

5-3-2014

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Recommended Citation

Appel, Allyse and Reed, Justin, "A Long-Term Variability Study of Dying Low and Intermediate Mass Stars" (2014). *Symposium on Undergraduate Research and Creative Expression (SOURCE)*. 308.

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A Long-Term Variability Study of Dying Low and Intermediate Mass Stars

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We are studying the long-term light variation of dying stars (similar to that of our Sun). These stars pulsate, which causes them to vary in light. Our purpose is to better understand the internal structure of these objects through the analysis of light curves to determine the periodicity of each object. These dying stars are in the proto-planetary nebula (PPN) phase, which lasts only a few thousand years between the red giant phase and the planetary nebula phase. First discovered with the Infrared Astronomical Satellite Survey in 1983, PPN emit strongly in the infrared, but the central stars of PPN can be studied in visible light. This summer we have observed for 20 nights from the Valparaiso University Observatory gathering data for 26 stars.

Information about the Authors:

Allyse (Allie) Appel is currently a junior physics major. Her long-term goal is to go to graduate school, possibly receiving a Ph.D. in particle physics or astrophysics as well as to participate in research for the United States. Justin Reed is currently a sophomore physics major, unsure of future career plans. Both students are first-year astronomy research students working with Dr. Bruce Hrivnak.

Faculty Sponsor: Dr. Bruce Hrivnak

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