1035-62-1284 **Elaine T. Hale*** (ehale@rice.edu), Rice University, 6100 Main Street, MS 134, Houston, TX 77005-1892. *Compressed Sensing Signal Recovery in the Presence of Noise.*

In classic sensing and compression, a signal of length n is measured directly and then compressed based on the sparsity of the original signal in a given basis. In compressed sensing, the sparsity of the original signal in a basis is used upfront to justify taking just m linear measurements, where $m < n$.

The cost of fewer measurements is a more costly reconstruction process. One widely used formulation is the simultaneous minimization of two objectives: the 1-norm of the recovered signal, which enforces sparsity (few non-zero elements), and a least-squares term that enforces the fidelity of the measurements. This talk addresses the relative weighting of these terms given a certain stochastic model of the compressed sensing measurement process. This model also suggests how to differentiate between the zeros and non-zeros in a reconstructed signal, which makes it easier to apply a common post-processing procedure. Computational results demonstrate the effectiveness of the relative weighting and post-processing step given order-of-magnitude noise estimates. (Received September 19, 2007)