1068-94-221 **Marco F Duarte**, **Michael B Wakin** and **Dror Baron*** (`barondror@ncsu.edu`), 2097 Engr Bldg II, NC State University, Raleigh, NC 27695, and **Shriram Sarvotham** and **Richard G Baraniuk**. *Ensemble Models for Multi-Signal Compressed Sensing.*

In compressed sensing, a small collection of linear projections of a sparse signal contain enough information for the signal to be recovered. Distributed compressed sensing (DCS) extends this framework to multi-signal problems, allowing an ensemble of signals to be jointly recovered from separately measured individual signals. This work introduces ensemble sparsity models for capturing intra- and inter-signal correlations within a multi-signal ensemble. For strictly sparse ensembles, we characterize the fundamental limits of DCS recovery when noiseless measurements are taken. Our analysis is based on a bipartite graph formulation that ties in sparse ensemble coefficients and the measurements. (Received January 18, 2011)