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Realistic Detectability of Close Interstellar Comets NATHANIEL COOK, Brigham Young University, DARIN RAGOZZINE, Harvard-Smithsonian Center for Astrophysics, United States, DENISE STEPHENS, Brigham Young University — From our understanding of planet formation we know that many comets are created and ejected, but we have yet to observe “interstellar” comets from other stars. A detailed estimation of the population of these comets has been recently determined. Those results concluded that based on their size and distribution that the LSST would be unlikely to see any interstellar comets beyond 5 AU. Our work takes into account the gravitational focusing of the Sun and the brightening of comets as they come closer to the Sun. We will more accurately describe the probability of realistically observing these close interstellar comets, using numerical simulations. We track the comets in their hyperbolic orbits about the Sun. We show that the velocity of the Sun relative to the galactic Local Standard of Rest has negligible effect on the probability of observation, while the velocity dispersion of the comets has a greater effect though still small compared to uncertainties in the population. We will present the magnitude distribution of comets, including a model for comet brightening or outgassing, and discuss the prospects for LSST in detecting an interstellar comet.

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