Luminosity:

$$\mathcal{L} = \frac{G}{5c^5} \sum_{n=0}^{\infty} \left(\frac{1}{c^2}\right)^n \hat{\mathcal{L}}_n$$

2PN energy loss:

$$-\left\langle \frac{d\mathcal{E}(t - r_*/c)}{dt} \right\rangle = \langle \mathcal{L}(t) \rangle$$

$$\begin{aligned} \mathcal{L} &= \frac{G}{5c^5} \left\{ \mathrm{M}_{ij}^{[3]} \mathrm{M}_{ij}^{[3]} + \frac{1}{c^2} \left[\frac{5}{189} \mathrm{M}_{ijk}^{[4]} \mathrm{M}_{ijk}^{[4]} + \frac{16}{9} \mathrm{S}_{ij}^{[3]} \mathrm{S}_{ij}^{[3]} \right] \right. \\ &+ \left. \frac{1}{c^4} \left[\frac{5}{9072} \mathrm{M}_{ijkm}^{[5]} \mathrm{M}_{ijkm}^{[5]} + \frac{5}{84} \mathrm{S}_{ijk}^{[4]} \mathrm{S}_{ijk}^{[4]} \right] \right\} \end{aligned}$$