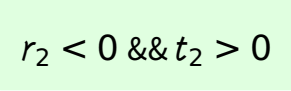


Wave operator and propagator

Quadratic (free) action

$$\begin{aligned}
 S = & \int \int \int \int \left(\frac{1}{6} (6 f^{\alpha\beta} \tau_{\alpha\beta} + 6 \omega^{\alpha\beta\chi} \sigma_{\alpha\beta\chi} + 4 t_2 \omega_{\theta\alpha} \partial^\theta f^{\alpha i} + 2 t_2 \partial_{\alpha f \theta} \partial^\theta f^{\alpha i} - \right. \\
 & t_2 \partial_{\alpha f \theta i} \partial^\theta f^{\alpha i} - t_2 \partial_i f_{\alpha\theta} \partial^\theta f^{\alpha i} + t_2 \partial_{\alpha f} \partial^\theta f^{\alpha i} - \\
 & t_2 \partial_{\theta f} \partial^\theta f^{\alpha i} - 4 t_2 \omega_{\alpha\theta i} (\omega^{\alpha i\theta} + \partial^\theta f^{\alpha i}) + \\
 & 2 t_2 \omega_{\alpha i\theta} (\omega^{\alpha i\theta} + 2 \partial^\theta f^{\alpha i}) + 8 r_2 \partial_{\beta\theta} \omega_{\alpha i\theta} \partial^\theta \omega^{\alpha\beta i} - \\
 & 4 r_2 \partial_{\beta\theta} \omega_{\alpha\theta i} \partial^\theta \omega^{\alpha\beta i} + 4 r_2 \partial_{\beta\theta} \omega_{\theta\alpha} \partial^\theta \omega^{\alpha\beta i} - \\
 & 2 r_2 \partial_{\alpha i} \omega_{\alpha\beta\theta} \partial^\theta \omega^{\alpha\beta i} + 2 r_2 \partial_{\theta\theta} \omega_{\alpha\beta i} \partial^\theta \omega^{\alpha\beta i} - \\
 & 4 r_2 \partial_{\theta\theta} \omega_{\alpha\beta\theta} \partial^\theta \omega^{\alpha\beta i} + 6 r_5 \partial_{\theta\theta} \omega_{\alpha}^{\theta} \partial^\theta \omega_{\alpha}^{\alpha i} - \\
 & 6 r_5 \partial_{\theta\theta} \omega_{\alpha}^{\theta} \partial^\theta \omega_{\alpha}^{\alpha i} - 6 r_5 \partial_{\alpha} \omega^{\alpha i\theta} \partial_{\alpha} \omega_{\theta}^{\theta} + \\
 & 12 r_5 \partial^\theta \omega^{\alpha i} \partial_{\alpha} \omega_{\theta}^{\theta} + 6 r_5 \partial_{\alpha} \omega^{\alpha i\theta} \partial_{\alpha} \omega_{\theta}^{\theta} - \\
 & \left. 12 r_5 \partial^\theta \omega^{\alpha i} \partial_{\alpha} \omega_{\theta}^{\theta} \right) [t, x, y, z] dz dy dx dt
 \end{aligned}$$

Unitarity conditions

[illegible]