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Rick Chartrand* (rickc@lanl.gov), Theoretical Division, T-7, MS B284, Los Alamos National Laboratory, Los Alamos, NM 87545. *Nonconvex Compressed Sensing*.

This talk will showcase the surprising benefits of replacing the usual, convex optimization problem of compressed sensing with a nonconvex variant. Many numerical examples indicate that replacing the ℓ^1 norm with the p th power of the ℓ^p norm, where $0 < p < 1$, allows a sparse vector to be recovered from substantially fewer measurements. We will show theoretical results concerning the efficacy of ℓ^p minimization, and attempt to explain the surprising observation that local minimization algorithms give results expected of global minimization, allowing for efficient solution. (Received April 27, 2007)