

Gravitational wave lensing: A mismatch analysis

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The first direct detection of gravitational waves by LIGO collaboration has opened a new era of Gravitational Wave astronomy. The bending of light by massive objects is a prediction of General Relativity and this phenomenon known as gravitational lensing has now become an indispensable tool in astrophysics. Therefore, in this era of astronomy, the next most anticipated event is the detection of gravitational waves lensed by massive sources along the line of sight.

The lensed gravitational waves has many applications such as detection of Intermediate Mass BlackHoles (IMBH), Primordial Black Holes, precision cosmology etc. However, all these application needs proper modelling of lensed gravitational waveform. The incorrect template (waveform) will lead to loss of information and reduction in Signal to Noise Ratio(SNR). In this talk, I will discuss about the mismatched filtering technique to compare the lensed template with unlensed template for various lensed models.

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