1133-62-299 **Teng Zhang*** (teng.zhang@ucf.edu), 2580 Greenhill Way, Apt 108, Oviedo, FL 32765. *Robust Principal Component Analysis by Manifold Optimization.* Preliminary report.

This work considers the problem of robust PCA as an optimization problem on the manifold of low-rank matrices, and proposes two algorithms based on manifold optimization. It is shown that, with a proper designed initialization, the proposed algorithms are guaranteed to converge to the underlying low-rank matrix linearly. Compared with the previous works based on the Burer-Monterio decomposition of low-rank matrices, the proposed algorithms reduce the dependence on the conditional number of the underlying low-rank matrix, both theoretically and numerically. (Received July 30, 2017)