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Probing the Large Synoptic Survey Telescope's Ability to Detect Planets Around White Dwarfs[1] JORGE CORTES, DAVID KIPPING, Columbia Univ — The Large Synoptic Survey Telescope (LSST), identified as the number one priority in the astronomy and astrophysics decadal survey, will commence operations in 2023 to image the entire southern sky every few nights for 10 years. Equipped with a 3200 Megapixel camera, LSST will produce approximately 15 Terabytes of raw data per night; yielding an unprecedented amount of observational data. This rich dataset, apart from contributing to LSST's main scientific objectives, can undoubtedly be used to probe other areas. Specifically, we are interested in peering into the long-term future of solar systems with Sun-like stars. As a first step, we characterize LSST's ability to detect planets around white dwarfs, the end state of ˜97% of all stars in the Milky Way galaxy. Simulations are conducted which incorporate realistic models for LSST's observing strategy and the white dwarf distribution within the Milky Way. Our preliminary results indicate that, if all white dwarfs were to possess a planet, LSST would yield approximately 5,000 detections.

[1]Columbia's Bridge to Ph.D. Program in the Natural Sciences

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