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The Waveform Derivation of Inspiralling Compact Binary Mergers

The ground based gravitational wave detectors such as LIGO, measures metric perturbation in to a preferred polarization basis. The initial Ligo configuration runs were based on second post Newtonian approximation of quadrupolar moments. A post Minkowskian and a post Newtonian approach is adopted for the wave form generation of slow moving and non-spinning binaries. The non linearity of Einstein field equation is considered at higher masses (>12 M⊠). The gravitational damping is derived by taking account of a quasi-circular orbit. The angular velocity and phase angle are determined in time domain. The gravitational radiation causes shrink of orbital radius and increase in orbital frequency and amplitude. The gravitational chirp feature on wave form is derived. The gravitational wave strain effect on the detector antenna response is discussed in present scenario and future advancement of observatories.
Key words LIGO, Post Newtonian, Gravitational radiation, Gravitational chirp
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