

Improving the BNS Search by Using a Tidal Template Bank

The current GW template bank for BNS search is using the aligned-spin waveform without considering the tidal effects. The deformation of the NS could become significant in the late inspiral stage. The diverges of GW waveform between the non-tidal and tidal could make the signal-to-noise ratio for BNS search decrease. We have explored to build a BNS template bank including the tidal parameters to improve the BNS search sensitivity. Our results show that the GW signals with strong tidal effect can be recovered with better sensitive VT than current BNS aligned-spin template bank by ~6%.

Primary authors: WANG, Gang (INFN - National Institute for Nuclear Physics); Dr NITZ, Alexander (Max Planck Institute for Gravitational Physics (Albert Einstein Institute)); Dr DEL POZZO, Walter (Università di Pisa)

Presenter: WANG, Gang (INFN - National Institute for Nuclear Physics)

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