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**Jiehua Zhu\***, Department of Mathematical Sciences, Georgia Southern University, Statesboro, GA 30458, and **Xiezhang Li**, Department of Mathematical Sciences, Georgia Southern University, Statesboro, GA 30458. *A generalized  $l_1$  greedy algorithm for image reconstruction in computed tomography.*

The sparse vector solutions for an underdetermined system of linear equations  $Ax = b$  have many applications in signal recovery and image reconstruction in tomography. Under certain conditions, the sparsest solution can be found by solving a constrained  $l_1$  minimization problem:  $\min \|x\|_1$  subject to  $Ax = b$ . Recently, the reweighted  $l_1$  minimization and  $l_1$  greedy algorithm have been introduced to improve the convergence of the  $l_1$  minimization problem. As an extension, a generalized  $l_1$  greedy algorithm for computerized tomography (CT) is proposed in this paper. It is implemented as a generalized total variation minimization for images with sparse gradients in CT. A numerical experiment is also given to illustrate the advantage of the new algorithm. (Received September 26, 2012)