

1125-VI-3136 **Justin D Marks*** (marksj@gonzaga.edu). *Tangent Bundle Algorithms for Averaging Point Clouds on Grassmann and Stiefel Manifolds.*

In this talk, we introduce two iterative algorithms for determining mean representatives for a cluster of points on the Grassmann manifold and on the Stiefel manifold. Each of the algorithms depends upon a pair of maps parametrized by the underlying manifold, and we appeal to the characterization of the tangent and normal space at each point. These pairs of maps allow one to move from the manifold to a given tangent space and vice-versa. Iterating in a manner similar to the Karcher mean algorithm, we observe rapid convergence to a fixed point which acts as a mean for the cluster. (Received September 21, 2016)