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Life After (Stellar) Death: Habitability Around White Dwarfs

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We stand on the edge of an era where we will be able to characterize the atmospheres of terrestrial planets, putting us on the path to answer one of humanity's most compelling questions: are we alone in the universe? Although many searches focus on transiting planets around small M dwarfs, the similar sizes of white dwarfs and Earth would result in significantly higher transit depths around such stellar remnants, and enable easier characterization of terrestrial planets via transit spectroscopy.

Additionally the recent discovery of the first transiting planet around a white dwarf has proven that planets can survive on close orbits in these systems. However, an Earth-like exoplanet orbiting a white dwarf would be exposed to different UV environments than Earth, influencing both its atmospheric photochemistry and UV surface environment. In this talk I will discuss the evolving habitable zones around white dwarfs, how the different UV environment would affect potential biosignatures on orbiting Earth-like planets, and present simulations of transit observations with the upcoming James Webb Space Telescope.