1032-92-153 **John S, George*** (jsg@lanl.gov), Los Alamos National Laboratory, Biological and Quantum Physics, MS: D454 (P-21), Los Alamos, NM 87545, and **Sung Chan Jun**, **Sergey Plis** and **David M. Schmidt**. *Dynamic Functional Neuroimaging through Probabilistic Integration of Multiple Imaging Modalities.*

In spite of remarkable advances in neuroimaging technologies, no single method provides everything needed for basic research or best clinical practice. Structural Magnetic Resonance Imaging (MRI) provides a powerful geometrical framework for functional mapping and source localization. Functional MRI provides brain activation images based on metabolic or hemodynamic responses, but does not sample timescales most relevant for neural function. Magneto- and electroencephalography (MEG and EEG) provide excellent measures of neural population dynamics, but source localization depends on model-based solutions of an ill-posed inverse problem. Bayesian Inference techniques for probabilistic multi-modality analysis explicitly treat the ambiguity inherent in source localization and timecourse estimation. Such methods allow formally rigorous strategies for integrating electromagnetic measures with spatial estimates of neural sources provided by fMRI or probabilistic functional atlas data, constrained by individual anatomy. These integrated methods provide the best available techniques for noninvasive imaging of dynamic neural function. (Received August 20, 2007)