# Introduction:

In a ballistic missile trajectory simulation, the system of DEs used to describe the ballistic model is a highly complex system. In particular, the six-degree of freedom model used most frequently solves for the missile's components of acceleration, velocity, and position at discrete time intervals. The usual method for simulation is the 4th Order Runge Kutta method. This poster will be diving into a different, and potentially more efficient algorithm, called the Parker-Sochacki Method (PSM for short).

# Assumptions and Variables:

# Problem Identification:

* Model takes initial conditions of acceleration, position, and so on
* Uses the Cauchy product method to solve for coefficients to be used in a power series
* The power series takes an initial time and coefficients of and uses time steps as it goes through the series to accurately approximate the next values in the series
* The order of the series effects the accuracy of the values that will be calculated