

MagLink™

Optional Source Localization Packages

Curry®

True Multimodal Neuroimaging

- Analyzes MEG and EEG functional data
- Reads and processes image data (MRI, CT, etc.)
- Realistic individualized volume conductors generated from MRI
- Extensive options for dipole modeling
- Exclusive use of confidence ellipsoids (patent pending)
- Extensive choices for current density reconstructions including Minimum Norm Estimations, LORETA, etc.

Source®

Dipole Source Reconstruction Integrated with SCAN

- Online source modeling
- Real-time updating of dipole solutions
- Extensive options for dipole modeling
- Exclusive use of confidence ellipsoids
- Reads image data for accurate display of dipole solutions (MRI, CT, etc.)
- Multiple volume conductor models
- Pre-computed realistic boundary and finite element models for more accurate source localization

For more information on the MagLink system or to request a demonstration, please contact Neuroscan or visit our website at www.neuro.com.

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DWG 5633

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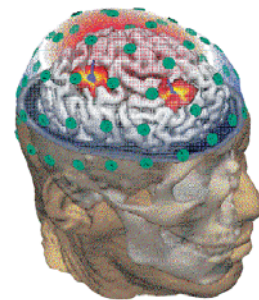
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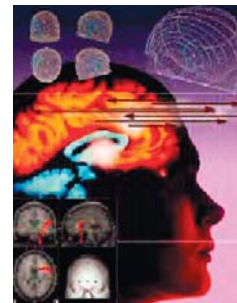
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Curry®

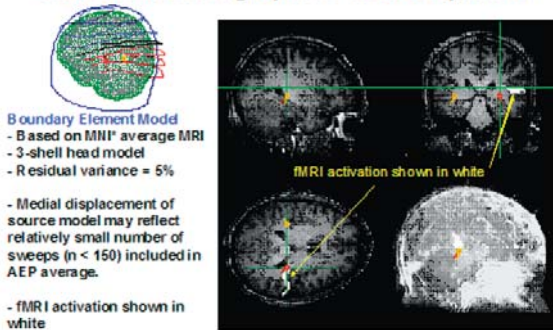
Multimodal Neuroimaging



Source®



Source Model of Auditory Evoked Potentials Recorded During Sparse fMRI Sequence



MagLink™

An innovative solution for EEG/ERP acquisition in the MRI



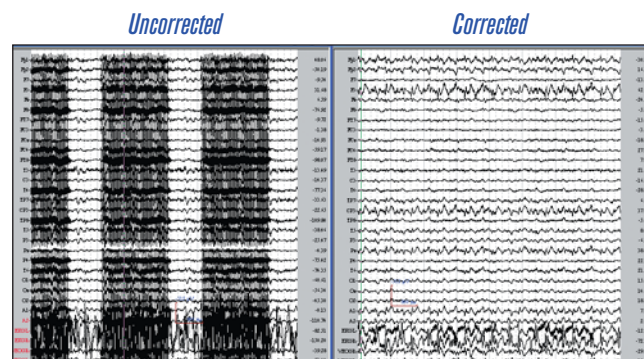
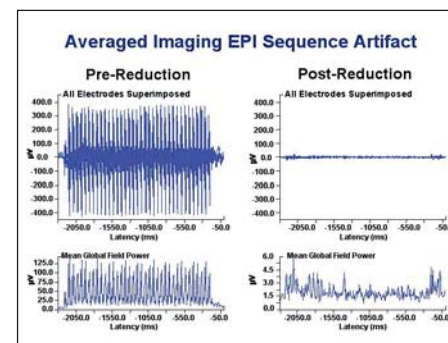
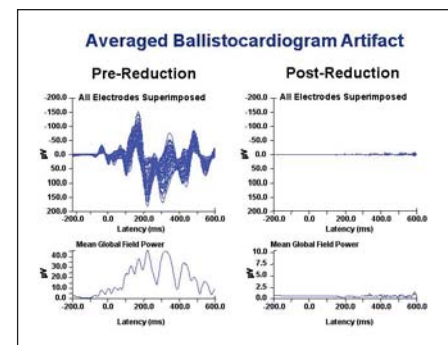
THE REVOLUTION CONTINUES

Finally, a sophisticated and accurate tool to record high quality EEG and ERP concurrent with fMRI data acquisition.

Neuroscan is pleased to announce the MagLink* system for integrated EEG and ERP recordings inside the fMRI. This second-generation system improves on previous technology by increasing the bandwidth and eliminating the pre-amplifier and optical coupling. The passive MagLink system provides the capability to record accurate EEG and ERP data even during the pulse sequence.

The MagLink system, in conjunction with Neuroscan Amplifiers, has been safely tested in field strengths of up to 4 Tesla and at extremely high densities. The MagLink system installs in the patch panel of your MRI to ensure that no RF noise is injected into the shielded room. Since the MagLink is a passive transmission system, no electronics, clocks or converters are necessary in the shielded room. Consequently, the fMRI data are uncompromised even though valuable EEG data are being collected simultaneously.

New software options for SCAN, Neuroscan's comprehensive EEG/ERP analysis package, offer powerful features for on-line and off-line reduction and removal of the ballistocardiogram and pulse sequence artifact. Post-processing tools also allow ERP measurements to be obtained that then can be subjected to source localization and compared to the fMRI, using our Source and Curry programs.



The researcher/clinician wishing to obtain quality EEG and ERP data in an fMRI environment faces many challenges. Neuroscan has designed a system that allows your lab to overcome each of these obstacles. Presented here are the Neuroscan products required to achieve these remarkable results.

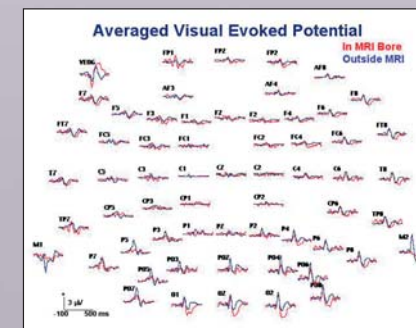
MagLink Cap – Is a specially engineered Quik-Cap, with braided carbon-fiber cabling and current-limiting in-line resistors. Designed to address both subject safety and performance concerns, this electrode application system combines safe and accurate recording with fast application times. Obtaining low impedance connections at each electrode – scalp site is critical in the MRI. The MagLink cap and "Scalp-Brushing" technique combine to ensure quality recording in minimal time.

MagLink System – MagLink is a patented, passive carbon transmission system that eliminates the placement of unnecessary electronics and amplifiers near the bore of the magnet, where they can disrupt the magnetic field. MagLink's passive technology is transparent to the MRI and allows full bandwidth acquisition even at the high sampling rates necessary to sample accurately the gradient artifact as well as the ongoing EEG. Utilizing the MagLink to transmit the EEG signals outside of the shielded room allows the highest quality electronics to be used in the amplification and digitization of the signals.

Acquisition and Analysis software – Neuroscan's world leading software for basic EEG and ERP analysis and source localization now adds the latest technology for acquiring and processing data collected in the MRI. SCAN and the associated ToolBox combine cutting edge technology and ease of use for processing EEG data that have been recorded in the MRI. In addition to the full suite of standard processing tools, MRI specific transforms have been added and include:

- Detection of EKG
- Automated analysis and reduction of ballistocardiogram
- Detection of ocular artifact
- Artifact reduction using Principle Component Analysis
- Artifact reduction using Independent Component Analysis
- On-line spatial filter for gradient artifact
- Detection of gradient onset
- Multiple component spatial filter

Request a SCAN brochure to review the full range of capabilities this unique software offers.



Amplifiers – Neuroscan provides several amplifier options, all providing high quality signal acquisition in the rigorous fMRI environment. Critical to obtaining accurate EEG recordings in the MRI are low electrode impedance, excellent signal-to-noise ratio, extensive input range and high common mode rejection. All of the Neuroscan amplifiers allow wide bandwidth DC recordings which allow the fastest recovery from the large gradient artifact and ensure that the amplifier does not saturate. Both features are crucial for successful recordings in the MRI environment. The pulse sequence artifact is orders of magnitude greater than the signals of interest. Therefore, amplifiers used for recording in fMRI environments also need to be sensitive enough to detect the smallest signals. The 22 and 24 bit amplifiers that Neuroscan can provide are some of the most sensitive amplifiers in the world, making Neuroscan's amplifiers uniquely qualified to work in this environment.

Request brochures on the SynAmps² and NuAmps to review the full range of hardware capabilities.



*patent pending, worldwide