

Post-Newtonian Expansions

$$R[x_a^i, p_{ai}, h_{ij}^{\text{TT}}, \partial_t h_{ij}^{\text{TT}}] - Mc^2 = \sum_{n=0}^{\infty} \left(\frac{1}{c^2}\right)^n R_n[x_a^i, p_{ai}, \hat{h}_{ij}^{\text{TT}}, \partial_t \hat{h}_{ij}^{\text{TT}}]$$

$$h_{ij}^{\text{TT}} = \frac{G}{c^4} \hat{h}_{ij}^{\text{TT}}$$

$$\left(\Delta - \frac{\partial_t^2}{c^2}\right) h^{\text{TT}} = \frac{G}{c^4} \sum_{n=0}^{\infty} \left(\frac{1}{c^2}\right)^n D_n^{\text{TT}}[x, x_a(t), p_a(t), \hat{h}^{\text{TT}}(t), \partial_t \hat{h}^{\text{TT}}(t)]$$