1056-S1-528   **Edward Aboufadel***, Department of Mathematics, A-2-178 MAK, GVSU, Allendale, MI 49401, and **Robert Castellano** and **Derek Olson**. *A Wavelet-Based Unsupervised Learning Algorithm to Cluster Diabetics Based on Continuous Glucose Monitoring Data.* Preliminary report.

Type 1 diabetes is a serious disease, and it is estimated that at least one million Americans are afflicted. The main challenge that diabetics face is regulating their blood glucose levels. Prior research suggests that reducing variability of blood glucose is a key component of this regulation. This presentation will describe a new measurement developed to quantify the variability or predictability of blood glucose. Using continuous glucose monitors (CGMs), this measurement – called a PLA index – can be a new tool to classify diabetics based on their blood glucose behavior and may become a new method in the management of diabetes. The PLA index was discovered while taking a wavelet-based approach to study the CGM data. We will discuss how the PLA index and the wavelet analysis are connected and how this leads to the PLA index's potential utility. This work was done at the 2009 Grand Valley State University Research Experience for Undergraduates program. (Received September 11, 2009)