

## **Cosmological Inference with Gravitational Waves and Euclid Galaxy Surveys**

We present a preliminary study aimed at using the galaxy catalog released by Euclid for Gravitational-wave (GW) cosmology. I will firstly present an overview of the galaxy catalogs released and planned to be released with Euclid, focusing on their overlap with current GW detections. We identified six candidate events with significant spatial overlap with Euclid. I will then focus on presenting the characterization of the luminosity function and completeness of galaxies reported in Euclid Data Release 1 (DR1) and explain how these key studies are at the base of the dark siren method for GW cosmology. Our results represent an initial step toward establishing Euclid as a key resource for dark siren analyses in gravitational-wave cosmology

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