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Discovery of Milky Way dwarf galaxies in the Dark Energy Survey and implications for cosmological models

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The census of Milky Way satellite galaxies provides crucial tests of both galaxy formation models and the broader Cold Dark Matter paradigm. The discoveries of many dwarf galaxies from the Sloan Digital Sky Survey have also provided insight on the nature of dark matter and the reionization of the universe. It is estimated that many hundreds of ultra-faint Milky Way companions will be discovered with on-going and near-future wide-field optical imaging surveys at fainter luminosities, greater distances, and in less explored regions of the sky. The Dark Energy Survey (DES) is one such survey now in the process of imaging 5000 square degrees of the southern sky in the grizY bands down to $r \sim 24$ mag. We present here the results of a recent search for new satellite galaxies in the Dark Energy Survey data. So far, a dozen new stellar systems have already been reported in 2015, one of which, Reticulum II, has now been dynamically and chemically confirmed as a dwarf galaxy. We place these recent results in context and briefly discuss some of the implications for tests of fundamental physics.

Oral or Poster Presentation

Oral

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