fMRI and advanced neuroimaging studies *(see above.)*

The Harrison MR Research site has two fMRI presentation systems available to the research community. The first presentation system is based on Invivo ESys technology which consists of a 30 inch LCD screen for rear paradigm presentation, headphones for audio stimuli, and integrated Cedrus button boxes which will allow up to 4 separate button responses. Paradigms built with EPrime (v1.2) can be directly loaded onto the Invivo ESys to offer synchronization of the paradigm and data collection. The second stimulus system is made by MRIx. This system offers front screen projection, headphones, right and left 2 button response hand switches, and physiological monitoring. Paradigms saved in .avi format can be run directly from the system with fully automated scanner trigger synchronization. We also offer a

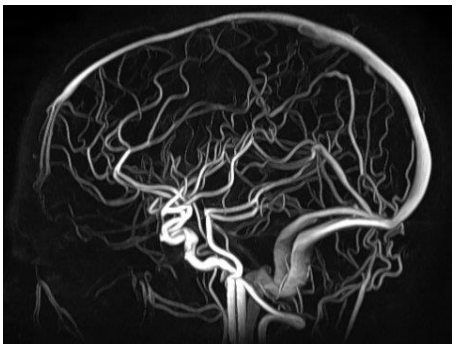
"Research Access" box that allows the research groups to connect a laptop and run their customized paradigms with scanner synchronization.

The 3T Research Program also provides real time eye monitoring during image acquisition. This system is helpful in evaluating the participant's engagement during task performance and monitoring head motion. The infrared camera is optimized for use with the MRIx presentation system; however, it can be utilized with the Invivo ESys.

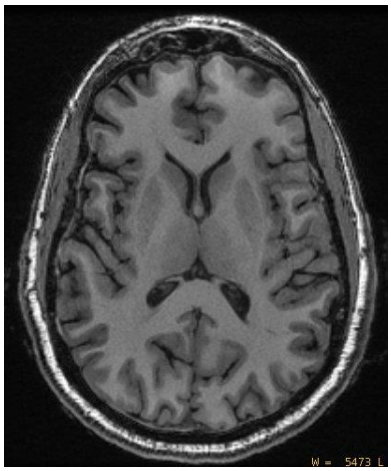
Invivo ESys

The INVIVO ESys fMRI is the third generation solution by Invivo for functional MR imaging featuring clinically-validated experiment paradigms. The paradigm suite includes a battery of clinical fMRI tasks that provide proven activation of the motor, visual, auditory and language regions of the brain.

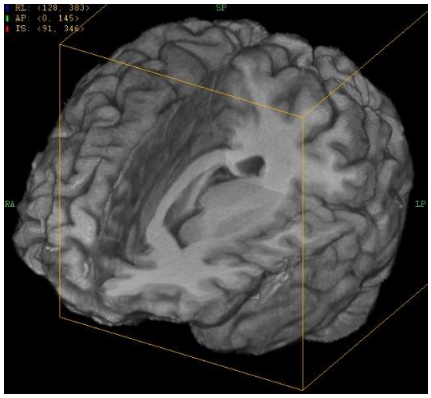
Our 3TProgram MR750 Images



Non-Contrast Inhance 3D Velocity



Axial 3D BRAVO



Segmented 3D Brain

Sagittal T2 Lumbar Spine

EEG Hardware

In collaboration with Drs. Phan and Pavuluri of the Department of Psychiatry, we recently purchased a 32-channel Brain Vision MRI-compatible EEG system. This system enables the acquisition of EEG and fMRI synchronously. The complete system includes 4 different sized 32 channel caps with all prep materials, a 32 channel EEG MR compatible amplifier, the SyncBox for scanner clock synchronization, and BrainVision Recorder, RecView, and Analyzer 2 software. The 3T MR Research staff have been trained to set up the EEG system for safe use within the GE MR750 scanner. If you would like to incorporate the use of EEG data collection with your fMRI experiment, please feel free to contact us to discuss the necessary setup, EEG data collection and analysis. More information regarding the use of the BrainVision EEG system can be found at www.brainproducts.com

Brain Vision EEG

If you would like to utilize our imaging services for you current or future research projects, please visit our website at http://chicago.medicine.uic.edu/research/cmrr/cmrr3t and submit a Budget Preparation form found under "Documentation and Tools" to start the research account process.

Please do not hesitate to contact us if you have any questions or concerns.

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