

Abstract Submitted
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A Dark Energy Survey search for the electromagnetic counterpart to LIGO/Virgo gravitational wave binary neutron star candidate S190510g ALYSSA GARCIA, Brandeis Univ, DARK ENERGY SURVEY COLLABORATION — We present the results from the search for electromagnetic counterpart of the LIGO/Virgo event S190510g using the Dark Energy Camera. S190510g is a binary neutron star (BNS) event of moderate significance detected at a distance of 227.92 Mpc and localized within an area of 31 (1166) square degrees at 50% (90%) confidence. We use the DES GW search and discovery pipeline for analysis that identified 11 candidates all of which appear consistent with supernovae following offline analysis and spectroscopy by other instruments. However, one candidate, desgw-190510h, does look promising enough given the properties of its host galaxy, that we suggest follow up from radio telescopes. In this talk, I will discuss how we implement our candidate selection procedure on real candidates as well as simulated kilonovae and supernovae under DECam observing conditions. Using this, we can inform future observing strategies for similar events. Additionally, we show that given ~ 27 identical events observed with this strategy would be needed to be able to detect a GW170817-like counterpart at the 3σ confidence level. We conclude that follow up of just the highest probability region of many high significance events with poor localization is the most efficient way to find KN counterparts.

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