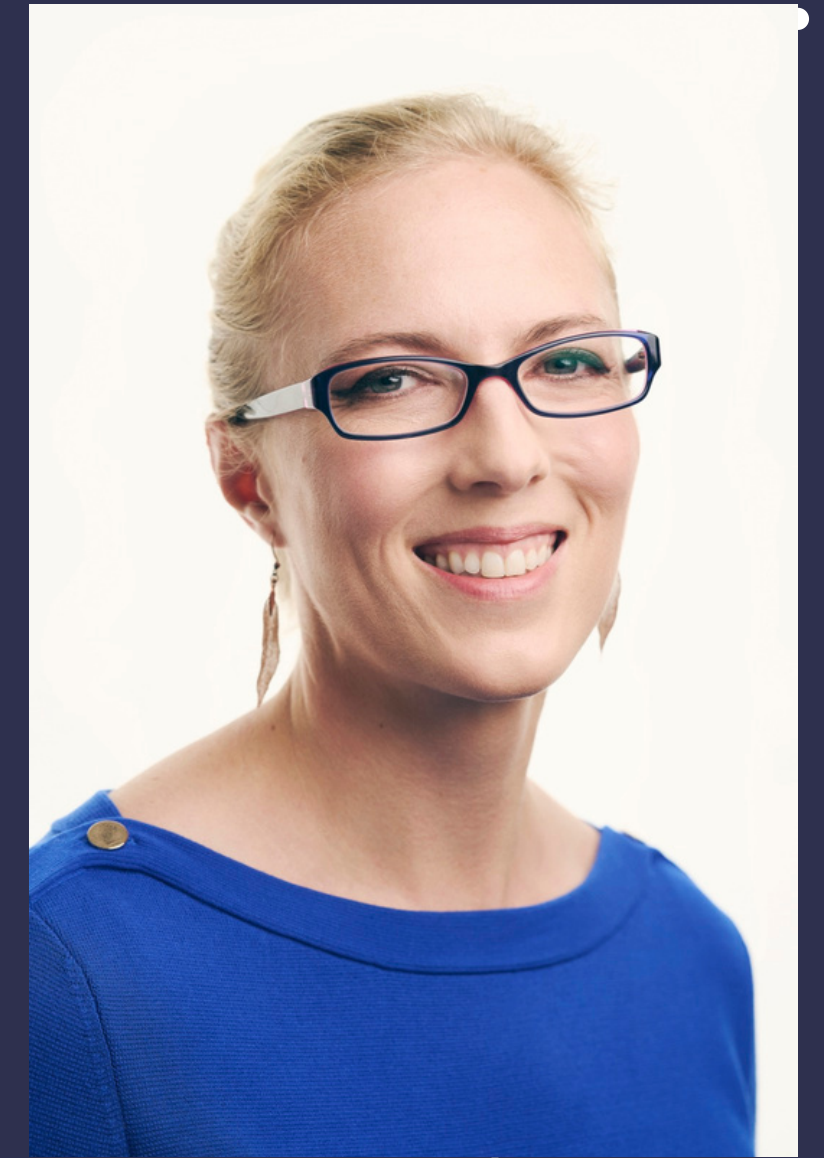




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UNLOCKING THE SECRETS OF ALIEN ATMOSPHERES: UV RADIATION AND EXOPLANETARY HABITABILITY

When we observe the first terrestrial exoplanet atmospheres, we expect to find planets around a wide range of stellar types, with corresponding differences in their UV environments. Since the first rocky exoplanets available for characterization with JWST will orbit M dwarf host stars, understanding the UV insolation of their planets is a vital step in understanding their atmospheres. Future missions such as the proposed LIFE (the Large Interferometer for Exoplanets) mission concept and LUVOIR-B aim to directly detect the atmospheres of planets orbiting FGK stars. The diversity of the planets themselves adds additional complexity, and their atmospheres will not be fixed in time due to both internal and external processes. Earth itself, through its history, furnishes many possible blueprints for a rocky planet as well as other planets and moons in our Solar System like Titan and Mars. In this talk, I will discuss the importance of UV radiation for the detection of biosignatures and prebiotic signatures with future missions. I will focus upon how our Solar System can provide key insights for interpreting biosignatures and habitable conditions and discuss some of the hurdles we may face in detecting life on other worlds.

