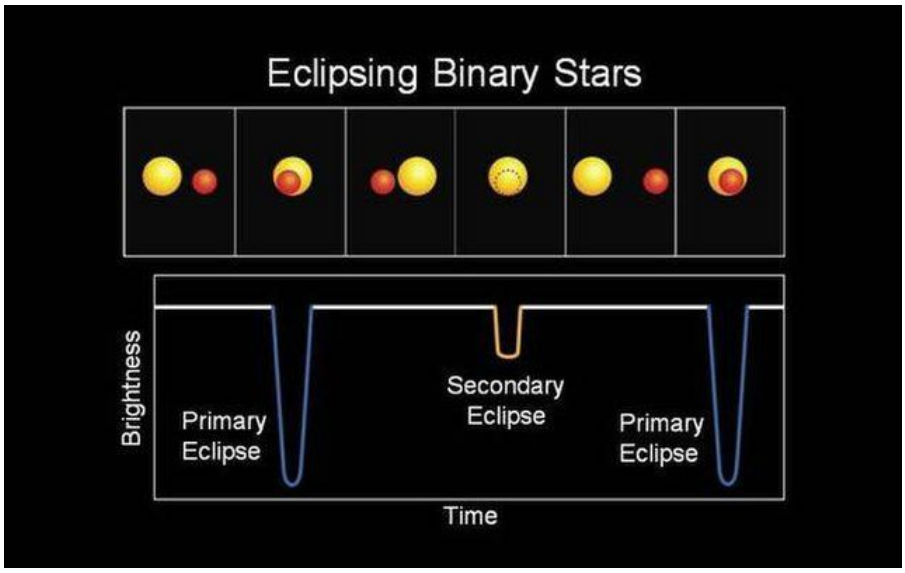
PHYSICS SEMINAR

Orbital Period Variation of Eclipsing Binary Star Systems

Jaxon Potts, CMU

Thursday, November 5, 2026
12:30 – 1:30 p.m.
Wubben 264

We investigated changes in orbital periods of binary star systems using archived data from the Mikulski Archive for Space Telescopes (MAST) from observations by the Transiting Exoplanet Survey Satellite (TESS). Deviation from the stated period from MAST suggests orbital evolution. The light curves were analyzed to construct a linear relationship that relates eclipse time and eclipse number. The analysis will be performed using Python, fitting the eclipses with a second-degree polynomial and used to produce an observed minus calculated (O-C) diagram. A non-zero slope of this O-C diagram indicates a shift of eclipse timing, consistent with mass exchange, loss of angular momentum, or geometric changes of the system. The light curves were processed through python and early observed-calculated graphs were generated, visualizing changes in the orbital period. We performed this analysis on targets visible from the Grand Mesa Observatory with published data by TESS EB. We intend to observe these targets from GMO to perform current light curve analysis and observe for variations.



Refreshments!