Abstract

THESIS: Photometric study of the Eclipsing Variable Stars, NSVS 3350218, NSVS 694986, and NSVS 890397

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DEGREE: Master of Science

COLLEGE: Sciences and Humanities

DATE: December 2021

PAGES: 80

This study presents new photometric analysis and models of the eclipsing variable binary stars NSVS 694986, NSVS 890397 and NSVS 3350218. Images were taken in the Johnson B, V, and Cousins R (R_C) band passes. All images were reduced with the Image Reduction and Analysis Facility (IRAF). Differential ensemble photometry was performed using the AstroImageJ (AIJ) program. Periods for each system were determined with the PERANSO program and agree with those published by the Northern Sky Variability Survery (NSVS) to within 1 σ error. The systems were modeled using the PHysics Of Eclipsing BinariEs (PHOEBE) program. With PHOEBE, a synthetic light curve was compared to the observed light curve to determine best-fit model parameters. Observed times of minimum light were determined and compared to a calculated time of minimum light and suggest no changes are necessary for the given periods.