TaylorF2

1 Introduction

TaylorF2: a simple frequency-domain inspiral waveform. The waveform is composed of an amplitude and phase:

$$\tilde{h}(f) = A(f)e^{i\Psi(f)} \tag{1}$$

2 0pN

$$A(f) = \frac{1}{d_L}\sqrt{5/24}\pi^{-2/3}M_c^{5/6}f^{-7/6} \tag{2}$$

$$\Psi = \frac{3}{128}(\pi M f)^{-5/3}\frac{1}{\eta} + 2\pi f t_c - \phi_c \tag{3}$$

and M, M_c, t_c, ϕ_c and d_L are the total mass, chirp mass, time of coalescence, phase of coalescence, and luminosity distance. The total mass M of the binary is given by $M = M_c/\eta^{3/5}$.

The amplitude of the waveform is set to zero for all frequencies $f > f_{ISCO}$, where

$$f_{ISCO} = \frac{1}{\pi 6^{1.5}}\frac{1}{M} \tag{4}$$

is the frequency of gravitational waves at the ISCO.