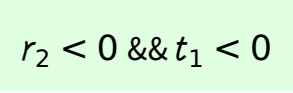


Wave operator and propagator

Quadratic (free) action

$$\begin{aligned}
 S = & \iiint (\frac{1}{6} (2t_1 \omega_{\alpha}^{\alpha} \omega_{,\theta}^{\theta} + 6 f^{\alpha\beta} \tau_{\alpha\beta} + 6 \omega^{\alpha\beta\chi} \sigma_{\alpha\beta\chi} - 4t_1 \omega_{\alpha}^{\theta} \partial_{,\theta} f^{\alpha} + \\
 & 4t_1 \omega_{,\theta}^{\theta} \partial f_{\alpha}^{\alpha} - 2t_1 \partial_{,\theta} f_{\theta}^{\theta} \partial f_{\alpha}^{\alpha} - 24r_3 \partial_{\beta} \omega_{,\theta}^{\theta} \partial_{,\theta} \omega^{\alpha\beta} - \\
 & 2t_1 \partial_{,\theta} f^{\alpha} \partial_{\theta} f_{\alpha}^{\alpha} + 4t_1 \partial f_{\alpha}^{\alpha} \partial_{\theta} f_{,\theta}^{\theta} - 24r_3 \partial_{\alpha} \omega^{\alpha\beta} \partial_{\theta} \omega_{,\beta}^{\theta} + \\
 & 48r_3 \partial_{,\theta} \omega^{\alpha\beta} \partial_{\theta} \omega_{,\beta}^{\theta} - 6t_1 \partial_{\alpha} f_{,\theta}^{\theta} \partial^{\theta} f^{\alpha} - 3t_1 \partial_{\alpha} f_{\theta}^{\theta} \partial^{\theta} f^{\alpha} + \\
 & 3t_1 \partial_{,\theta} f_{\alpha}^{\alpha} \partial^{\theta} f^{\alpha} + 3t_1 \partial_{\theta} f_{,\alpha}^{\alpha} \partial^{\theta} f^{\alpha} + 3t_1 \partial_{\theta} f_{,\alpha}^{\alpha} \partial^{\theta} f^{\alpha} + \\
 & 6t_1 \omega_{\alpha\theta}^{\alpha} (\omega^{\alpha\theta} + 2 \partial^{\theta} f^{\alpha}) + 8r_2 \partial_{\beta} \omega_{\alpha\theta}^{\alpha} \partial^{\theta} \omega^{\alpha\beta} - \\
 & 4r_2 \partial_{\beta} \omega_{\alpha\theta}^{\alpha} \partial^{\theta} \omega^{\alpha\beta} + 4r_2 \partial_{\beta} \omega_{,\theta\alpha}^{\alpha} \partial^{\theta} \omega^{\alpha\beta} - 24r_3 \partial_{\beta} \omega_{,\theta\alpha}^{\alpha} \\
 & \partial^{\theta} \omega^{\alpha\beta} - 2r_2 \partial_{,\theta} \omega_{\alpha\beta}^{\alpha} \partial^{\theta} \omega^{\alpha\beta} + 2r_2 \partial_{\theta} \omega_{\alpha\beta}^{\alpha} \partial^{\theta} \omega^{\alpha\beta} - \\
 & 4r_2 \partial_{\theta} \omega_{\alpha\beta}^{\alpha} \partial^{\theta} \omega^{\alpha\beta})) [t, x, y, z] dz dy dx dt
 \end{aligned}$$

Unitarity conditions



$\omega_1^{\#1} + \alpha\beta$	$-\frac{t_1}{2}$	$-\frac{t_1}{\sqrt{2}}$	$-\frac{ikt_1}{\sqrt{2}}$	0	0	0
$\omega_1^{\#2} + \alpha\beta$	$-\frac{t_1}{\sqrt{2}}$	0	0	0	0	0
$f_1^{\#1} + \alpha\beta$	$\frac{ikt_1}{\sqrt{2}}$	0	0	0	0	0
$\omega_1^{\#1} + \alpha$	0	0	0	$\frac{t_1}{6}$	$\frac{t_1}{3\sqrt{2}}$	$\frac{ikt_1}{3}$
$\omega_1^{\#2} + \alpha$	0	0	0	$\frac{t_1}{3\sqrt{2}}$	$\frac{t_1}{3}$	$\frac{1}{3}i\sqrt{2}kt_1$
$f_1^{\#1} + \alpha$	0	0	0	0	0	0
$f_1^{\#2} + \alpha$	0	0	0	$-\frac{1}{3}ikt_1$	$-\frac{1}{3}i\sqrt{2}kt_1$	$\frac{2k^2t_1}{3}$

[illegible]