

PHYSICS SEMINAR

A KELT, a WASP, and a TOI walk into a bar: A small survey of exoplanet system variability using Citizen Science

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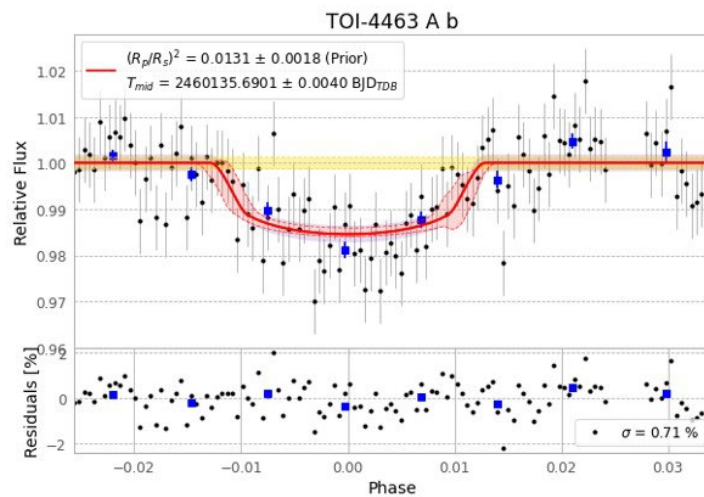
Thursday, October 1, 2026

12:30 – 1:30 p.m.

Wubben 264

Exoplanets (planets outside our solar system) can be detected and characterized by observing periodic dips in the light we receive from their host star as the planet passes in front of it, known as transits. The European Space Agency (ESA)'s Ariel mission, set to launch around 2030, will analyze exoplanet atmospheres and requires refined host star and system parameters for mission success. We can assist by preliminarily observing stellar variability to differentiate changes in brightness due to exoplanet transit from changes due to other sources of variability. We have picked three targets which lack variability information from Ariel's prospective target catalogue: WASP-194b, KELT-8b, and TOI-4463Ab. We intend to analyze and characterize their short-term variability, as well as search for other planetary or stellar satellites by analyzing variations in the planet's orbital period, all using photometry and the citizen science network, Exoplanet Watch.

Along with this project, we were granted the opportunity to visit NASA Goddard this summer and participate in an individual project. We will share some of our experiences alongside our individual projects. In addition, we will present work towards developing a program that predicts a star's variability based on a few basic stellar parameters as inputs.



Refreshments!