



GEORGIA INSTITUTE OF TECHNOLOGY
SCHOOL OF PHYSICS

Progress Report
PHYS 3266

Simulating Orbital Perturbations and Inferring their Sources

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1 Research Topic & Question

Subfield: Astrophysics (Celestial Mechanics)

Question: Given a deviation from a planetary Keplerian orbital trajectory, can we determine properties of an intervening planet?

The goal of our project is to create a computational simulation of a method that was used to predict the location and properties of undiscovered planets - which ultimately led to the predictions and discoveries of Neptune and Pluto, and continues to create wonder about more potential planets in the Solar System. Our goal is to take in data on the orbits of a set of planets and use an N-body simulator to guess where a planet would need to be to create observed orbital perturbations.

2 Current Setup

3 Current Status

4 Difficulties

5 Figures

6 Quantities to Inspect