A Study of Light Variability in Dying Stars

Hannah Rotter, Aaron Seider, Austin Bain

Departmental Affiliation: Physics and Astronomy
College of Arts and Sciences

In this research project, we observed and analyzed the light variability in a class of dying stars that are in the stage between Red Giant and White Dwarf in the evolution of stars like the Sun. Our observations were carried out during the summer and fall of 2012 at the Valparaiso Observatory. Thirty-two of these objects were observed in total. We analyzed a subset of 18 of these and found that they all varied in visual brightness by 10-70 percent. Periods for the variability were found for 8 out of 18 objects, and they range from 27 to 125 days, based on five years of observations. These variations are due to the pulsation of the stars. The goal is to find the amplitude and period of the variations; these can be used to investigate the internal structure of stars. This research was supported by a grant from the National Science Foundation.

Information about the Authors:
Hannah Rotter is a sophomore physics major from Grafton, Wisconsin. She plans on going to graduate school to get her PhD in astrophysics after she graduates with her bachelor's degree in physics. She is a current member of the Society of Physics Students and a member of Alpha Phi Omega. Aaron Seider is a sophomore physics major with plans to continue on to graduate school and do research. His main interest lies in physics, but he has always had a fascination with the night sky, which is how he became interested in astronomy. Austin Bain is a senior physics major from Monrovia, Indiana. He plans on pursuing a master's degree in aerospace engineering upon completion of his bachelor's degree in physics. He is a member of Phi Mu Alpha Sinfonia. All three students worked as research assistants with Professor Hrivnak during the summer and fall of 2012.

Faculty Sponsor: Dr. Bruce Hrivnak

Student Contact: hannah.rotter@valpo.edu