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Post-Newtonian gravitational waves with cosmological constant derived from Einstein-Hilbert action

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We explain the analysis of the compact binary system dynamics in the Post-Newtonian approach adding the cosmological constant Λ at the first Post-Newtonian (PN) order from the Einstein-Hilbert action. Considering small values of Λ we find that it plays the role of a PN factor, and we us this feature to compute the Lagrangian of a binary compact system at the center of mass frame at 1PN order, as well as the phase function $\phi(t)$ and the polarizations h_+ and $h_\times$. We observe changes due to Λ only at very low constant frequencies and in certain particular values, we find that the amplitudes of the polarizations are canceled at Newtonian order (0PN).

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