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Armenak Petrosyan* (petrosyana@ornl.gov), 1 Bethel Valley Rd, bld 4100, Oak Ridge, TN 37830, and **Hoang Tran** and **Clayton Webster**. *Reconstruction of jointly sparse vectors via manifold optimization.*

We consider the recovery problem of jointly sparse vectors from their linear measurements. We utilize the rank of the data matrix to reduce the problem to a full column rank case. This cuts the computation complexity of the problem and allows the implementation of joint sparse recovery algorithms like the MUSIC algorithm [?, ?] to be computationally more efficient and fast. We also offer a new method for recovery of jointly sparse vectors in the form of a (non-convex) optimization problem on the non-compact Steifel manifold. Our method generalizes the ℓ_1/ℓ_2 minimization method. We numerically demonstrate that it outperforms the Euclidean minimization of the $\ell_{2,1}$ norm commonly used for solving the joint sparse recovery problem. (Received August 22, 2018)