

General Gauge:

$$\eta^{\alpha\beta} \partial_\alpha h_{\beta\gamma} = \frac{J \eta^{\alpha\beta} h_{\gamma\alpha} \partial_\beta \Omega}{\Omega} + P \Omega^2 \partial_\gamma h + R h \Omega \partial_\gamma \Omega$$

Perturbed Einstein Tensor

$$J = 0$$

$$\frac{\eta^{\mu\nu}}{\Omega^2} \delta G_{\mu\nu} =$$

$$2H^4 t^2 h_{00} + 3H^2 h - 5RH^2 h - 3H^2 t \partial_0 h + 4PH^2 t \partial_0 h + RH^2 t \partial_0 h + (P-1)H^2 t^2 \square h$$

$$J = 0, P = 1, R = 0$$

$$\frac{\eta^{\mu\nu}}{\Omega^2} \delta G_{\mu\nu} =$$

$$2H^4 t^2 h_{00} + 3H^2 h + H^2 t \partial_0 h$$

00	$2H^2 h_{00} - H^2 t \partial_0 h_{00} - \frac{1}{2} \partial_0 \partial_0 h + \frac{1}{2} H^2 t^2 \square h_{00}$
11	$4H^2 h_{11} - H^2 t \partial_0 h_{11} - \frac{1}{2} \partial_1 \partial_1 h + \frac{1}{2} H^2 t^2 \square h_{11}$
22	$4H^2 h_{22} - H^2 t \partial_0 h_{22} - \frac{1}{2} \partial_2 \partial_2 h + \frac{1}{2} H^2 t^2 \square h_{22}$
33	$4H^2 h_{33} - H^2 t \partial_0 h_{33} - \frac{1}{2} \partial_3 \partial_3 h + \frac{1}{2} H^2 t^2 \square h_{33}$
01	$3H^2 h_{01} - H^2 t \partial_0 h_{01} - \frac{1}{2} \partial_0 \partial_1 h + \frac{1}{2} H^2 t^2 \square h_{01}$
02	$3H^2 h_{02} - H^2 t \partial_0 h_{02} - \frac{1}{2} \partial_0 \partial_2 h + \frac{1}{2} H^2 t^2 \square h_{02}$
03	$3H^2 h_{03} - H^2 t \partial_0 h_{03} - \frac{1}{2} \partial_0 \partial_3 h + \frac{1}{2} H^2 t^2 \square h_{03}$
12	$4H^2 h_{12} - H^2 t \partial_0 h_{12} - \frac{1}{2} \partial_1 \partial_2 h + \frac{1}{2} H^2 t^2 \square h_{12}$
13	$4H^2 h_{13} - H^2 t \partial_0 h_{13} - \frac{1}{2} \partial_1 \partial_3 h + \frac{1}{2} H^2 t^2 \square h_{13}$
23	$4H^2 h_{23} - H^2 t \partial_0 h_{23} - \frac{1}{2} \partial_2 \partial_3 h + \frac{1}{2} H^2 t^2 \square h_{23}$

$$\delta T = 2H^4 h_{00} t^2 + 3H^2 h + H^2 t \partial_0 h$$

$$J = 0, P = 1, R = -1$$

$$\frac{\eta^{\mu\nu}}{\Omega^2} \delta G_{\mu\nu} =$$

$$2 H^4 t^2 h_{00} + 8 H^2 h$$

00	$2 H^2 h_{00} - \frac{h}{2 t^2} - H^2 t \partial_0 h_{00} - \frac{1}{2 t} \partial_0 h - \frac{1}{2} \partial_0 \partial_0 h + \frac{1}{2} H^2 t^2 \square h_{00}$
11	$4 H^2 h_{11} + \frac{3 h}{2 t^2} - H^2 t \partial_0 h_{11} - \frac{1}{2 t} \partial_0 h - \frac{1}{2} \partial_1 \partial_1 h + \frac{1}{2} H^2 t^2 \square h_{11}$
22	$4 H^2 h_{22} + \frac{3 h}{2 t^2} - H^2 t \partial_0 h_{22} - \frac{1}{2 t} \partial_0 h - \frac{1}{2} \partial_2 \partial_2 h + \frac{1}{2} H^2 t^2 \square h_{22}$
33	$4 H^2 h_{33} + \frac{3 h}{2 t^2} - H^2 t \partial_0 h_{33} - \frac{1}{2 t} \partial_0 h - \frac{1}{2} \partial_3 \partial_3 h + \frac{1}{2} H^2 t^2 \square h_{33}$
01	$3 H^2 h_{01} - H^2 t \partial_0 h_{01} - \frac{1}{2 t} \partial_1 h - \frac{1}{2} \partial_0 \partial_1 h + \frac{1}{2} H^2 t^2 \square h_{01}$
02	$3 H^2 h_{02} - H^2 t \partial_0 h_{02} - \frac{1}{2 t} \partial_2 h - \frac{1}{2} \partial_0 \partial_2 h + \frac{1}{2} H^2 t^2 \square h_{02}$
03	$3 H^2 h_{03} - H^2 t \partial_0 h_{03} - \frac{1}{2 t} \partial_3 h - \frac{1}{2} \partial_0 \partial_3 h + \frac{1}{2} H^2 t^2 \square h_{03}$
12	$4 H^2 h_{12} - H^2 t \partial_0 h_{12} - \frac{1}{2} \partial_1 \partial_2 h + \frac{1}{2} H^2 t^2 \square h_{12}$
13	$4 H^2 h_{13} - H^2 t \partial_0 h_{13} - \frac{1}{2} \partial_1 \partial_3 h + \frac{1}{2} H^2 t^2 \square h_{13}$
23	$4 H^2 h_{23} - H^2 t \partial_0 h_{23} - \frac{1}{2} \partial_2 \partial_3 h + \frac{1}{2} H^2 t^2 \square h_{23}$

Solving for h

$$h = \frac{1}{8 H^2} \delta T - \frac{1}{4} H^2 t^2 h_{00}$$

and substituting into δG_{00}

$$\begin{aligned} \delta T_{00} &= \frac{21}{8} H^2 h_{00} - \frac{1}{16 H^2 t^2} \delta T - \frac{1}{16 H^2 t} \partial_0 \delta T \\ &\quad - \frac{3}{8} H^2 t \partial_0 h_{00} - \frac{1}{16 H^2} \partial_0 \partial_0 \delta T + \frac{1}{8} H^2 t^2 \partial_0 \partial_0 h_{00} + \frac{1}{2} H^2 t^2 \square h_{00} \end{aligned}$$