1125-14-2998   **Fiona Knoll*** (`fknoll@g.clemson.edu`), **Shuhong Gao** and **Michael Burr**. *Precise Dimensions That Guarantee a Transformation Preserving the Euclidean Distance.*

Johnson and Lindenstrauss (1984) proved that any finite set of data in a high dimensional space can be projected into a low dimensional space with the Euclidean metric information of the set being preserved within any desired accuracy, provided the projected dimension lies above a certain threshold. Kane and Nelson (2011) proved such a projection does not exist if the projected dimension lies below another threshold.

In this presentation, we will discuss the bounds of the projected dimension of those transformations preserving the Euclidean distance and the existence of a gap between these bounds. This is joint work with Shuhong Gao and Michael Burr. (Received September 20, 2016)