1063-51-269 **Jen-Mei Chang*** (jchang9@csulb.edu), Department of Mathematics and Statistics, 1250 Bellflower Blvd, CSULB, Long Beach, CA 90840. *Classification on the Grassmannians: Theory and Applications.*

In this talk, we will introduce a novel geometric framework for the general classification problem and present empirical results obtained from applying the proposed method on a face recognition problem under varying illumination. The success of this geometric framework builds upon the fact that the geometry and statistics of the Grassmannians are well-understood and family of patterns with a common characterization possesses discriminatory variations that are useful for classification. Under the right conditions, these families of patterns can be viewed as points on the Grassmannian where distances are available for classification. An investigation in ways to further speed up the algorthm leads to two notions of compression on the Grassmann manifold, both of which will be discussed in the talk as well. (Received August 17, 2010)