1148-52-173 **Konstantin Makarychev*** (konstantin@northwestern.edu), Mudd Hall, Room 3009, Northwestern University, 2233 Tech Drive, Evanston, IL 60208, and **Yury Makarychev** and **Ilya Razenshteyn**. *Performance of Johnson-Lindenstrauss Transform for k-Means and k-Medians Clustering.* Preliminary report.

Consider an instance of Euclidean k-means or k-medians clustering. We show that the cost of the optimal solution is preserved up to a factor of $(1+\varepsilon)$ under a projection onto a random $O(\log(k/\varepsilon)/\varepsilon^2)$-dimensional subspace. Further, the cost of every clustering is preserved within $(1+\varepsilon)$. More generally, our result applies to any dimension reduction map satisfying a mild sub-Gaussian-tail condition. Our bound on the dimension is nearly optimal. Additionally, our result applies to Euclidean k-clustering with the distances raised to the p-th power for any constant p.

For k-means, our result resolves an open problem posed by Cohen, Elder, Musco, Musco, and Persu (STOC 2015); for k-medians, it answers a question raised by Kannan. (Received February 01, 2019)