1096-42-1006 **John J Benedetto*** (jjb@math.umd.edu), Norbert Wiener Center, Department of Mathematics, University of Maryland, College Park, MD 20742, and **Wojciech Czaja**, Norbert Wiener Center, Department of Mathematics, University of Maryland, College Park, MD 20742. *Multiplicative frames for dimension reduction in reactive sensing.* Preliminary report.

Laplacian eigenmaps and other non-linear kernel eigenmap methods are described for their role in obtaining effective dimension reduction of multi-spectral data. Their use in classification problems is constrained since different classes that should be identified are not necessarily orthogonal. This leads to the introduction of the theory of frames and the concept of frame potential energy as a natural paradigm for analyzing a host of classification problems in the setting of kernel eigenmap methods. (Received September 12, 2013)