

**Plenary Talk**

PV III Mon 11:45 AudiMax

**Copernicus Revisited: is the Earth special?** — ●LAURA KREIDBERG — Max Planck Institute for Astronomy, Heidelberg, Germany

Nearly 500 years ago, Nicolas Copernicus published his disruptive theory that Earth is not the center of the universe. This "Copernican demotion" has held fast over the centuries, as astronomers have learned that there is nothing particularly remarkable about Earth or even the Milky Way. In the last two decades, however, a new test of the Copernican Principle has emerged – the discovery of an abundance of planets orbiting other stars. These discoveries allow us to put Earth in context and evaluate whether the formation, architecture, and present-day

characteristics of our Solar System are in fact typical. Thanks to the revolutionary capabilities of the James Webb Space Telescope (JWST), we are finally able to study other Earth-size planets in detail, and in particular search for and characterize their atmospheres. In this talk, I will give a status report on JWST observations of rocky planets. I will cover the latest results for the iconic TRAPPIST-1 system, the study of the surface of the airless planet LHS 3844b, the search for atmospheres on lava worlds, and observations of planets in the radius valley at the boundary of rocky and gaseous worlds. Taken together, these results provide a first picture of the building blocks available for the origin of life on terrestrial planets beyond the Solar System, providing essential context for how special Earth really is.