

ABSTRACT

THESIS: A Study of Variable Stars in Star Clusters NGC 2808 and NGC 6791

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Studying the variable stars in star clusters gives us an insight into the early universe that we might not otherwise have. NGC 2808 has features that set it apart from the majority of other globular clusters. Understanding why it is different will help us understand the mechanics of globular cluster formation and evolution. Likewise, NGC 6791 is an unusual open cluster that may be able to provide insight into stellar evolution. This thesis presents the results from a study of globular cluster NGC 2808 and open cluster NGC 6791 with a focus on finding new variable stars. Images were obtained in the R band using SARA consortium telescopes. For NGC 2808 the SARA 0.6 meter telescope at CTIO in Cerro Tololo, Chile was used, and for NGC 6791 the SARA 1.0 meter telescope at ORM in La Palma, Spain was used. NGC 2808 was observed for five nights, from March 2017 to March 2018 while NGC 6791 was observed for four nights, between April 2017 and October 2017. In NGC 2808, 51 variable stars were detected. Of these, 32 had been previously found by Kunder et al (2013), while 19 had not. In NGC 6791, 37 variables were detected of which 8 had been previously found by de Marchi et al (2007) and 29 had not, including 2 exoplanet candidates.

