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Measuring the Hubble Constant with dark standard sirens[1] ANTONELLA PALMESE, KENNETH HERNER, JAMES ANNIS, Fermilab, MARCELLE SOARES-SANTOS, ALYSSA GARCIA, Brandeis University, DESGW TEAM — In this talk we will present the latest dark siren measurement of the Hubble constant with multiple gravitational wave source detections from LIGO/Virgo using the Dark Energy Survey (DES) galaxy photometric redshift catalog. The DES collaboration has a dedicated effort to follow up gravitational wave events, and it led to the independent discovery of the kilonova associated to GW170817. We have followed up several binary black hole mergers and one neutron star-black hole merger, finding no compelling evidence for an electromagnetic counterpart. In the absence of a confirmed host galaxy redshift, we use the standard siren distances of these events to measure the Hubble constant by a statistical redshift method that takes into account all the potential host galaxies observed with DES. We extend the photometric redshift analysis to incorporate partial spectroscopic redshift coverage. By combining information from several events we expect to improve several-fold on the precision of the first such measurement on a single event (GW170814) reported in 2019.

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