

# Particle spectrograph

# Wave operator and propagator

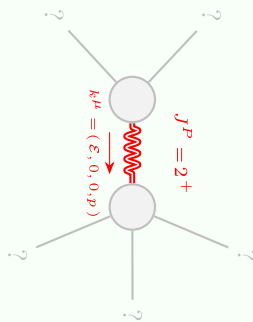
$$S = \iiint (\beta (h_{\alpha\beta} h^{\alpha\beta} - h^\alpha{}_\alpha h^\beta{}_\beta) + h^{\alpha\beta} \mathcal{T}_{\alpha\beta} + \frac{1}{2} \alpha (\partial_\beta h^\chi{}_\chi \partial^\beta h^\alpha{}_\alpha + 2 \partial_\alpha h^{\alpha\beta} \partial_\chi h^\chi{}_\beta - 2 \partial^\beta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

[illegible]

# Massive and massless spectra

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

# Massive particle



(No massless particles)

## Unitarity conditions

$$\alpha < 0 \ \&\& \ \beta < 0$$