1154-92-1623 **Keisha Cook*** (kcook7@tulane.edu), New Orleans, LA 70125. *Analysis of Active Transport in Human Lung Cells using Stochastic Modeling.* Preliminary report.

Live cell imaging and single particle tracking techniques have become increasingly popular amongst the mathematical biology community. We study endocytosis, the cellular internalization and transport of bioparticles. We are specifically interested in titanium dioxide nanoparticles (TiO_2) in human lung cells (A549), observed locally in enlarged lysosomes. Using fluorescence microscopy, we track, classify, and analyze the movement in the cells. Single particle tracking techniques allow us to collect data in order to develop statistical methods for analyzing the movement in the cells. We classify the movement as active, diffusive, sub-diffusive, or stuck. The question becomes, how does the change in the size of the lysosomes alter transport type? The larger the lysosomes, the more obstacles present themselves inside the cell. We want to ensure that the classification of active movement is really active, given short path trajectories. We employ stochastic analysis techniques, including Bayesian inference methods, to analyze and determine the best method to classify active transport. (Received September 16, 2019)