1163-92-470 **Keisha Cook*** (kcook7@tulane.edu) and **Scott McKinley** (smckinl3@tulane.edu). *Methods for Analyzing Movement in Single Particle Tracking.* Preliminary report.

Single particle tracking techniques allow us to analyze the behavior of lysosomes in human lung cells. Intracellular transport is essential to cell health and the success of the processes that they carry out. This transport is carried out in membrane-bound vesicles through the use of motor proteins. We are interested in mathematically quantifying aspects that influence lysosome movement. With regard to cellular internalization, experiments were conducted where lysosomes either contained or did not contain titanium dioxide (TiO_2) nanoparticles. With regard to location in the cell, the movement of lysosomes was recorded for those located in the perinuclear and peripheral regions. We developed a biophysical model that allows us to simulate the movement of lysosomes, specifically transitioning from inactive to active states over time. Our statistical analysis methodology allows us to infer information about the lysosome trajectories. The results show that lysosomes in the presence of TiO_2 and those not in their presence move in a similar manner, however the location of lysosomes in the cell affect movement significantly. (Received September 07, 2020)