

Abstract Submitted
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A Bayesian Statistical Framework for Identifying Strongly Lensed Gravitational-Wave Signals RICO KA LOK LO, LIGO Laboratory, Caltech, IGNACIO MAGAA HERNANDEZ, University of Wisconsin-Milwaukee — It is expected that gravitational waves, similar to electromagnetic waves, can be gravitationally lensed by intervening matters, producing multiple instances of the same signal arriving at different times and apparent luminosity distances with different phase shifts compared to the un-lensed signal due to lensing. If unaccounted for, these lensed signals will masquerade as separate systems with higher mass and lower redshift. In this talk, we present a Bayesian statistical framework to identify strongly-lensed gravitational-wave signals that incorporates source population information and accounts for selection effect. If confirmed, lensed gravitational waves will allow us to probe the Universe at higher redshift, and to constrain the polarization contents of the waves with fewer number of detectors.

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