

Precise stellar ages as the key to exoplanet evolution

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The exoplanet field has made huge advances in planet characterization, atmosphere studies, and formation pathways. However, one crucial axis that is particularly hard to access when studying the evolution of exoplanets is the time axis. The physical means to get age information about exoplanet systems is through the age of the host star. A variety of methods has been employed to determine stellar ages, with particular recent progress in asteroseismology. But how precise do stellar ages need to be in order to allow inferences about exoplanet evolution? I will discuss time scales of different processes in exoplanet evolution, and how we can observationally study them. Examples include the properties of the star-planet system upon arrival on the main sequence, tidal shrinking of exoplanet orbits, and the erosion of exoplanet atmospheres.

Primary author: POPPENHAEGER, Katja (Queen's University Belfast)

Presenter: POPPENHAEGER, Katja (Queen's University Belfast)

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