Abstract Submitted
for the OSF19 Meeting of
The American Physical Society

Simulating Realistic Cepheid Light Curves alongside ROTSE-III Data ADAM BIERY, None, DR. ROBERT KEHOE AT SOUTHERN METHODIST UNIVERSITY COLLABORATION — Cepheid variable stars are one of the main methods of determining universal distances and composition in astrophysics. Radially pulsating, strong correlations can be made between the period of pulsation and luminosity of the variable. Therefore, the determination of periods is integral to cepheid research and is an area of which needs significant improvement. The data collected by the Robotic Optical Transient Source Experiment (ROTSE III), lacks a solid method of finding these periods. This is where a simulation has become an increasingly feasible idea that would assist in this effort. The objective of this project is to develop and modify a simulator which is able to replicate light curves and output realistic periods that correlate to a multi-variable set of random input data. This output will be able to correlate several sets of real data. A simulator that can replicate realistic cepheid light curves will allow the testing of period fitting methods to be further refined. This includes the development of physics and CCD simulations, as well as a method to understand errors from real data, and account for them in simulations. This simulator will be a modular and versatile way to accurately depict a cepheid, and assist in calibrating real data.

Adam Biery
None

Date submitted: 24 Sep 2019 Electronic form version 1.4