Particle spectrograph

Wave operator and propagator

$$\mathcal{S} = \iiiint (\beta\, h_{\alpha\beta}\ h^{\alpha\beta} - \gamma\, h^{\alpha}{}_{\alpha}\ h^{\beta}{}_{\beta} + h^{\alpha\beta}\ \mathcal{T}_{\alpha\beta} + \frac{1}{2}\alpha(\partial_\beta h^{\chi}{}_{\chi}\ \partial^\beta h^{\alpha}{}_{\alpha} + 2\,\partial_\alpha h^{\alpha\beta}\ \partial_\chi h_\beta{}^{\chi} - 2\,\partial^\beta h^{\alpha}{}_{\alpha}\ \partial_\chi h_\beta{}^{\chi} - \partial_\chi h_{\alpha\beta}\ \partial^\chi h^{\alpha\beta}))[t, x, y, z]\, dt\ dz\ dt\ dy\ dt\ dx\ dt$$

(No source constraints)

Massive and massless spectra

(No particles)

Massive particle

Pole residue:	$\frac{2}{\alpha} > 0$
Squaremass:	$\frac{2\beta}{\alpha} > 0$
Spin:	2
Parity:	Even

Massive particle

Poleresidue:	$\frac{\beta^2 - 2\beta\gamma + 4\gamma^2}{\alpha(\beta-\gamma)^2} > 0$
Square mass:	$\frac{\beta(\beta-4\gamma)}{\alpha(\beta-\gamma)} > 0$
Spin:	0
Parity:	Even

Unitarity conditions