

# Physics & Astronomy Colloquium

Presents



## Megan Mansfield

NASA Sagan Fellow  
The University of Arizona

Thursday, November 10, 2022

12:10 pm

Webster Room 11

*Please meet our guest speaker and share in refreshments 11:45 a.m. -12:10 p.m. in the foyer on floor G above the lecture hall*

## “Finding Atmospheres on M Dwarf Terrestrial Planets with JWST ”

The launch of JWST in December 2021 opened up a new realm of transiting planets to atmospheric characterization. For the first time, we will have the necessary sensitivity to study detailed spectra of terrestrial planet atmospheres and begin to search for gases that could indicate a planet suitable for life. However, there remain several unknowns about terrestrial planets orbiting M dwarfs. A first order question in our search for habitable exoplanets is whether M dwarf planets hit with intense stellar radiation could hold onto atmospheres long enough to develop life. In this talk, I will begin by discussing methods of detecting exoplanet atmospheres and give a broad overview of the first exoplanet results from JWST and its expected capabilities for characterizing terrestrial planets. I will then present a method of using JWST to quickly determine which M dwarf planets host atmospheres by measuring secondary eclipse photometry with the Mid-Infrared Instrument (MIRI). Finally, I will discuss how this method will be applied in JWST programs later this year.

*Host: Dr. Guy Worthey*

*ZOOM Information: Meeting ID: 965 8240 9398 • Passcode: physastro*