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Cosmology from Gravitational waves: importance of multiwavelength astronomy

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Abstract

Multi-wavelength observations of Gravitational wave (GW) events caused by binary neutron star mergers have ushered in the era of standard siren cosmology. However, GW170817 is the only system with an electromagnetic counterpart to be detected thus far. Therefore progress has been made in order to use binary black hole merger events to infer cosmological parameters. In this talk, I will present the importance of galaxy catalogs in order to use such events for cosmological inference. I will present the methods we have been working on in order to detect the cross-correlation of GW event localizations with galaxies that have known redshifts. I will elaborate how such measurements can aid in cosmological as well as astrophysical inference.