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Searching for ultra-faint galaxies in three years of data from the Dark Energy Survey

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Deep optical imaging surveys have revealed a population of extremely low luminosity and dark matter dominated galaxies orbiting the Milky Way. The total number of Milky Way satellite galaxies and the demographics of this population are still largely unknown, in part, because of complex selection effects that limit our ability to detect the lowest surface brightness galaxies. The Dark Energy Survey (DES) has now finished a complete reprocessing of data from the first three observing seasons, yielding a dataset with substantially improved depth, homogeneity, and photometric precision. We will describe progress towards a more robust statistical search for Milky Way satellite galaxies in DES data with the ultimate goal of constraining the luminosity function of the faintest galaxies as a test of galaxy formation and dark matter physics.

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