1067-41-1569 **Vladimir Temlyakov**, Department of Mathematics, University of South Carolina, Columbia, SC 29208, and **Mingrui Yang*** (yangm@email.sc.edu), Department of Mathematics, University of South Carolina, Columbia, SC 29208. *Greedy Algorithms in Compressed Sensing.*

One of the important problems in CS is to design an economical algorithm that finds (approximates) u from the information $y = (\langle u, \varphi_1 \rangle, \dots, \langle u, \varphi_n \rangle) \in \mathbb{R}^n$. The crucial step here is to build a *sensing* set of vectors $\varphi_j \in \mathbb{R}^m$, $j = 1, \dots, n$ that is *good* for all vectors $u \in \mathbb{R}^m$. Orthogonal Greedy Algorithm (OGA), also called Orthogonal Matching Pursuit (OMP), is one of such well performed algorithms in the noiseless case. However, although OGA is simple and fast, the greedy step is computationally unstable and expensive, especially for large scale problems. This motivated the following modification of OGA: replace the greedy step of OGA by a thresholding step. We call it Orthogonal Greedy Algorithm with Thresholding (OGAT). We prove that, assuming sufficient sparsity of an ideal noiseless signal and some certain coherence property of the overcomplete dictionary, the noiseless signal can be recovered exactly via OGAT. (Received September 22, 2010)